

THE BELENE NPP PROJECT –MISSION IMPOSSIBLE?

FINAL REPORT

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*GEOPOLITICAL,
FINANCIAL,
ECONOMIC,
SOCIAL
AND
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CROSS SECTION*

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1. *The Belene NPP project in the context of geopolitical choice*

The geopolitical and geo-economic context of the Belene project has changed in many ways, but at the same time, it has retained some permanent and stable characteristics. Some of them stem from the relationship between civil and military nuclear programs, from the aspirations of military-political alliances to "keep an eye on" the development of nuclear energy not only in member countries but also worldwide. Both in the past and at present, the nuclear programs of the leading countries in both military and civilian fields have been, and remain, closely intertwined both at research and development levels and in various joint and spin off programs. In reality, peaceful nuclear power is a by-product of military nuclear programs—resulting not only from the perspective and the possibilities of nuclear energy for peaceful use, but also from the strong desire to raise additional funding for nuclear research from income generated in nuclear energy. This was true, at least, until recently, while the nuclear arms race fostered pursuit of strategic nuclear superiority in both WMD and in their means of delivery.

Modern projects are no exception, but their geoeconomic context has changed. On the one hand, a reduced level of nuclear confrontation since the Cold War has weakened the pressure on leading countries to invest in research and military nuclear programs. The U.S. nuclear weapons program, for instance, was sharply reduced, and nuclear tests ceased in 1991. Such self-restrictions were adopted by all major nuclear powers. Secondly, the capital intensity of new breakthroughs in nuclear research has increased exponentially, a fact reflected in the admitted or hidden failures of a number of "hopefuls". Examples include the "fast breeder" reactors at Russia's Beloyarskaya NPP (the BH-600); the SPX fast-breeder reactor in France, which closed in 1997 after less than 10 years of intermittent and far from optimal operation; and the various thorium reactors developed in the USA, Russia, India, Germany and Canada. These new realities forced former enemies to share both costs and risks in the development of space and even in nuclear research programs—the latest proof is Bill Gates' decision to team up with the Chinese to build Travelling Wave Reactors (TWRs).

Thanks to real or perceived threats and overriding strategic security considerations in the nuclear arms race, the nuclear power industry thrived during the Cold War period. Currently, however, it appears that neither the USA nor Russia is ready to risk heavy budget spending for the sake of the elusive goal of nuclear strategic superiority and at the expense of ongoing social and economic programs. It is highly indicative of the new Zeitgeist that the majority stake in the leading US nuclear major—Westinghouse—was sold to Toshiba of Japan. This is the most vivid proof that the United States has reshuffled priorities and has ceased treating nuclear research for military or civilian purposes as a top priority. As a result, the nuclear energy industry has had to rely on itself, face a reality check and pass the market test. All this is a clear indication that for the purposes of their global strategic positioning, the U.S. government need not necessarily possess full control over nuclear energy technologies. Today the most active nuclear power programs do not belong to the former superpowers, but to second tier powers like Japan and South Korea. Both countries control the majority of new developments in the nuclear power field, Japan has three national players--Hitachi (in tandem with General Electric), Toshiba (with Westinghouse) and Mitsubishi Heavy Industries.

Any significant shift in the pro-nuclear focus of Japan after Fukushima, especially in combination with the nuclear energy ban in Germany and Italy, will deal a major blow to the future of nuclear power in the world.

A separate issue is the prospect of China becoming a leader in the nuclear energy field due to a long list of new projects and potential export opportunities. At this stage, however, it seems unlikely that China will continue to rely on nuclear energy as the trump card to guarantee power sufficiency for its economic growth, rather than sticking to the mainstream in market trends and industry developments. At present, China's nuclear power plants account for only 7% of electricity output—a figure that will rise only to 15% by 2020 if all capacity currently under construction is completed. New project approvals, meanwhile, have been halted pending a lengthy nuclear safety review. An acute shortage of trained nuclear technicians is also a constraint: to meet its stated nuclear objectives, Beijing needs its schools system to produce 6,000 graduate nuclear experts per year—whereas at present it is barely managing 600. So it seems certain that China will continue its present heavy reliance on coal, especially for its baseload capacity, even if the share of nuclear power in its energy mix eventually rises as high as 20%. And China's striking progress in the field of renewables and a potential shale gas discovery might further impact the role of nuclear power in its energy sector.

To sum up, the global nuclear industry has been left without its main driver, the nuclear arms race. Countries that seemed set to assume the role of nuclear leaders are now less inclined to do so. And the Fukushima disaster has only further aggravated ongoing processes and negative forecasts for nuclear power projects—as too risky, too unpredictable, too expensive.

A look at the Belene NPP project from this perspective can hardly warrant significantly different conclusions with regard to the geopolitical and industry context.

Even a cursory look at the discrete geopolitical context of the Belene NPP and its background in the civilian nuclear program of Russia can establish its close ties with that country's military nuclear program—especially after 2007, when Rosatom took full control over Russia's military nuclear program. Rosatom is at present able to issue its own construction and operational licenses, it owns nuclear power plants abroad and enjoys official representation at Russian embassies. The nuclear weapons complex covers both military Rosatom nuclear centers in Sarov and Snezhinsk, in "Mayak" in Ozersk (which produces weapons-grade plutonium and is run by the firm Elektrokhimpribor), and other key enterprises of the nuclear weapons infrastructure. These companies, which have been Rosatom subsidiaries since 2007, cover a wide range of project design and mass production of nuclear bombs, as well as seaborne reactors, providing services and operation throughout their life cycle.

A majority of the research units that support military and civilian nuclear programs in Russia, also fall under the wing of Rosatom: these deal with both basic and applied research, including the creation of new structural materials and technologies, and with all stages of the nuclear cycle, from raw materials through security systems and new reactors right through to recycling and conservation. Against the background of the intimate relationship between Russia's civilian and military nuclear programs, it can hardly come as a surprise that Bulgaria's key allies in NATO and the EU are keeping a close eye the evolution of old—and the emergence of new—external dependencies among the Central and East European members, especially in the context of plausible conflict scenarios between Russia and NATO. A case in point is a recent statement of President Medvedev that Russia is ready to

increase its nuclear arsenal and to strain relations with NATO if the Alliance does not take account of its interests in anti-missile defense projects. Whether real or perceived, these threats have net current political value and are accounted for in planning, command and control centers and the decision-making process within NATO. Modern Russian foreign and domestic policies give rise to a degree of uncertainty and ambiguity which, taken to the extreme, could be seen as generating ambivalence as to whether Russia is a partner or a rival.

The prevailing atmosphere of secrecy and impunity—a feature inherited from military nuclear programs—can also be traced in civilian nuclear programs. Government ownership of nuclear utilities can make it difficult to ensure the independence of regulators. In countries where private nuclear utilities operate, “regulatory capture”, a phenomenon seen in other regulated industries, undermines public confidence in the industry.

The linkages between military and peaceful nuclear programs remain strong, which explains the concerns of the global nuclear powers and the international community related to the nuclear ambitions of Iran, North Korea, Myanmar and other countries with authoritarian regimes. The potential of such ambitions lies not just in the prospect that they will lead to new security risks—and enhance overall risks at a global level—but in the likelihood that embarking on expensive nuclear schemes at a time of deepening global financial and economic crisis will perpetuate and amplify negative social and economic trends in countries already handicapped by repressive regimes. Nuclear power remains a politically attractive “addiction drug” for many authoritarian regimes, partly because it is expected to yield economic and social benefits and to cover energy needs, but mostly due to regime leaders’ hopes that nuclear power plants will boost their geopolitical status. However the probability and risks of an intentional or accidental explosion of a nuclear weapon in populated areas, which has yet to happen, are still lower than that of a severe accident in a nuclear power plant, as witnessed at Fukushima.

From Bulgaria’s point of view, in fact, the most serious risk may be a political one. Whenever tension over Iran between Russia and the EU and USA rises – whether it is over violations or conflicting interpretations of the UN and EU trade embargo on high technologies and nuclear materials – all Russian nuclear plant sites within the EU become possible objects of scrutiny. This can be a matter of “vulnerability check” (given that nuclear power plants become “sleeping bombs” in the event of war). Or it can be a matter of peaceful retaliation against Russian interests. This is not an abstract hypothesis, but something that has actually happened in the course of *Realpolitik*, as witnessed in the recent controversies at the UN over Russia's attempts to ban the publication of a UN report on Iran’s weapons shipments to Syria, in clear breach of the UN embargo. Until recently, as late as May 27, 2011, Rosatom had a work restriction in the United States and in each case needed special permission of the US Commerce Department. The ban was only lifted to allow direct supply of enriched uranium needed for nuclear fuel production.

And such political “fall-out” from disagreements over Iran could, potentially, have an impact on Bulgaria. This could take the form, for instance, of an EU-imposed embargo on deliveries by companies that have supplied nuclear technologies to Iran—which might affect either Kozloduy NPP’s operations or Belene NPP’s construction. It might even result in pressure for an early closure of the remaining reactors at Kozloduy.

2. *Equator Principles (EP)*

The overfixation on major infrastructure projects, including nuclear power plants, led in some emerging countries to the accumulation of massive foreign debt and adverse consequences – in most instances serious structural and macroeconomic problems, even defaults on foreign debt payments. Equally critical effects were observed on the level of grand corruption, deteriorating trade and payment balances, falling welfare and income levels and high inflation. Considering the key role played in such projects by leading global players—both banks and energy majors—the international community, led by the World Bank and the IFC, succeeded in establishing in 2002 a voluntary compliance mechanism by adopting the so called Equator Principles (EP). These principles today represent a "gold standard" of corporate governance, a voluntary commitment of leading international banks and financial institutions not to engage in projects that do not meet the ten EP principles. These principles largely set out the governance guidelines that top banks and financial institutions should follow when addressing project financing opportunities in emerging markets. The Belene NPP is thus fully covered by the EP, and any international bank, financial institution or energy company that is a signatory to the EP, has committed to full compliance, transparency, audits and reporting as part of its corporate social responsibility program.

In the main document, signed by the founding members of the EP initiative in 2002, the signing parties pledge not to "provide loans for projects where the borrower can not or will not comply with our social and environmental policies in Equator Principles".

In 2006, the Equator Principles were reviewed and updated after lengthy consultations with stakeholders, including governments, clients, business organizations, export credit agencies and interested NGOs. The most recent update is expected shortly following a strategic review report completed in May 2011. The main line of change is related to the understanding that, due to persisting flaws in the field of public governance and corporate governance, the identification and management of project risks is not effective if done solely by financial institutions. Rather, it requires a joint and proactive engagement of both public and non-governmental institutions at international, national and regional level. This implies the establishment and effective functioning of cross-border dialogue between international financial institutions (IFIs) and the governments and national companies in emerging markets, as well as constant and comprehensive communication with various interest groups, including NGOs and affected social groups. The 2011 revision also calls for a broad consensus on the merits and role of independent monitoring, and of internal and external control mechanisms, that ultimately determine the rationale for the EP organization's existence.

One important reason for having the Equator Principles is the quality of the political elites in most emerging countries. These generally lack the skills, track records and institutional arrangements needed to manage large projects themselves. They also often deliberately ignore the long-term negative impact of projects on the economy, ecology and society, in search of immediate benefits, personal enrichment or redistribution of wealth. This has served as a strong incentive for international financial institutions and leading banking

groups to adopt a uniform code of conduct designed to limit the damage politically-motivated grand investment schemes can inflict on sustainable development in emerging economies.

The lack of a balanced approach and deep understanding of project risks usually portends severe economic crises, that in turn augment the "emergencies" portfolio of the IMF and the World Bank, which in its turn leads to additional crisis management resource requirements, including substantial reserves and buffers for emergency response. In this context, the Equator Principles act both as an early warning system and as a powerful lever for IFIs to force changes in emerging markets. They also present a framework for credit risk management in project finance transactions with regard to social and environmental risk identification, assessment and management.

Though taking the form of “voluntary obligations”, and lacking strict enforcement mechanisms, the EPs are nevertheless a potentially powerful influence on banks and companies signed up to them. An EP Steering Committee exists and—though this has so far never happened—a declaration by it that a signatory was non-compliant could have a serious reputational effect. Detailed public demonstration of such non-compliance could be damaging too. So it is worth noting that the Equator Principles apply fully to projects like Belene NPP—and that the Belene project would seem to be compliant with *not a single one* of them.

Let us consider the ten Equator Principles and the criteria and procedures embodied in them:

1. Project review and categorization: This first Equator Principle involves categorization of projects as A, B or C, according to their risk in terms of potentially significant negative effects on the environment and society. The Belene NPP project falls into Category A, the highest risk category, being above USD 10 million and having “potential significant adverse social or environmental impacts that are diverse, irreversible or unprecedented”. Category A projects are subject to special screening, control and reporting procedures, including preliminary review and strictest risk management approval procedures in the respective financial institutions.

The Belene NPP project had not been formally reported for compliance with the Equator Principles by either project initiators, or investment banks, companies or advisors, in spite of clear cut provisions for this in the EP statute.

2. Social and Environmental Assessment (SEA): This principle takes center stage in the analysis and evaluation of each project and represents the principal point of departure in EP compliance assessment procedures. The Equator Principles’ SEA compliance criteria require such assessments to be both timely, independent and comprehensive.

In the case of Belene NPP we have found it impossible to locate a SEA that could meet such rigid criteria. The document which represents the closest approximation to such a study was completed seven years ago and has not been updated since. Moreover, it is a document that no international bank or financial institution could accept as independent and objective, since it was prepared by experts already involved in the Belene NPP project, which constitutes a potential conflict of interest. There is no social and economic benchmark analysis and no accommodation of the radically different and changing global and national economic context, including Bulgaria’s entry into the EU and the consequent EU legal and regulatory framework, which directly impacts major project development. Moreover, there is no update for the SEA in the light of Fukushima.

EP signatory companies and banks have also undertaken not to engage in funding or consulting services for projects in which initiating parties do not produce substantial and independently verified institutional and corporate risk assessment and management systems, as well as additional project management resources appropriate to the scale and character of the proposed project. The EP framework thus covers not only directly involved companies but also third parties—governmental institutions, shareholders, management teams, subcontractors, suppliers—each of which has the individual obligation to produce evidence of disposable resources, procedures, and risk-identification and management systems consistent with the project risks. Neither national power company NEK, the Bulgarian partner in the Belene venture, nor its parent company the Bulgarian Economic Holding (BEH, set up in 2009) have any track record or capacity in assessing, mitigating and managing project risks on a scale anywhere near to that of the NPP Belene project. Indeed, the only obvious precedent is the recently commissioned Tsankov Kamuk Hydroelectric Power Plant (HPP), and it is not an encouraging one. With costs originally estimated at €170 million, this came on stream several years late and €280 million over budget—incidentally implying a cost per megawatt more than double the industry average. Inadequate geological studies led to massive cost overruns on the dam wall, while the project’s bypass road has become notorious as a symbol of unnecessarily high costs. Tsankov Kamuk is an object lesson in the need for the right capacity, procedures and management systems to be in place—especially for a project whose estimated cost is at least 25 times bigger than the original estimate for Tsankov Kamuk.

3. Applicable social and environmental (SE) standards: This is the third Equator Principle, with what is “applicable” varying by class of country. For projects located in non-OECD countries and low- and middle-income OECD countries, the applicable SE standard is that the project meets both IFC Performance Standards and the relevant Industry Specific Environmental and Health Standard (EHS) Guidelines.

For projects in all these categories of country, the Assessment involves establishing that the project guarantees sufficient compliance with relevant host country laws, regulations and permits that pertain to social and environmental matters—and, in Bulgaria’s case, those of the EU—as well as applicable international law on ecology, health and safety. Banks and companies working under the EP are obliged to consider areas of compliance and non-compliance, and to propose mitigating measures in each case. This procedure has not been followed in the case of Belene: neither NEK nor Rosatom was—or is—an EP signatory and neither, at the times when they joined the project, was Germany’s RWE or France’s BNP Paribas. Both of the latter have withdrawn—though without saying whether EP compliance or lack of it was a factor in their decisions.

4. Action Plan and Management System: This fourth Equator Principle covers criteria regarding the availability and suitability of the project action plan and management system. In these, different steps must be ranked in priority order, mitigation mechanisms must be envisaged, early-warning systems provided for and monitoring mechanisms put in place, allowing continuous and sustainable risk-identification and management at different project stages. This principle concerns not only the financing bank and the applicant company, but third parties – subcontractors, institutions and clients – regardless of what they are providing (financial advisory services are included as well as loans). As part of the assessment procedures of the project and the inherent reputational risks, an EP signatory bank or advisor, prior to any project engagement or commitments, must assess the quality and efficiency of the client’s corporate and project management system, including its internal control and reporting

standards, as well as its embedded and acquired capacity to adapt to change.

This has simply not been done in the case of Belene.

5. Consultation and information disclosure: This principle imposes a duty on the financing bank or the advisor to seek assurances that "the government, borrower or third party expert has consulted with project affected communities in a structured and culturally appropriate manner". The financial logic locked up in this principle is that unless there has been effective communication both with the public and with the political elite—government and opposition alike—at the design, development and operations stages, the projected revenues and benefits can be substantially compromised, undermining the initial project rationale. Shortcomings and gaps in the initial phase may have a negative and disproportionate knock-on effect at later stages, leading to cost overruns, delays, higher debt service and risk management costs. In the case of NPP Belene, as a Category A project—i.e. one with significant adverse impacts on affected communities—the involved EP-signatory bank or financial institution must ensure that the project management system provides for prior consultation with the affected communities that is informed (i.e. relevant and understandable) and free of external manipulation and coercion. It must, further, facilitate those communities' adequate and educated participation in this consultation. And, as a result of this consultation, the EP signature must determine, to its own satisfaction, whether a project has adequately incorporated affected communities' concerns.

This principle further makes it mandatory to the EP member party that all the assessment documents, the Action plan and the non-technical summaries are made available to the public by the borrower for a reasonable minimum period in the relevant local language, with proper track records and accounts of the consultation process, concerns and remedies. The Equator Principles for Category A projects stipulate that information disclosure should occur early in the assessment process, and in any event before project construction commences, and should continue on an ongoing basis.

Thus far there is very little evidence that the NPP "Belene" project has met *any* of the above criteria, nor that the borrower – NEK or BEH – has embarked on any meaningful remedial action.

6. Grievance Mechanism Principle: This sixth Equator Principle covers the duty of the signatory to make sure that the borrower has established an efficient grievance mechanism, as part of the management system, operating right from the project's inception through to its entry into operation. This implies operational capacity to receive and process concerns and grievances from the community—individuals and groups—with regard to the project's social and environmental impact performance. In the case of Belene NPP, NEK and BEH should have made sure that not only that the grievance mechanism in place addresses concerns promptly and transparently, but also that access to it is quick, effective and non-discriminatory for all segments of the affected communities. As in all the other Equator Principles, regular compliance reports must be submitted by the borrower to the bank, be it a lender or an advisor.

There is no proof that such reports or procedures have been followed with banks and advisors involved in the Belene project, nor any indication that things have changed with the current advisor, HSBC.

7. Independent Review: Under this seventh Equator Principle, it is a mandatory requirement for Belene NPP as a Category A project that, prior to the involvement of any EP-compliant bank, an independent social or environmental expert, not directly associated with the borrower, should review the Assessment, the Action Plan and the consultation process documentation in order to assist the bank's due diligence and assess the project's EP compliance. These voluntary obligations undertaken by the EP signatory financial institution cover the banks contractual relationship with the borrower (NEK/ BEH), the Bulgarian government, and other third parties—subcontractors, suppliers and service providers, and above all ASE and Rosatom. This *conditio sine qua non* in effect imposes on the bank a duty to make sure that the EP principles are recognized and further complied with by all project parties with the prime responsibility borne by the EP signatory institution.

8. Covenants: This principle is closely associated with compliance review and reporting obligations. For Category A and B projects, the borrower undertakes to comply with applicable host country laws, regulations and permits during design, construction and operation of the project. Therefore, NEK and BEH, as well as the Belene NPP project company, should have provided and should still be providing periodic reports (the frequency and format of these reports should have been negotiated with previous banks and with HSBC, but they must be prepared not less frequently than once per year). Such compliance reports should be prepared by the borrower's in-house staff or by third-party experts. In fact, there have been no such reports.

The eighth principle refers also to the voluntary obligation of the borrower to decommission the project within an agreed decommissioning plan. No such obligation has been undertaken in the case of Belene NPP.

9. Independent Monitoring and Reporting: As a Category A project, NPP Belene is subject to the requirement that the borrower must secure continuous monitoring and reporting throughout the duration of the loan, either by appointing independent environmental and/or social experts or by retaining external experts. No such steps have been taken. Technically the project might not be in breach of this particular EP, since financial closure has not been reached and no loan has been extended. But the situation is anomalous: despite the lack of closure, the project is at an advanced stage and much work has already been completed—including the order and manufacturing of equipment with long lead times. So, most of the independent monitoring and reporting process will need to be done *ex-post*, which runs contrary to the objectives and the spirit of the Equator Principles.

10. EP Financial Institution Reporting: The last EP principle lays down that the EP compliance of a financial institution in its implementation of a project must be independently audited—albeit with the appropriate level of confidentiality. The 2011 Sustainability Report of current advisor HSBC is due in May 2012 and, so far, Belene does not figure in the list of projects to be dealt with in this. Quite why is not clear: HSBC's argument appears to be that the Equator Principles do not apply to banks acting as advisors. Whether HSBC will find this position tenable if audibly challenged remains to be seen. Moreover, in the bank's [2010 Sustainability Report](#) there is clear indication that advisory transactions *have* been “vetted” by HSBC for EP compliance. Only three out of the 24 advisory projects listed in the same report, in the bank's opinion, “do not reference the Equatorial principles” as local law requirements “were considered as acceptable substitute for the IFC performance standards”. Nuclear power projects, although technically governed by national regulatory bodies and although national law might be applied in some cases, are an integral part of, and governed by, the international

law and arbitration process.

<http://www.hsbc.com/1/2/sustainability/sustainable-finance/equator-principles>)

Since Belene is a Category A project, all ten of these principles *should* be observed most stringently. The fact that none of them are requires some obligations on the part of any new financial institution, company or advisor. As most of those involved so far are signatories to the EP, it is plausible to trace some of the non-compliance back to inexperience in assessing and managing project risk on the part of non-signatory parties involved – the Bulgarian Government, NEK/BEH and/or Rosatom/Atomstroyexport as the main contractor. But however that may be, EP compliance will have direct relation to the project’s feasibility and its ability to attract strategic investors and commercial loans.

3. The declining competitiveness of the Russian nuclear energy industry

The geography of nuclear reactors defines the zones of the ongoing geopolitical, military and economic nuclear industry rivalry in the world. Russia sells its reactors to a limited number of countries, not only due to the shrinking of the global nuclear energy market and the limited zone of influence inherited from the Soviet Union, but also due to the crisis in Russia's nuclear industry and its civil nuclear program. Some of the problems are due to the worsening state of Russia's research, production, market logistics and infrastructure networks, but most of the explanation lies in the systemic underfunding of research programs in new technologies, including technological upgrades and nuclear safety. Chronic problems in technology development, project management and control, delays and cost overruns, have not only translated into diminishing competitiveness of Russian reactors compared to those of the industry's new dynamic players – European, Japanese, South Korean and recently Chinese nuclear companies – but have also cast doubt on the prospects of Russia's nuclear industry in the middle and long terms. Russia is still struggling to get its “Generation 3-Plus” reactor into mass production. The VVER-1200 that are intended to be built in Turkey and the Leningradskaya NPP are yet to enter serial production. It is well known that production of a series of reactors leads to cost savings, lower prices, shorter construction times, and higher efficiency which ensures greater reliability and security in operation and maintenance. Plans announced by Rosatom in June 2011 to embark on the design and construction of more efficient and less expensive reactors after 2013—the VVER-TOI project—are an implicit admission of its technological lag and declining competitiveness. The stated indicative targets—price not exceeding 2700 USD/kW installed capacity, simplified design, greater safety, shorter construction times and cheaper construction—in fact map precisely the areas in which Rosatom is at a commercial disadvantage. And these are shortcomings much in evidence in the Belene NPP project—the Belene reactor being, indeed, a “Generation Two” model, albeit one with significant upgrades on the 1992- vintage design.

Rosatom is experiencing increasing difficulties in competing in its prime markets, such as China and India. In the EU, all former Comecon members with Russian reactors, with the notable exception of Bulgaria, have given up any plans for new Russian reactors. The regulator in Finland, the only EU-15 member country which has VVER type reactors, has formally announced that the plans of national energy company Fortum to replace an old Russian reactor with a new one at its Loviisa NPP are not acceptable. Rosatom is bidding with the VVER-1200 for the Temelin NPP third and fourth reactor, using Russian heavy industry giant OMZ's controlling stake in Skoda JSC. The main bet, as with the Kaliningradskaya NPP, is accessing the lucrative German electricity market after the ban on nuclear power.

China's decision to buy a full production license for Westinghouse-Toshiba's AP-1000 reactors will add one more powerful competitor to Rosatom in the Chinese and global market after 2012. Chinese-made nuclear reactors, South Korean reactors and the new reactors produced by France's Areva benefit not only from the latest technological breakthroughs translated quickly into new designs and production lines, but also from superior yet simpler safety and control systems, from greater productivity, and from project management and control systems that are better and more reliable in terms of risk, quality, time and contract

fulfillment. Ultimately this translates into lower reactor prices (South Korean reactors are 25-30% less than Russian ones for comparable installed capacity), lower operational and maintenance costs, and stricter and more efficient nuclear safety and management control systems. Result: these rivals are posing a severe competitive threat to Russia's nuclear industry throughout the world. Except, it seems, in Bulgaria. For Bulgaria has shown both an idiosyncratic approach to investment decisions and remarkable short-sightedness regarding the greater picture in the global and Russian nuclear industry.

For one thing, the normal practice is for decisions on new nuclear reactors to begin with an initial nuclear technology market and demand study, as well as an open and transparent procedure for identifying interested strategic investors and selecting potential technology. Technology selection, however, does not normally precede selection of a strategic investor, in order not to impose a pre-selected technology or financial scheme on that investor. In the case of Belene NPP, this project logic has been compromised: Russian technology was pre-ordained—which is why the project has had so little appeal for Western energy companies.

For another, competition between nuclear reactors defined not only by clear cut technical, economic, environmental and financial criteria, but also by underlying strategic and safety factors, including such determinants as the 'battle of the safety standards'.

Sadly, both Bulgaria's public and its politicians appear to have little grasp of such factors—and, moreover, have failed to learn from past mistakes and recent history. Who is to blame for the premature and under-compensated closure of the smaller reactors at the Kozloduy NPP? An opinion poll, if conducted today, would most probably lay most of the blame at the door of the G-7, the EBRD, the EC and other Western institutions and governments. But the real culprits are a succession of past Bulgarian governments, including the one of Todor Zhivkov, that made the wrong strategic choice in selecting a technology offered by a state in decline and incapable of defending its reactors in economic, political and technological turf wars. While few could blame socialist governments for aligning with the only possible choice of nuclear reactors under the geopolitical set up, even fewer could explain the habit of sticking with the pattern, given the greater choice and the need to secure reactor life time external strategic support. Russia was neither capable nor seemingly willing to stand up for its four 440 MW reactors in Kozloduy.

What are the guarantees that Belene NPP's newer, 1000-MW nuclear reactors will not be closed before the end of their technical lifetime in a new geopolitical exchange between NATO and the EU one one side and Russia on the other? Can Russia today offer any realistic guarantees to that effect to EU member countries that agree to buy Russian nuclear reactors, given the fact that Moscow is absent from most of the decisive internal forums within the EU, the European Parliament, the OECD or NATO, where key decisions regarding the nuclear industry are being taken, including decisions on the safety standards to be applied? How does Bulgaria hedge against the internal political risk in Russia: that future governments will continue to sustain the technological edge of Russian nuclear technology, that they will not choose to develop or engage in adversarial type of relations and thereby be tempted to use economic and trade levers in NATO and EU member countries, including Bulgaria? The above scenario, although remote at this stage, can not be ruled out in any strategic planning, especially over such a long period as the life cycle of a nuclear power plant.

Bulgaria is neither a nuclear reactor manufacturer, nor a member of the Security Council of the UN, to rely on national strategic and political self sufficiency in the nuclear energy sector.

The early closure of the four reactors at Kozloduy NPP was the price Sofia had to pay for belonging to the wrong strategic camp. Even reactors that are potentially competitive from the standpoint of technology and price stand little or no chance of reaching the end of the planned life term if they do not also enjoy predictable and sustainable global support and lack adequate investment in safety and maintenance upgrades in line with changing standards in ecology, efficiency and technology, waste fuel storage and decommissioning.

The privilege of setting and promoting new standards belongs to global technological and market leaders. Not since it launched the Sputnik and put the first man in space has Russia been able to pioneer any new innovation and technological breakthrough and set the global standards in any area of high technology. After the fall of communism and the loss of the CEE market, it has been only a matter of time for Russia to register its retreat in the nuclear energy segment.

In this situation, recent assurances made in public by the top Rosatom officials, that they will “guarantee the safety” of the new Belene NPP should be interpreted as part of a PR exercise and a negotiation tactic, rather than a reliable guarantee.

It is difficult for an outsider to understand the persistent addiction to Russian products of part of the political class in Bulgaria, which has led to self-limitation and self-denial of the new opportunities and greater choices presented to its citizens by the country’s entry into the EU and onto global markets. These tendencies of the Bulgarian political class imply deep institutional and individual deficiencies, coming from past education, mentality, professional experience and traditions of sharing technologies and experience with Russian partners that make change so difficult and resource intensive. However, the responsibility of the ruling elite for changing the country’s course, for opening the country to the best public and corporate governance practices (not denying the Russian option when available), for ensuring sustainable transparency and openness in public decision making, the highest international standards in project management, and best case public-private partnership based on adequate cost-benefit and risk analysis, continues to be the “weak link” in the energy sector’s transition history.

4. The EU and Russia nuclear rivalry – the context for Belene NPP

After long and arduous negotiations, the US and the EU agreed to open up their nuclear energy markets to each other's energy companies. This came at a price both in time and resources. The EU leader – Areva – had to pay almost 250 million dollars and negotiate for three years, meeting all requirements, regulatory criteria and standards, before it was allowed in the US market. The same applied for US companies' entry into the EU nuclear power market. In marked contrast to this, Russia has virtually sealed off its internal market (as well as the markets of its closest allies within the Organization of the Treaty for Collective Security/OTCS) for western nuclear technologies, denying them access to design and construction work on new Russian nuclear plants. This has not been a matter of a formal and explicit decision and there have been some partial and marginal exceptions—for instance, until quite recently Germany Siemens was partnering with Rosatom in nuclear research and design. But with the licensing and regulatory process in the hands of Rosatom, the essential truth is that no significant Western nuclear technology has ever made it onto the Russian or OTCS market and that the chances are still slim.

Reciprocation is inevitable: even laying aside considerations of national sovereignty in nuclear field, the EU energy companies can hardly stand idle while Rosatom is attempting to enter their “home” (EU countries) market. Given the challenges to the global nuclear industry after Fukushima, this rivalry is likely to remain muted in a show of professional solidarity. But as the global nuclear market contracts, competition will inevitably grow and companies like Areva and Siemens will seek to secure the largest possible market shares in their political domain – the EU. Siemens' experience is symptomatic: it attempted a strategic partnership with Rosatom and found it one-sided. The failure of this experiment—and the end of this partnership—marks the end of apparent tolerance of Russian nuclear technologies in the EU until and unless reciprocal access to Russia's internal market is granted.

Which undermines a key assumption of Bulgarian policy. The *idée fixe* of a series of Bulgarian governments has been that the EU would continue to tacitly tolerate an approach that combines Russian reactors with Western security systems or Russian <WESTERN?> supplies of nuclear fuel even after the country's entry into the EU in 2007. This assumption has become invalid with the downturn in the nuclear market and the intensification of the “battle of the nuclear safety standards”. The Bulgarian government has chosen foreign strategic partnership as the best option for securing the life extension of reactors 5 and 6 at Kozloduy NPP, by inviting France's Areva and the Japanese-American Westinghouse-Toshiba, in cooperation with Rosatom to perform the necessary work. But the political control and the resources needed to secure the best terms for this life extension are beyond the monopoly reach of Moscow.

5. Boundaries of national sovereignty in the nuclear field after Fukushima

Theoretically, it remains true that nuclear energy is a territory of national sovereignty. However, for small countries like Bulgaria, and even for leaders such as France, it will become increasingly difficult, if not impossible, after Fukushima to develop their own national programs without the formal or informal consent of their neighbors and without an adequate external legal framework and contractual context for regulation and coordination of risk and response to nuclear accidents. This is not a matter of transitory political perceptions in the wake of a crisis, but rather an inevitable evolution in the public assessment of safety criteria for nuclear energy, driven by negative experiences, discoveries and technological advances.

The new post-Fukushima stress tests, which were agreed, are only the tip of the iceberg of the coming dramatic change and the beginning of a reappraisal process in the nuclear industry as a whole. This process is not limited to stress testing existing reactors, but will eventually result in higher and more rigid requirements and safety standards for new projects, for risk monitoring and warning systems, and for quality of public systems' response to nuclear accidents. Moreover, given the fact that the new "Generation 3-Plus" reactors have the potential for life extensions to 80-120 years, their life time will largely depend on subsequent technology and security systems upgrades, which in turn will be primarily predetermined by the original design and adaptive capacity of the selected technology. In other words, the pressure to "get things right" at the start will be intense.

The importance of a continuous system of reappraisal of the overall socio-economic and ecological impact in line with the progress of work and the changing framework, of an in-depth analysis of critical nuclear risk related junctions in the national physical infrastructure (energy, transport, industrial, social, etc). will inevitably rise over time. The quality and adequacy of accessible public and private resources to deal with the "hot" or critical phase, the effects ex-post of radiation and radioactive contamination take centre stage in the broader out of the nuclear site frame of stress tests. National response systems will also have to accommodate contingency plans to compensate industrial and individual consumers for critical loss of power at peak demand levels and breakdown in the transmission network in multifaceted and synchronized disasters—floods, fires, terrorist acts, earthquakes. Designing such systems is not impossible but comes at a price and at a pace that might prove too slow or unacceptable. Crisis management in worst case scenarios might be prohibitively expensive, time-consuming and—in practical terms—even impossible, since such scenarios would need to take into account the possibility that a nuclear technology accident might occur simultaneously with natural disaster (an earthquake, for instance, or a human originated disaster such as a terrorist attack), and that response systems would need to deal with such occurrences' combined or even mutually reinforcing effects. It is therefore logically expected that current reviews of the nuclear safety standards will not be limited only to new design, safe operation and management standards, but to multivariate modeling scenarios for emergency situations with impacts well beyond the "nuclear island".

The financial costs potentially implied in nuclear disasters are astronomical. Estimates of

direct damage to the Fukushima site, although premature and incomplete, are in the region of \$12 billion (including cost of final decommissioning, but not taking account of additional possible recurrences or new events). However, indirect losses or damage to the economy and the citizens are much larger. These include losses incurred through the collapse of the power system, lost production and associated third party damages, and income not received by companies and families. And estimates of these range between 130 billion and 360 billion dollars. For now.

Such a level of systemic risk and inter-linked damage makes nuclear crisis management challenging at the institutional and corporate level, where stress tests are only the beginning of a long journey. Given the multitude of variables and unknown basic inputs essential in identifying and managing project risks, mostly beyond the control of the Bulgarian government, the energy companies involved and the contractors, it is hard to see how—now or in the near future—any Western financial institution would agree to secure the Belene project financial closure. And, by the time the necessary policy decisions and clarifications have been arrived at, Belene’s technology will have aged further. Current Fukushima accident reports, stress tests and nuclear safety standards reviews will generate specific outlines for design, construction and operation of new nuclear facilities. The extent and depth of changes that might be needed to address new concerns on security of nuclear reactors beyond the nuclear sites and the new approaches to dealing with nuclear crisis management within national and international security systems have yet to emerge.

6. *New security standards after Fukushima*

For economies such as Bulgaria's, even a partial overlay of the effect matrix of Fukushima can generate catastrophic estimates. There is no way that the negative impact of a serious incident at Belene would be confined to the immediate area of the NPP. Inevitably, quite distant regions both inside and outside Bulgaria will also be affected. It is therefore mandatory that impact and risk analysis should cover not only the directly involved companies, institutions and individuals located in the immediate vicinity, but most if not all Bulgarian companies and individuals. Moreover, since the NPP is located at the border, any risks and impact assessment for Belene NPP should, as a minimum, involve neighboring Romania and its emergency reaction and crisis response system.

The G8 Deauville summit held in France in late May 2011 and the meeting of the IAEA held in Paris the following month took decisions to embark on an overhaul of nuclear safety standards which have led to the emergence of new international framework for the global nuclear industry. The mainstream line of critique is directed at the discrepancy between national responsibility for decisions in the nuclear area and the transnational effects of these decisions. Whereas the Fukushima NPP borders on the Pacific ocean, nuclear power plants in Europe—and NPP Belene is no exception—are mostly located in densely populated and border areas, which implies the need for a supranational EU-level regulatory and supervision body. In some sense, the changes will need to be drastic. What remains to be seen is just how radical the conclusions generated by post-Fukushima analysis will be and whether the political resolve to put these conclusions into practice will be in place. In the current situation, with national sovereignty still prevailing in the nuclear field, the IAEA cannot act as a genuine watchdog of the global nuclear industry. It cannot impose mandatory safety checks or control mechanisms, or prescribe remedial actions to national nuclear regulators and operators, unless they agree voluntarily to undertake such actions and to adapt to changes in the stress tests, safety and security systems and development standards of nuclear projects.

Changes in the regulatory framework for nuclear plant operations, however, can hardly be confined to the industry "workshop" – kept within the IAEA, Euratom, nuclear regulators and other specialized agencies. It is likely to expand beyond the "usual suspects" and involve broader public and private representation, including strengthening of independent external monitoring and control over the nuclear regulators and operators. This in turn will require the commitment of political leaders and decision making at supranational level, which has yet to take specific shape.

While the Fukushima disaster inflicted considerable damage, it did not destroy or destabilise Japan's economy, which is the third largest in the world. But for much weaker economies such as Bulgaria's, similar disasters represent a terminal threat. Bulgaria is not able to cope with a crisis anywhere near the magnitude of Fukushima unless it calls upon the security and crisis management resources of NATO and the EU. The threat to national security at this level would allow the famous Article 5 of the NATO treaty to be invoked and trigger action, coordinated by the European Commission.

Stress tests of national response systems should include be not only the immediately available

resources but other exogenous callable resources that affected countries can engage and integrate within their existing national security systems. The process of optimizing the set up and operational costs within an integrated international value chain leads to additional savings, allowing for institutional, technological and financial crisis buffers, as well as related emergency funds, incentive mechanisms, policies and processes at public and corporate level in dealing with emergencies.

Given the state of the global financial and capital markets and the crisis in the dollar and the eurozone, it is highly likely that nuclear safety stress tests will be complemented by stress tests on public finances (buffers and contingency plans) and the institutions relevant to different emergency scenarios (capacity to cope with a financial, economic and a nuclear accident crisis). The World Bank and the IMF have warned all governments to stick to strict budgetary and financial discipline, and not to engage in heavy public spending on long term projects that can lead to a significant internal and private debt with adverse financial, environmental and social effects. Taken separately and as a whole, these factors can seriously erode the resource and reaction base of the Bulgarian government, as well as that of the country's companies and citizens.

Even without a sovereign guarantee, the corporate debt which NEK / BEH, either directly or through off take agreements or guarantees – i.e. commitments on behalf of the consumers – could incur in the Belene NPP project could sink the national energy company. It could equally adversely affect both national and corporate (BEH and NEK) credit ratings and increase general credit interest levels. The expected excess in generating capacities after the entry into operation of Belene NPP, given the expected increase in energy efficiency, the coming into play of the renewable energy and, most of all, the rise of the “prosumer” (the household or business consumer turned producer by virtue of micro-scale renewable capacity and smart grids) will not only negatively impact the operations of existing megapower plants, but also limit their ability to engage substantial investments in technological upgrades, including innovation and transition to higher value-added chain segments in the energy sector – smart grids, efficiency management and decentralized systems. Since the bill of the new Belene NPP is expected to exceed EUR 10 billion, making the company “too big to fail” and presenting fundamental system risk, the government will constantly be forced to resort to covert and overt forms of support or aid at the expense of other producers or the consumers. Some idea of the range of the possible in this area may be gathered from the tacit support that has been given in recent years to NEK itself by Bulgaria's energy regulator at the expense of the other power generation and distribution companies.

7. *Nuclear sector events from an insurance industry perspective*

It is no accident that insurance companies are eagerly awaiting the results of stress tests and the new standards for design, construction and operation of nuclear facilities. The insurance industry is heavily reliant on the new commitments of the respective governments prior to determining its approach when insuring nuclear risks. Actuaries across the world face the impossible task of assessing the impact of the business implications of post-Fukushima political decisions on the commercial operation of existing and new nuclear power projects. Because of the enormity of the risks implied, the global nuclear industry can't handle the nuclear safety risks without state involvement.

The extent to which global insurance markets are able to cope with exponentially growing loss and damage potential claims remains a valid question—and an open one. The level of security and insurance coverage needed to operate a nuclear facility pertains not only to rising risk capital provisions by nuclear operators, but also to relying on greater public financial contingency buffers sufficient to cover damage and loss to third parties beyond the nuclear site.

The yawning gap between public-private insurance pools' coverage and the potential loss and damage inflicted could not be more eloquently displayed than by the Fukushima disaster. The plant's operator Tepco did not have sufficient insurance cover for loss and damage caused by simultaneous earthquakes, tsunamis or volcanic eruptions. The insurance policies were also totally obsolete and irrelevant to the nature and the extent of the disaster, forcing the Japanese government to basically take over crisis management effort. (The Chernobyl NPP was not insured at all for nuclear accident risk, trusting that the state will take in all eventualities, as it did.)

When insurers are unable to cover for all possible scenarios and risk events they resort to selective risk insurance options such as third-party liability in case of an accident caused by improper operation (i.e. professional indemnity of the operator's management), life insurance of the operating company's personnel, insurance of plant and equipment, fuel and waste transportation and storage, etc. The size of the insurance premium and the range of coverage, which can be used to compensate third parties' losses and damages is completely disproportionate: it covers just a token amount of compensation for the damages incurred if the covered events and circumstances occur, allowing for the critical minimum insurance base allowing the reactor to operate. The funds that insurers could tap into in order to pay for remedial action and to secure uninterrupted operation of vital social and economic systems – including rescue operations, hospitals bills, relocations and other primary essentials in nuclear emergencies – are totally inadequate. And this says nothing about the wider costs of helping people, institutions and companies restore their normal lives and cover third parties' liabilities caused by unfulfilled contractual obligations, due to the nuclear accident. Such costs, incidentally, exist not only in the local and regional context but also worldwide: witness the troubles experienced by Japanese car manufacturers and their operations and partners abroad due to the effects of power outages in their Japanese factories.

The gravity of the systemic risk problem forced the Japanese government, like many other governments before, to step in for the insurers and act as an underwriter of last resort and, instead of channeling public money into a private company well above its asset base, to take

over Tepco. According to Japan's 1961 Act on Compensation for Nuclear Damage, the operator of a nuclear facility can not be held responsible for damages caused by its reactor if it was due to "a grave natural disaster of an exceptional character or by an insurrection." This explains why the global insurance industry remained unscathed by the Fukushima disaster and why damages and losses remained covered by emergency relief programs and budget contingencies. Amounts paid out under the insurance policy covering the operator's liability for the plant have amounted to only 120 billion yen (1.4 billion USD), with the government making up the bulk of the funds within the national nuclear insurance pool.

Due to the low probability and high cost of nuclear accidents, evaluation and management of nuclear risks remains problematic. A central role is played by the limited direct liability of the operator: the appearance of fairness is maintained by the "non-discriminatory clause" in nuclear insurance policies (providing for non-discretionary risk coverage for affected persons regardless of nationality, domicile and location), but the practical significance of this is severely restricted by the limits on the operator's liability. In general, without ultimate state guarantees the nuclear industry would simply not have been possible. Market-based commercial insurance coverage of liability for nuclear accidents, without resort to state last resort resources, would have easily crippled any nuclear power project.

The greatest hidden secret of the nuclear industry is that it is made possible only by state sponsorship. In good times profit goes to nuclear companies' shareholders and management. But on rainy days costs are borne by the state, i.e. the taxpayers.

One of the main reasons Germany decided to ban nuclear energy was its inability to find a commercial business model that did not involve massive state support and government exposure to nuclear risk coverage. Since 2002, the German Atomic Energy Act has set the maximum liability insurance of an operator at about 2.5 billion euros, with responsibility for damages exceeding this sum entirely transferred to the federal government. Even though the EU's two largest mutual insurance pools, EMANI and ELINI—acting as leading underwriters and co-insurers—add some mutual-level assistance capacity to national insurance pools, the margin of inadequacy is still a striking one. Capped at 2.5 billion euros in Germany, liabilities are limited to tens or hundreds of millions of euros in the case of most countries. The fact that Bulgaria (unlike the Czech Republic, Hungary and Slovakia) is not a member of either EMANI or ELINI reduces the national nuclear insurance pool's ability to tap into wider resources in the event of a disaster. And all of this contrasts with the scale of potential damages in a major nuclear incident, which could be in the tens of <OR?> hundreds of billions of euros.

In time, indicative amounts for the financial liability limits will increase steadily, with adjustments for inflation or other additional factors. Rising insurance cost levels are already affecting the profitability of nuclear power projects as higher risk premiums erode competitiveness vis-a-vis other energy sources and alternative capital returns.

Worst-case nuclear incident costs are so huge that it is impossible for the global private insurance industry to carry the size of the risk, while the premium cost of full insurance would simply render nuclear energy uneconomic, even without fully accounting for decommissioning, waste storage and management costs, which are also swelling.

The international nuclear liability regime is covered by two international conventions: the OECD Paris Convention of 1960 (most recently amended in 2004) and the UN Vienna

Convention of 1963 (as amended in 1997). Despite international nuclear incidents and this international legal framework, however, the applicable jurisdiction is national. The rule is that the courts in the country where the incident happens shall take charge. Minimum third-party liability levels are transposed from the Paris and Vienna Conventions into national law covenants, but there are great variations in the amount of country specific coverage in developed and emerging markets—and indeed even within these risk categories. Even though nuclear incidents potentially have an impact well beyond national borders, jurisdiction rests with the courts in the country in which the incident took place, neither the Paris nor the Vienna Convention envisages recourse to international courts in the event of an incident.

Annual nuclear third-party liability of the Kozloduy NPP operator, contracted annually, does not exceed BGN 96 million (around 50 million euros). After Fukushima such levels can easily be seen as well below the relevant standards set by the Vienna and Paris Conventions, or by the respective National Nuclear Risk Insurance Pools in the UK, Germany, Switzerland, France, etc. And it is these unaccounted operational costs that explain in part Kozloduy's low electricity prices and high profit margins. This is the implicit price paid by each country for decisions to allow construction and operation of nuclear power units.

All major public infrastructures are largely made possible by the base-level support role of the state in covering associated systemic and operational risks. Nuclear facility operations, however, pose disproportionately greater, more complicated and ultimately unquantifiable economic, financial, environment and social risks, when compared to any other physical infrastructure.

8. Why is the Belene NPP project a litmus test for the “civilization choice” of Bulgaria?

The Belene NPP project looms large over the economic landscape in Bulgaria in terms of potential consequences and impact. It is unlikely that only Bulgarian analysts will note that, at 10 billion euros, the direct and indirect project costs of the new nuclear reactors are roughly equal to the total amount of national co-financing, at both central and local government level, that would need to be secured to guarantee maximum absorption of the EU structural and cohesion funds available up to 2020. And there is a significant difference. In the latter case, each euro invested in co-financing EU funded programs attracts three to eight euros from different funds. But in the case of Belene, the project would represent a net drain of financial assets. Out of 10 euros spent on the project (including debt repayment) not more than three would remain with local beneficiaries. Most would go to Russia and other countries.

And Russia's gains would not only be financial. As argued in a perceptive article by analyst Atanas Georgiev in the *European Energy Review* last November, Belene NPP represents an attempt by Moscow to build a forepost for further business and political inroads into Bulgaria and the region.

The Belene project represents a geopolitical highway into Bulgaria not only because of the sheer number of Russian experts and citizens that would be involved, but because of the opportunities it presents for transferring political, social and business practices typical of Russia. These would help amplify and sustain the chronic deficiencies of Bulgaria's post-Communist transition, undermining the country's capacity for integration both in local, regional and EU and global context, at both institutional and corporate levels. It has been reported in the media that since October 2010, Rosatom and ASE have been funding a national media and PR campaign trying to raise public and expert support for the Belene NPP project. The press has been full of reports of veiled threats to government officials and induced reshuffles at senior positions, exerting pressure to cut down the time to be spent on a full and diligent analysis of costs, benefits and risks. A forceful media and political campaign has been pursued to inculcate the belief that the project is a foregone conclusion, beyond the point of reversal, eroding domestic and international public trust that the Government is genuine in asserting that it seeks a careful and balanced approach to all options open.

If similar media and PR campaigns, financed through corporate channels, make an impact on decision makers, then a legitimate concern will arise: namely, that foreign entities are able to affect and shape the behavior and the policies of the Bulgarian Government – on a scale that supersedes the ability of local taxpayers and voters to determine the national economic and political agenda. Similar concerns might well have contributed to the exasperation of Bulgarian Foreign Minister Nikolay Mladenov, when, last April, he described the NEK chief's signing of a Belene protocol without ministerial permission as “a crime against national security”. Later he qualified his statement, but the general concern has remained that, while nominally Bulgaria will continue to participate in the EU and NATO, its powers of autonomous decision will always be in practice largely hostage to the Soviet era and new business dependencies.

It is hardly reassuring that Bulgarian top officials often echo statements and comments generated previously by representatives of Rosatom, ASE or the Russian government. Nor when senior Russian diplomats and officials voice categorical assurance in public that the Belene NPP will be completed.

Belene is a Rubicon for the future of Bulgaria and a maturity test for national self-determination, not defined on a residual principle—as the best of bad options available—but as understanding that our own constraints and choices are an integral part of belonging to the networks of our new alliances.

Bulgaria's Western partners are looking on the Belene project as an acid test of the country's self-confidence and emancipation in its relations with Russia, and of Bulgaria's ability to design and implement European common foreign policy vis-a-vis our former patron.

9. Why is the Belene project impossible as a European project and possible only as a Russian one?

Since its inception, the Belene project has constantly suffered from a lack of project development and management capacity, and of corporate and institutional project expertise, that has translated into an almost uninterrupted chain of flaws and problems. In many ways, the new NPP project was conceived and promoted as a ‘political business’ project – its last reboot in 2003 was not so much the end result of elaborate analysis and market studies of the costs and benefits, but rather an instinctive reaction to make up for the four lost reactors at Kozloduy. Over the years little has been done to beef up project management capacity and expertise, introduce proper project development models or invite a strategic investor at an appropriately early stage.

Nuclear and other major infrastructure projects follow a certain logical sequence in project evolution from the conceptual phase to implementation. Regardless of political motivation, such projects inevitably end up being public-private partnerships as the state plays a pivotal role in the very existence of the nuclear power industry. However, no western government will push a nuclear power plant project without a sound economic, financial and environmental feasibility analysis. If banks and strategic companies do not find sufficient evidence that the NPP will generate enough income to repay debts, governments can invoke political considerations – arguing that the project is “vital for national energy security” – and supplement commercial funding with sovereign guarantees or direct budget funding. But it is increasingly rare to appeal to significant, sustainable and long-term public interest as an excuse to bend energy market standards and favor nuclear energy at the expense of other sources. State aid rules apply to nuclear energy projects just as much as they do to non-nuclear.

In authoritarian regimes, by contrast, decisions are taken first at the political or strategic level—that of the Government or State—and then passed on to the Executive branch and the respective state energy companies for implementation. Pro-forma market testing and feasibility studies then follow, but are largely meant to confirm the rationale in the political decision. Replacement of the Bulgarian state owned energy monopoly with a foreign state owned energy monopoly makes no sense on a political or economic level. But it does correspond to the interests of various powerful groups and serves as a powerful motive for action by them.

10. Why are we unlikely to see a Western strategic investor in the Belene NPP?

The standard pattern of project development involves sequencing and interrelating project development stages, building up the conceptual and research base and the project management and control systems, the use of independent advisory services (to avoid conflicts of interest), and performance of the full range of preliminary and basic analyses and studies (legal, market, environmental, financial, economic, technology and risk), including design, strategy and an Action Plan, in order to allow for the coordination of ends and means. This applies to most if not all project development stages. In Belene's case, by contrast, the predetermined choice of technology, main contractor and suppliers, architect-engineer and other key figures helped trigger an unpredictable chain effect that has brought about the current stalemate.

Let's put ourselves, for a moment, in the position of a Western strategic investor or investment bank.

We have no choice but to accept in good faith, without qualification or second opinion, all decisions, all contracts and all commitments made by NEK so far without hope of reversal or renegotiation. The technology is selected, some of the equipment and the reactors are ordered, and in effect the EPC contract is a just a whisker away from final signature. Banks and investors have also to assess the project management capacity, the quality of reporting, accounting, control and monitoring mechanism, risk mitigation plan, etc, with a view to putting a case for involvement in the project which will stand up to the scrutiny of the Board of the bank/company, of its shareholders and, last but not least, of the market. The most the strategic investor or bank could hope for is to have a say in the project management process during construction and operation. On offer are a minority stake and the bulk of the financing and the investment risk. And although the process involved after commitment is supposed to be business oriented, its is blindingly obvious to you that the project is subject to strong geopolitical undercurrents that will limit your ability to adapt to change and seek the best economic and market solutions. What choice do you have? Effectively you are being told: "Give us your money now, please, and then don't ask questions."

The project to this day does not have clear-cut and independently verified studies on the project's profitability and feasibility, and the demand for its energy output. Indeed, if such studies had existed, they would need to be radically revised now. Global capital and financial markets are shaking, the external and internal political and economic background is unstable, talk and creeping evidence of yet another crisis keep coming in new forms and dimensions. In short, the global context is vague and negative, at best, not conducive to long-term decisions.

The project data available is mostly outdated, technical design still has to accommodate the latest safety standards before been green-lighted by the regulator, in 2013 at the earliest. Relations between the main contractor and your partner/client are strained, with both the Russian and Bulgarian governments watching developments closely and ready to step in as needed – making the political risk immense and difficult to predict or control. There is alarmingly little information on the progress of plant and equipment production as ASE and

Rosatom tend to deliberately withhold most information in view of pending litigation in court.

It will take no time for strategic investors or a bank to find out that the project initiating company – NEK – has neither a track record in running and managing projects of a similar scale, nor the capacity to engage and coordinate a very elaborate and complex network of contractual and institutional relations. There is no guarantee of sales – no offtake contracts – yet work has started. There are no effective law enforcement and judicial systems, no guarantee of timely and just dispute settlement – factors that are an indispensable part of a project’s life.

The environmental impact study was finalised in early 2004, is subject to serious questions and, at minimum, needs an update. Communications with, and mechanisms for disclosing information to, the public and the affected parties are in an embryonic state. Environmental concerns are rising in the aftermath of Fukushima. There is nothing to assure you, as banker or strategic investor, that either the initiating company or the main contractor understands the seriousness of the environmental concerns, nor of the remedial actions and mitigation policies that need to be put in place.

A cursory look at the media will show that the most critical data on the project are kept secret, where normal practice dictates that society needs to be duly and adequately informed of project progress, regardless of political convenience, with a view to securing a working public consensus on the rationale of the nuclear power plant,

Furthermore, as a listed company or bank, you have to provide sufficient—and sufficiently timely—information to your shareholders on the expected costs and benefits of the projects, as well as the investment strategy involved.

A few more details can be added to the picture—not necessarily negative, but certainly unclear. You can see or feel that major decisions are being made in strange formats and under external pressures, rather than in bona fide confidential talks between partners. There’s a persistent feeling is that an invisible hand guides the actions of your partners, often dictating actions that do not correspond with their stated positions.

Furthermore, you see that the input data lacks credibility. The project’s rationale—the reason for investing billions of euros in covering a potential critical gap in energy supplies—still rests on the demand forecast of NEK done prior to the restart of the project, which is simply no longer valid. The demand forecast contained in the country’s new Energy Strategy is more recent (the Strategy was approved in mid-2011), but this cannot be used as a baseline assumption either. It is not independent and neither the Ministry of Energy nor the energy companies involved in putting the Strategy together have a reputation for professional market and consumption modeling and expertise. Forecasts are only as good to the extent that banks and strategic investors are ready to accept and trust them. Financial advisers are usually not engaged in consolidating databases on energy consumption. To avoid potential conflicts of interest, they use the professional data of specialized companies and institutions. Even with sophisticated financial modeling software and a sufficient, reliable and consistent database, final recommendations depend a lot on sensitivity analyses and project-specific parameters. Without incorporating country- and project-weighted global and regional industry benchmarks, including economic growth projections until 2030, it is impossible to reach a final judgment on whether to proceed or engage. Ex-post analyses of alternative technologies and consumption trends might seem a little late at this stage of the Belene project—though

they would show, for instance, that technological progress and energy efficiency has meant a far slower growth of energy consumption than envisaged in the original NEK study. But there is a serious void of information. Every strategic investor, prior to engaging, will seek to benchmark his investment against a second-best alternative in similar scale projects for returns and risks. There is no major difference between private investor motivations and those of strategic investors that ultimately borrow money to accomplish a business task.

The question remains valid: if this were your personal money, would you want to invest it in such projects or provide off-take guarantees to strategic investors? It is not the current government that will ultimately bear the debt burden and the investment risk, but the shareholders, the consumers and the taxpayers for many years to come.

11. The Belene NPP restricts freedom of choice of future generations

Global trends in power generation decentralization, if consistent, should lead to a more prominent role for smart energy networks, shifting the energy balance from macro to micro level management. The current transitional state and uncertainties of global energy markets, with the multitude of variables and possible scenarios that they entail, do not suggest that this is a time for rigid, once-and-for-all decisions whose long-term impacts are hard to predict. Trying to outwit future generations, limit their ability to pick the best cost-benefit solutions for their energy mix, and fundamentally constrain the resource base at their disposal for adapting to a rapidly changing environment, is surely a pretentious and risky strategy.

The new energy strategies of the leading EU countries take into account the emergence of the so-called “prosumer”—the consumer turned producer—in balancing energy systems at micro level. Such processes do not leave much room for substantial new nuclear capacity. The Belene NPP’s expected debt levels could negatively reflect on the credit terms that will be available for the Bulgarian energy sector and for industry as a whole. Instead of improving the elasticity and security of the energy system, megaprojects like Belene NPP act as “vacuum bombs”, draining from alternative producers (including nuclear ones) and consumers investment and resources that could otherwise be spent on technological upgrades and increased competitiveness.

Future generations will be forced to repay inherited Belene NPP debts and to honor commitments made by the current government prior to focusing on the fresh opportunities and technological breakthroughs that time gives birth to. The principle of keeping choices open for the best available solution must surely lie at the core of the welfare and the competitive advantages of any nation targeting a low-carbon or green economy. The future is always smarter, or at least better informed, than the present. Building large scale nuclear power generation is a throwback to an earlier age. Leading economies—the U.S., Germany, Japan, Italy, Sweden, Norway, Holland, Denmark, China, etc—have opted for a major technological overhaul of their economic base and the energy sector, tracing the path to a radically different “greener” and smarter economy. For modern economies, the transition away from nuclear and fossil fuel energy, at least in its current forms, represents a springboard for a new technological revolution and a prescription for global leadership and structurally advanced economic growth. Given time, institutions, business and citizens in these countries will translate their common vision into higher living standards and a more diversified value chain.

12. The case for Belene: five invalid arguments

This paper has presented a variety of arguments against the Belene NPP project. It has been argued that the project is geopolitically inept, perpetuating Bulgaria's links to a state whose nuclear industry is on the wane and making it vulnerable to conflict between blocs. It has also been shown that the project ignores international best practices, as embodied in the Equator Principles. It has further been suggested that the global post-Fukushima re-think of nuclear power seriously strengthens the case against Belene, at minimum increasing the likely costs and quite possibly rendering it downright unacceptable on grounds of the costs of a possible disaster. It has also been argued that the project makes no sense in terms of electricity demand and runs counter to progressive trends operating in the world's energy sector. Finally, it has been suggested that the project is unbankable in a conventional sense, could be probably be implemented only with Russian state finance, and would make Bulgaria's energy sector vulnerable to Russian inroads even if Belene NPP were somehow completed with a majority share still in Bulgarian hands.

Now, however, it is time to consider some of the arguments for the project. There are basically five of these, and they have one thing in common. They don't hold water.

Argument 1: Belene NPP will boost economic growth and create jobs

Since a socio-economic impact study is one of the many studies that should have been done for Belene but have not, a certain tentativeness is indicated in dealing with the question of economic benefits. However, it can plausibly be argued that such benefits will not be very significant, on several grounds.

First, the project's supporters often cite the creation of 12,000 new jobs as a core benefit. This seems a rather expensive job-creation scheme: with a project price-tag of around 10 billion euros, ultimately to be paid by consumers and taxpayers, it implies a cost per job of over 830,000 euros! The reason is simple: most of the money spent will generate welfare and jobs, not in Bulgaria, but in Russia and other countries.

Second, even these 12,000 posts will not be such good news as they might seem. Jobs created by the Belene NPP are not likely to have a sustainable effect on employment and skill levels, and few of them would have the cross-border or cross-industry convertibility and mobility that would result in sustainable added value for local human capital. Due to the specific job profile, employees at a Bulgarian nuclear power plant using Russian technology cannot expect to find alternative employment in their field of expertise either in Russian nuclear power plants or in NPPs that use Russian reactors in third countries, since such plants do not recruit expats. By contrast, in plants that use western technology, knowledge, experience and skills, workers and management enjoy greater mobility with higher return on local human capital.

A parallel can be drawn with the respective situations of pilots flying Russian Tu-154s and those in Airbus or Boeing aircraft. The former are not to be envied: the few remaining (and shrinking) markets for their services are countries in Africa, the Middle East and Asia, where pay is low and conditions poor. Their colleagues on Western aircraft have access and opportunities to work around the world and on much better terms. This illustrates the long-term effect of technological choices: very often they predetermine the added-value margin in human capital, not only for those employed today, but also for the next generation of employees. As it is in aerospace, so it is also in the nuclear industry. The proof of this interdependence can be found in the fortune of the workforce of the smaller reactors of Kozloduy NPP, who stand little chance of finding job with other nuclear operators elsewhere in Europe.

Third, the employment effects apart from permanent jobs at Belene itself are not impressive either. The construction jobs involved in the project will be relatively short-lived and have low added value. Cross-sector and cross-regional multipliers will be negligible. There will be virtually no spin-off effect on research, development, innovation and other science intensive areas. And no offset arrangements are involved in the project.

Fourth, the macroeconomic effects of the project will mostly be negative. It is naïve to assert that, since there will be no additional investment from NEK in Belene NPP, we need not worry about the larger role of Rosatom in the project. If the project goes ahead, several generations of Bulgarian taxpayers and consumers will have to cover the bill over a period of decades.

The country's debt situation will also suffer. This is a serious matter, since the current low ratio of public debt to GDP—and the good credit rating resulting from it—are hard-won

assets, the result of 14 years' consistent and rigorous policies, sacrifices and fiscal discipline under governments of all political hues. All this could be compromised for the sake of a single project. Implementing Belene could be expected to generate a total of 6.5 billion euros of new private external debt, related to the project itself, its financial cost, its infrastructure, additional security, insurance, decommissioning, waste and fuel storage depots, etc. That would be a very significant addition to Bulgaria's existing level of long-term private external debt and would have an "oxygen bomb" effect, since it would not only force up interest rates for further debt but also suck liquidity from the market, given that most financial flows would go to debt service rather than investment and technology upgrades. And Bulgaria's currency board, which has served the country well for a decade and a half, would be no protection whatever against such effects.

The best that can be said for Belene NPP, macroeconomically, is that, during the years when construction work is most intensive, the massive capital injection it represents would probably boost GDP by 0.5-0.7% on average for the years of intensive construction work. Simultaneously, however, it is likely to contribute to worsening current account and trade balances. Bulgaria's trade deficit with Russia is already huge, having risen in the last two years from EUR 590 million to more than EUR 1 billion due to higher energy prices. In the project's peak construction years, Belene might boost that trade deficit by as much as EUR 2 billion.

At the same time, the project promises no reciprocal increase in Bulgaria exports of goods or services to Russia. No Bulgarian company has received any business in Russia as a result of it, though some have tried: the last failed attempt was related to potential participation of a Bulgarian construction in building the Beloyarskaya NPP. And to my knowledge there are no Bulgarian companies engaged as subcontractors or suppliers in the multibillion-dollar projects connected with the Winter Olympics to be held in the Russian resort of Sochi in 2014.

Despite all the good-will gestures on the Bulgarian side, despite Russian firms' success in winning business in the Bulgarian market, despite the energy "Grand Slam" involved in Bulgaria's signing of the Belene, Burgas-Alexandroupolis and South Stream in late 2006—despite all this, Russia remains closed to Bulgarian business. This goes for contracts and projects alike. Bulgaria does not receive equal and reciprocal treatment. Bulgarian business interests in the Russian market are often undermined through the active assistance or inaction of the Russian authorities: for instance, offset agreements in the late 1990s with Gazprom and Rosatom, providing that between 10% and 50% of the gas and nuclear fuel delivered would be paid for by Bulgarian goods and services, simply had no effect. Bulgaria's "close historic ties" with Russia and the "mutual sympathies" felt by the two peoples fail to translate into any concrete business advantage (at any rate for Bulgaria). Nor do they produce the pragmatic and substantive bilateral and balanced business exchanges that characterise Russia's relations with other Central and Southeast European countries—including some which have historical reservations about Russia. For instance, Rosatom has yet to benefit from its multi-billion dollar NPP projects in Turkey, whereas Turkish companies have a long history of trade and business with Russia—achieving annual exports of more than \$15 billion, not to mention construction contracts worth billions in key infrastructure projects in Russia.

Argument 2: We must build our NPP before Turkey builds its Russian nuclear reactors

Project and business managers in general—especially those in high-cost, high-risk projects—often use sport techniques to tackle multiple challenges and compete. In this case, Bulgaria is said to be “in a race” with neighbouring Turkey to get Russian reactors built, a race that Bulgaria must win. As often, however, sporting parallels are misleading. In this case, there are two problems:

- First, it is presupposed that this is a race worth winning, i.e. that more nuclear energy equals better and more efficient energy supply. Arguments set out above suggest that, in Bulgaria’s case, it is not—even though more intelligent handling of the projects by Ankara means that, in Turkey’s case, it may well be.
- Second, it is also presupposed that this is a race that can be won. It almost certainly cannot: Turkey’s canny approach means that its projects are well-nigh bound to be finished first.

Contrast the two countries’ approaches. Turkey is planning to build nuclear power units and operate them with companies not only from Russia but also from South Korea and Japan, thus diversifying and mitigating political, technological and business risks. The plants will also be supplied with nuclear fuel from more than one source. In Bulgaria, however, Russia will be a monopolist in the supply of nuclear technology and fuel. Moreover, having designed and constructed all of Bulgaria’s nuclear reactors, it will have a monopoly in servicing and spare parts supply as well. Bulgaria will thus be vulnerable in ways that Turkey is not.

Moreover, Turkey has negotiated its contracts skilfully. In these, Rosatom has entered into a build, operate and transfer (BOT) contract involving 51% ownership and the obligation to find another investor for the remaining 49% stake: in contrast to Bulgaria’s situation, finding an investor is Russia’s problem, not Turkey’s. Furthermore, the Turkish side has power-purchase rights and obligations (for 70% of the electricity produced by some reactors and 100% in the case of others) in the event that all construction, financing and execution deadlines and all safety and security standards are satisfied. If the Russians are late or their work is substandard, they—not the Turks—are in trouble.

Which is not just a theoretical possibility: something similar has actually happened in the past, in the case of the Blue Stream gas pipeline across the Black Sea. And it is a story worth recalling.

Back in the 1990s, Turkish decision-makers confidently informed Gazprom that the Turkish gas market would grow exponentially due to the high economic growth rates expected in the country. It would need 50 billion cubic meters (bcm) of natural gas imports by 2010 and 80 bcm by 2020, they said. Based on these forecasts and assertions, Gazprom contemplated the strategic move of bypassing Ukraine and the Balkans by building a “short-cut” pipeline across the Black Sea to secure the promising Turkish market for itself. In addition, strategic considerations were brought forward of cutting the access alternative (Caspian, Middle Eastern and North African) gas suppliers to the European market through Turkey, by “inundating” Turkey with Russian gas. As a result, “Blue Stream 1” was built: inaugurated in November 2005 with an annual projected capacity of 16 bcm.

However, the assumed prospect of huge gas sales was so tempting for Russian leaders that Gazprom in 2002 started preparations to build “Blue Stream 2” (another 16 bcm) long before

finishing construction of the first section. For the underwater section of the pipeline—that is, the most difficult and expensive part—Gazprom indirectly undertook the whole risk and ensured all the investment funds needed, with the Turkish side needing to do nothing except deal with the relatively small and unproblematic portion of the pipeline that was on Turkish soil. Funding was provided either directly by Gazprom or through securitization of future natural gas supplies. Meanwhile, Italy's Eni received promised access to the lucrative Arkhangelsk gas field in Northern Russia, which was targeted as a source of gas for Blue Stream 2.

However, work proceeded slower than plan. And, a few months before the pipeline was due to go into operation, the Turkish side—perfectly aware that Gazprom would not be able to meet the deadline—issued a stern warning that, in the event of project delay, it would retain the right to revise the terms of the contract and renegotiate prices and quantities. Several months after the deadline, the pipeline was finally completed, tested and ready for deliveries. Whereupon, Turkey refused to accept Russian natural gas until Gazprom agreed to its new terms. This Gazprom did, since it had no choice.

The outcome showed that Ankara had made the better strategic judgement and outplayed Moscow. One reason it succeeded in this was that it did not desperately need Blue Stream. The project just fitted well into Turkey's concept of becoming a strategic hub in the distribution of energy flows. And, to this day, Blue Stream operates at only 50% of capacity.

An almost identical scheme may be witnessed at the NPP which the Russians are building near the Turkish city of Mersin. The contract provides that any delay in completion can result in renegotiation of off-take quantities and prices by Turkey. As with Belene NPP, loans for the Mersin project are guaranteed by the Russian state. However, the final word on terms and conditions of electricity sales and safety standards compliance rests with the Turkish Government and the country's regulator. The most important difference between the NPPs in Bulgaria and Turkey is that neither Gazprom nor Rosatom has substantial leverage over the decisions of the Turkish government or Parliament.

So the racing analogy is not appropriate. In normal circumstances, news that your neighbor is planning to build nuclear generating capacity that will compete with your own would surely make you think twice about your export prospects—especially if, as with Belene, exports are the main rationale for building such capacity. However, in some Bulgarian political circles the news triggered strange and inexplicable racing instincts that make no economic, political or financial sense. In real sports, athletes take risks to please spectators. In the case of Bulgaria's business "athletes", however, it is the spectators—Bulgaria's taxpayers and consumers—that take the risks while the participants indulge their racing instincts.

Argument 3: The fixed price, deadline and penalties specified in the contract ensure Belene NPP will be built on time

In large projects, confidence in the terms laid down in a contract is simply naïve. No EPC or construction contract in the world specifying a fixed price and a fixed completion date can guarantee that there will not be a price adjustment and or deadline extension, regardless of penalties. And virtually no nuclear power plant has ever been built on schedule.

Think how difficult it is even today to halt the Belene NPP project or reconsider its rationale, when the investment that we would write off by doing is at most 1 billion Euros, and in fact probably a good deal less. Now imagine how much bargaining power Bulgaria and NEK/BEH would have if that “sunken costs” figure had reached two, three or four billion Euros. Suppose, then, that the contractor requested additional funding or additional investment—and there are all manner of reasons and scenarios that might prompt such a request. Refusal would not be an option: the only option would be to approach the project’s original funding source—Russian state companies and banks. And the higher the debt, the greater would be the funding institution’s leverage over the assets and the future operations of the NPP. Any project delay at such high debt levels would put the client (NEK/BEH) under enormous strain, given that parallel investments in support and transmission infrastructure would be underway and debt-service costs would be rising. Contracts for electricity sale at home or abroad would also be at stake. There would be no real alternative to granting the contractor’s request, incurring more debt to cover it, and letting the losses be absorbed by NEK, whether as Belene majority shareholder or as electricity trader.

Certainly litigation would not be a realistic option. True, when it failed to bring the Maritsa Iztok 1 Thermal Power Plant on line as scheduled, the American firm AES had to pay substantial penalties for electric power not delivered to NEK. But, while theoretically possible in the case of Belene, litigation or arbitration would be too slow to solve NEK’s by then urgent financial problems. Moreover, it would almost certainly be unsuccessful. Bulgarian firms and institutions do not have an impressive track record of active and successful defence of their legal rights against Russian energy companies. Nor does Bulgaria have a tradition of systematic and coherent public-private consensus and alliances in protection of civil and commercial cases in disputes with Russian companies or institutions. And the last two decades are littered with cases in which litigation has been ineffective, including:

- The failed attempts to revive liquidation quota rights after the winding up of COMECON;
- The history of strained relations within the COMECON-linked International Investment Bank and International Bank for Economic Cooperation (both based in Moscow);
- The court saga after the July 2011 customs decision to cancel the excise warehouse license of Russian-owned refinery Lukoil Neftochim;
- The Russian ownership claims on Bulgarian national tobacco firm Bulgartabac;
- The history of the “mutual recognition” of the legal status of diplomatic properties (in which the Russian side took full advantage of the Bulgarian court system to settle its legal claims, while Russian courts would not budge without the say-so of the Russian state); and
- The question of the deposit lodged by Russia’s RAO UES in connection with the privatization of Bulgaria’s Varna TPP.

The last is probably the most flagrant of all. Having won the privatization tender, RAO UES failed to come up with the purchase price within the necessary time frame. The Russians' deposit (bid bond) should then have been forfeit, but was in the end returned to them. And this was the outcome of diplomatic pressure rather than legal process. If the Bulgarian government finds it difficult to retain a deposit of just 5 million euros, how likely are Bulgarian institutions or firms likely to be when tens or hundreds of millions are at stake in penalties or damages? While not impossible, the necessary surge of independence and determination does not seem very likely.

Recent developments, indeed, suggest that the old reflexes still exist in high places. In April 2011, NEK CEO Krasimir Purvanov ignored an order from his supervising minister and signed a protocol on continuing the Belene project, apparently trying to appease Rosatom and avoid future claims on its part—even though such claims had been neither formally nor informally tabled. This is abnormal corporate behaviour for a top manager. In normal commercial relations, corporate executives always bear in mind the possibility that the other side will default on its obligations and always ensure that they are prepared to defend their company's interests in court if this happens. What they do not do is take far-reaching decisions because they are frightened of what the other side might or might not do at some point in future. Such defeatist acts encourage aggressive conduct by NEK's contractors and undermine NEK's own bargaining position. And the fact that Purvanov was sacked for his actions diminishes that effect only slightly.

Argument 4: We must agree to press on with Belene NPP, because otherwise we will lose at least one billion euros

The “argument from losses” undoubtedly has a measure of validity: losses will almost certainly result if a decision to halt the project is taken. The question is: how big could those losses be and how big are they likely to be? It makes little sense to adopt a worst-case scenario as a baseline and to limit one’s options with exaggerated damage estimates.

Legal risk analyses of existing contracts, of course, are indispensable and, in the case of Belene, have already been commissioned. Legal advisers and lawyers will be hired. But it can with confidence be said that potential losses or claims by the Russian side on these contracts will be far smaller than the sort of figures mentioned by the media: at 1 billion euros or more these are simply frivolous. Adding up what has been spent at different stages and assuming the balance as irrecoverable losses is just not a serious approach. To take one or two examples, the reactors that will be delivered can be resold at a moderate discount to the price NEK has paid: there is plenty of information on the potential market for such reactors and the size of the discount will largely depend on whether or not NEK wants to play an active role in finding a buyer. Again, the costs incurred in clearing up the site are not to be seen as losses: a clean-up will eventually be necessary whether the NPP is built or not. Expenses incurred during the design and preparatory stage fall in different category. The balance between current and future benefits and losses, between claims and counterclaims, will be a function of NEK’s ability to define the level of future sunken or irrecoverable costs, of the commitment and resolve of Bulgaria’s government, Bulgarian energy companies and Bulgarian civil society, and of legal experts’ work in identifying and managing risk at the earliest possible stage, both before and during the eventual litigation phase of the dispute or in out of court settlement.

Admittedly, ASE and Rosatom command a substantial pool of resources that they could tap into in order to sway and shape public perceptions in Bulgaria – which NEK and BEH certainly will not be able to do in Russia. However, there are limits on the extent to which superior power and state resources can be used in settling legal disputes between national corporate entities. Resorting to aggressive actions might easily backfire, affecting the substantial interests of big Russian firms elsewhere in Bulgaria and the EU. The Bulgarian Government and NEK are objectively incapable of closing the project financially (by accepting a Russian state loan) or legally, because key information about new technical and safety standards is not yet available, which means that the national regulator is not entitled to issue key permits and licenses. All over the world, with some notable exceptions, work on new nuclear projects has been halted in anticipation of decisions at the highest level in various fora—including the UN, the G7, the G20, and the IAEA—on the new legal and regulatory framework that will govern the global nuclear power industry. This means that the Bulgarian government is not only entitled but obliged to reconsider various aspects of the Belene project for reasons beyond its control. This would not be difficult to prove in court—in contrast, incidentally, to potential Rosatom claims for lost earnings. In Russia itself, too, the Government has initiated a review of regulations and standards in the field of nuclear energy, and of their compliance with the latest IAEA recommendations and policies, which is reflected in comparable project delays and additional costs. Its Kaliningrad NPP project is no exception, since that project will not be allowed to export electricity to the region if it fails to comply with EU requirements.

New safety standards have yet to be defined and codified: only when that happens can they be reflected in Belene NPP's project documents and, thereafter, agreed between the project partners and banks. Consumers will have a say as they might simply refuse to commit to higher nuclear power plant prices. Ultimately the markets are the decision makers, and it is not at all certain that they will accept additional post-Fukushima costs rather than opt for cheaper and more affordable alternatives. In this sense, whatever the Bulgarian Government decides it will be a blind decision. The information and analyses at its disposal will be neither full nor even sufficient for it to make a sound project evaluation. A decision to proceed with next phases will imply that the Government will bear the total responsibility and risk. The notion that the deal can be finalized in the near future implies that NEK will later have to pay any price and any new expenses associated with aligning the project with as yet unidentified future safety standards.

It is certainly possible to make a political decision and to sign any document. But the responsibility of the signatories will be huge—and personal. Nor will this personal responsibility disappear as a result of a rubber-stamp vote in Parliament. Construction of the Belene NPP would have profound and long-lasting consequences. And it is these consequences, rather than anything else the government does, that will shape history's verdict on premier Boyko Borisov and his key ministers. Any glory resulting from the construction of motorways and sports facilities will be negligible compared to the political, financial, economic effects and social consequences, for generations to come, of an "Eyes Wide Shut" entry into the Belene project. Succeeding generations will take existing infrastructure for granted. But they will feel the price of huge debt repayments and higher energy bills as an immediate concern.

Argument 5: The financial consultant will assess the project's viability and propose a beneficial structure

While the financial consultant plays an important role in any project, it is vital not to overestimate what such a consultant can do—and equally vital to ensure that the conditions in which said consultant must work are appropriate. In the case of Belene NPP, whose financial consultant at present is HSBC, two points might be noted in this connection.

First, it would seem that Bulgarian politicians are pinning excessive hopes on this consultant. The “wait a bit” arguments that ministers have directed to Rosatom over the last year or so have largely involved reference to HSBC’s expected report, while prime minister Borisov’s statements in early January 2012 that the issue will be settled “within three weeks” seem to suggest that the decision will be taken immediately after HSBC formally submits its conclusions. A cynic might suggest that Bulgaria’s “decision makers” have been playing up the financial consultant’s role because they have been unwilling or unable to make a decision themselves and have therefore been keen to take their time to prepare for the consequences of such a decision.

Second, it would also seem that consultancy arrangements have been set up in a way that is both unorthodox and risky, given the advanced stage of the project.

Financial consultants work on the basis of available information and sufficient data input, including assumptions about market development, strategic guidelines and the objectives of the Client in the project. The latter are evidenced in the Client’s brief and scope of services. It is common practice, when awarding consulting services related to risk assessment and cost-benefit analyses, to propose fixed fees.

It is an obvious conflict of interest if consultancy fees are success-based at this stage, since that might influence the analytical work. This observation remains valid regardless of the framework arrangement – whether the market, risk and cost-benefit analyses are done on a stand-alone basis or as part of a phased engagement. There is some merit in ascertaining that large investment banks and consultants have strict internal risk management procedures and control systems, including “Chinese walls” procedures to avoid conflict of interest. However, there are no guarantees when the human factor is involved. Even the top investment banks and consultancy firms are not immune to mistakes and self-interested motivation on the part of their experts, especially when those employees’ personal remuneration depends on the outcome of their work. Therefore, the main safeguard against fraudulent conduct lies in guaranteeing the independence and objectivity of the work of consultants by detailed definition of the scope of services and the deliverables. Success-based remuneration is ill-advised at the feasibility study stage. Success fees are standard practice not so much in the financial modeling and structuring of a project, but in the later phase of attracting strategic investors and funds. In this case, success is relatively easy to measure and rewards follow the logic of risk and consultant commitment to the project’s success.

The problem remains, however, that financial advisers depend on the quality and quantity of the “input” data, assumptions and information received from their clients in order to make financial models generate “output” capable of informing opinions and defining scenarios. Without a market analysis and credible assumptions about levels of certainty of demand and of sale prices, without an elaborate project risk profile underpinned by sensitivity analysis,

final judgments and findings are inconclusive and incomplete. At this stage, the maximum that any consultant can deliver is a combination of general observations and analysis of probabilistic scenarios within a hypothetical financial context.

During negotiations on price and indexation, as well as in the litigation phase, the support of independent experts is extremely useful, especially in studying the argument base and building up a case. Ultimately, however, no consultant can afford to take on the responsibility for shaping the government's decisions on specific contracts or annexes. Nor should any consultant try to do so: this is the responsibility—personal as well as institutional—of those occupying posts in the relevant state and corporate organisations, namely NEK, BEH and the Ministry of Economy, Energy and Tourism. It is enough to look at the clauses limiting consultants' liability to understand that losses or damages associated with decisions to proceed with the Belene NPP project can not be offset by claims on professional indemnity insurance policies.

The big advantage of investment banks is that they are interested in a services package: the important thing for them is not so much advisory and consultancy work, but the task of structuring project financing—which is where they would earn the larger fees. In this sense, the success and interest of investment banks can be traced along a wider range of consulting and investment services. While the typical financial advisor (consultancy company) has no other interest but that of the client throughout the different project phases, when financing options are considered a typical consultant would tend to secure the Client's interest by positioning investment banks in a competing mode.

If things ever get to this stage in the Belene NPP, incidentally, one peculiarity of the project should be borne in mind. The only obvious ways of financing the Belene NPP project are Russian state financing and, secondarily—in the case of equipment and services supplied by Areva, Siemens and other subcontractors—supplier stock or export credit. International commercial and investment banks are not likely to take an active role in providing finance, not only because of concerns about compliance with the Equator Principles, but also because of identified and inherent project risks. But Russian state funding has been openly on offer for a long time, so it is obvious that the "attraction" of such funding should not count as success from the standpoint of paying the consultant, regardless of precise way in which such involvement is realised. It is reasonable to assume that, if success fees are calculated on funds attracted from Russia either as equity or debt, a legitimate doubt will be cast on the objectivity and independence of the opinion and findings of the financial adviser.

Belene Nuclear Power Plant: Fact Sheet & Milestones

Early 1970s - Discussions start on building a second nuclear power plant in Bulgaria.

1981 - After initial research, studies and analyses, the NPP Belene site is approved by the Bulgarian Government.

1987 - Conceptual technical design completed. Construction site works kick off for Belene-1 and Belene-2 reactors. In the original site master plan, four units of 1000 MW each are planned with a further two optional.

1988-1990 - Construction work of Belene-1 is completed with 80% of the equipment delivered on site.

1990 – The Bulgarian Academy of Science issues a “white book”¹ with the conclusion that the Belene NPP project should be dropped for economic, environmental and social reasons.

1990 - The Bulgarian Government suspends project execution indefinitely due to funding problems.

1997 – The Bulgarian Government decides to completely drop the Belene NPP for economic and environmental reasons

1990-2000 – Main efforts focused on preservation and storage of the supplied equipment, the construction site and the buildings.

2002 – The Government decides in principle on a re-start of the Belene Project. Total rated capacity of 2000 megawatts. Formal decision to re-launch taken by the Government of Bulgaria.

2003-2005 – The early decommissioning of Units 1-4 of Kozloduy NPP in 2002 (1-2) and 2006 (3-4), as well as the aging of the country’s coal-fired power plants, brings up the issue of construction of new power capacities compliant with up-to-date environmental requirements.

6 April 2003 – Bulgarian Prime Minister Simeon of Saxony-Coburg-Gotha announces that the Belene NPP will be revisited –two blocks are proposed. Energy Minister Milko Kovachev plays a large role in the re-starting of the project.

October 2003 – November 2004 - Environmental Impact Assessment on Belene Nuclear Power Plant project is conducted. The report is discussed in public in both Bulgaria (4 times) and Romania (once). Greenpeace and WISE/NIRS bring out an analysis of the process of these hearings and advise the Bulgarian Ministry of Environment to dismiss the results on the basis of open manipulations. Bulgarian and Romanian NGOs as well as international organizations (Greenpeace, CEE Bankwatch network, EEB) heavily criticize the quality and conclusions of the EIA report.

The EIA report covers eight types of nuclear installations, on the basis of the technical and economic data provided by Atomstroyexport. The summary ascertains that the optimal choice would be either VVER-1000/B-320 or VVER-1000/B-466 reactors.

22 November 2004 – The Bulgarian Ministry of Environment approves the EIA report. The BeleNE! coalition, Ekoglasnost / FoE Bulgaria, Greenpeace and WISE appeal on the basis of manipulations and grave content mistakes. The NGOs claim that the EIA does not address seismic conditions properly, it does not address heavy accidents, it does not properly describe environmental impacts, it does not address front-end (fuel) and back-end (waste and decommissioning) problems, it does not address relevant alternatives nor a zero-scenario.

December 2004 - Decision of the Ministry of Environment and Waters approving the investment proposal for an NPP at the Belene site. Ekoglasnost / Friends of the Earth Bulgaria, CEE Bankwatch, members of the Belene! coalition and Greenpeace appeal this decision in court

Autumn 2004 – The Bulgarian Government publishes a bribing attempt by the Canadian NPP builder AECL. AECL in turn accuses the Bulgarian Government of malversations in the preparation of the Belene NPP project that put Russian designs at an advantage. The total of interested bidders drops from five with seven different designs to two bidders with two (Russian) designs

June 2005 - All legal procedures have been covered and the GoB gives final green light to the construction of Belene NPP with total rated capacity of 2000 megawatts. The National Electric Company (NEK) launches a procedure for selection of a Contractor for the engineering, procurement, and commissioning of Belene Nuclear Power Plant, Units 1&2.. The project is supposed to deliver electricity for a price of under 0,04 € / kWh and estimated to need between 2,5 and 4 Billion € of investments.

December 2005 – In a written submission to court, the authors of the EIA report concede that the report is flawed and a new EIA will be necessary once a design and builder are chosen. This never happens, not even after the choice of a construction consortium and design in October 2006. The Bulgarian Ministry of Environment announces that no second EIA will take place on 15 May 2007. This never happens.

April 2006 – Economy and Energy Minister Ovcharov announces that Bulgaria is planning to provide a State guarantee for a 300 Million € loan from Euratom.

May 2006 – Economy and Energy Minister Ovcharov claims support from IAEA president Muhamed El Baradei. The IAEA denies this

11 October 2006 – Wallstreet rating agency Standard & Poor's downrates the Bulgarian utility NEK from “developing” to “negative” because of its announced 51% stake in Belene. Economy and Energy Minister Ovcharov once more claims that Bulgaria will receive a 300 Million € Euratom loan. Euratom denies this.

19 October 2006 –A letter from Deutsche Bank announcing that it withdraws its interest in Belene for economic reasons.

20 October 2006 – UniCredit Group withdraws its interest in Belene for economic reasons.

31 October 2006 - the offer of the Russian Atomstroyexport, in consortium with France's Framatome (Areva) and the German Siemens, using VVER-1000/V-446B reactors, approved by NEK. Stated reasons: the highest safety level guaranteed by several new independent active and passive safety systems, as well as the consent of Atomstroyexport to buy back the old unit supplied in the 1980s. Another reason was the 60-year reactor life time. The final contract signing is announced for May 2007

09 November 2006 – Reuters mentions a completely new pool of possible interested financiers. These are all Russian banks: Gazprombank, Sberbank, VTB and Vnesheconombank.

21 November 2006 – Economy and Energy Minister Ovcharov again claims that he has been promised a 300 Million Euro Euratom loan for Belene. Euratom denies all contact with the Bulgarian authorities. The Bulgarian press does not question Ovcharov's claims.

1 December 2006 – The Ministry of Economy and Energy announces that Belene will be built by an independent entity, later indicated as the Power Company Belene(PCB), owned 51% by state owned

The Belene NPP project—mission impossible?

utility NEK and 49% by one or more strategic investors. As interested investors Germany's E.ON, Czech CEZ, Italy's Enel, Spain's Iberdrola and Russia's RAO UES are mentioned. In May 2007, it is announced that the strategic investor or investors are expected to bring at least 2 Billion € in capital into the project. Minister Ovcharov stresses that the project will not receive any state funds.

December 2006 – Greenpeace and the BeleNE! coalition contact JP Morgan Chase, BNP Paribas, Credit Suisse – First Boston, Lehman Brothers and Merrill Lynch & Co. All banks with the exception of BNP Paribas deny interest

31 December 2006 – Bulgaria closes the reactors 3 and 4 of the Kozloduy nuclear power plant, as agreed in the EU accession treaty. These reactors are of the type VVER 440/230 and are considered not upgradeable to a satisfying safety level. Bulgarian authorities and politicians run an active PR campaign to either keep these reactors open or have them re-opened after EU accession, even though it would require unanimous support from the former EU 25 states to re-open negotiations and several countries have indicated they would veto such a step.

25 January 2007 – NEK opens a tender for a 250 Million € loan to cover preparation costs and the first building activity. In March the government reports that 11 banks reacted to the tender, but names are kept secret on request of the involved banks. The final result is to be announced in early April.

2007 - The European Commission gives positive opinion on NPP “Belene”, confirming that it meets articles 41 to 44 of the Euratom Treaty requirements.

12 April 2007 – During a meeting of Balkan presidents at lake Ohrid, Bulgarian president Parvanov tries to mobilize broader support for the Belene project. Originally published support from the Macedonian president Branko Crvenkovski is later (11 May) vehemently denied by his cabinet.

24 April 2007 – Signing of the construction contract with Atomstroyexport is postponed To the end of the year. Reasons mentioned include lack of clarity about the financing of the project. Also negotiations about which non-compatible equipment from the former Belene project will be taken over by Atomstroyexport are delayed because of disagreement about quality and prices.

02 May 2007 – NEK issues a tender for strategic investors for a 49% share in the Belene Power Company

07 May 2007 – Atomstroyexport issues bonds for 43 Million € in order to pre-finance its participation in the construction of the Belene NPP.

14 May 2007 – BNP Paribas is announced as winner of the tender for brokering a 250 Million € loan from a 16 bank consortium to finance the first year of planning and construction work on Belene. Energy Minister Ovcharov loses his post over allegation of corruption.

13 June 2007 – BNP Paribas announces in talks with Greenpeace, Banktrack and Friends of the Earth that the 250 Million € bridging loan will be signed within days. It furthermore stresses that it will not invest in the construction of Belene. In reality, the loan contract is signed in late July with only eight banks backing it up. The names of the involved banks are kept secret.

20 July 2007 – NEK accepted 6 companies to submit detail proposals for strategic investor before 1 October 2007. This deadline is prolonged in September to 15 October. The six companies involved are: CEZ (Czech Republic), EdF (France), ENEL (Italy), E.On (Germany), RWE (Germany), Tractabel / Suez (Belgium / France). Four companies are kept on stand-by because they are only interested in participating for up to 25% in the Belene Power Company. These are Endesa (Spain), EGL (Switzerland), Cumerio Med AD (Belgium / Bulgaria) and ATEL (Switzerland).

18 September 2007 – The Russian insurance company Sogaz provided a civil liability insurance policy for Atomstroyexport's participation in the Belene project.

03 October 2007 – The European Commission refuses access to the Belene documentation to Greenpeace on the grounds that the Bulgarian Government explicitly opposes disclosure. In an earlier decision, the Bulgarian Government refused access to the documentation to the BeleNE coalition under the Bulgarian access to information legislation.

18 October 2007 – The Bulgarian government proposes to take up the provisions for a government credit guarantee for a total of 600 Million € from Euratom and EIB in its 2008 budget.

7 December 2007 – The European Commission gives a positive opinion on the Belene project under Euratom art. 41 to 44. Amongst the concerns expressed by the Commission are, according to the business publication Platts Nucleonics Week, issues around Bulgaria's decommissioning and waste fund. The Bulgarian government prevents publication of the Commission's opinion by declaring it confidential. In the same week, the DG Environment of the European Commission starts investigations into the Environmental Impact Assessment of the Belene project.

16 January 2008 – Bulgarian Prime Minister Stanishev and Economy and Energy Minister Dimitrov announce a new campaign to re-open the closed nuclear blocks Kozloduy 3 and 4.

February 2008 – The Bulgarian government announces that it will re-organise NEK in order to create a holding company – the Bulgarian Energy Holding - that has more collateral for possible loans for Belene

4 June 2008 – The contract between BNP Paribas and NEK for the structuring of the financing of the construction of Belene NPP is signed. BNP Paribas has to ensure the financing of the project in three stages - the first one is to approach the banks that they usually work with the financial model of the project. Consultations will take place till February 2009. Concrete proposals should be accepted by August 2009. Later BNP Paribas announces it is not going to invest in the project but only consult NEK. It considers the project “risky and contradictory

15 July 2008 – The Bulgarian Ministry of Regional Development gives Atomstroyexport a construction permission. The AES 92 VVER-1000 reactor is licensed by regulatory authorities in Russia and declared fit on all safety standards. Recommended by the IAEA and INSAG, testing passed favorably at special analysis by top EDF export team using recognized European Energy Utility Requirements. The Belene NPP reactor type will be Pressurized Water Reactor design with four first-stage coolant circulation loops per reactor. Reactor nominal thermal power is 3010 MWt and electrical net power is 1011 MWe. A typical refueling process takes 14 days with annual outage of between 20-28 and 40–50 days, depending on the scope of ongoing repair works.

3 September 2008 - the construction of the Belene NPP officially started. Prime Minister Stanishev makes the official “first spade” of the construction on site. Construction, however, does not start, as all detail project descriptions have not yet been handed in to the Bulgarian Nuclear Safety Authority. NEK wants additional state guarantees apart from the 600 million Euro in the state budget meant to secure loans from Euratom and EIB.

3 October 2008 – The German company RWE is chosen a strategic investor. It will receive 49% of the shares in the project for 1.275 Billion Euro and a bonus of 550 million Euro to NEK.

19 December 2008 – RWE signs with NEK a shareholder agreement for participation in the Belene Power Company, a preparation company for the Belene project.

23 October 2008 – The Bulgarian government gives 300 Million Leva (154 million Euro) from the state budget to increase the capital of the Bulgarian Energy Holding with the explicit purpose the

construction of the Belene NPP. A month later, the government gives another 400 million Leva to the Bulgarian Energy Holding for general purposes.

11 February 2009 – The Russian company Atomstroyexport announces it wants to recalculate the price of the project according to the Russian index of inflation – 13.3 % for 2008. The argument is that most of the equipment is made in Russia.

1 to 8 March 2009 –Protest in 60 towns in Germany are held over RWE’s participation in the Belene project. RWE also comes under critique for its investments in Belene in during its take-over of Dutch utility Essent.

22 March 2009 – The Bulgarian Minister of Economy and Energy announces the start of negotiations with Russia on its offer of a loan of 3.8 Billion Euro from the Russian state budget. The Bulgarian side seeks a 1.5 – 1.7 Billion Euro loan.

22 April 2009 – NEK requests additional state guaranties for the project from the 2010 state budget. The 600 million Euro state guaranties in the 2009 budget are not enough to cover a possible 3.8 billion Euro loan from Russia. The guaranties will have to be confirmed by the new Parliament after the National Elections on 5 July, and then announced to the European Commission to get an exception for state aid.

29 April 2009 – The company consultant Worley Parsons declares that delay of the construction works should be expected due to the problems of finding finances.

27 May 2009 – The German RWE seeks one or more partners for the project to share the risk of its 49% participation and starts negotiations with the Russian utility InterRAO, Fortum from Finland and two unknown Swedish companies.

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14 July 2009 – According to an economic analysis of UniCredit / Bulbank the Belene nuclear power project creates incentives for the Russian economy, not the Bulgarian one.

16 July 2009 – The Bulgarian Energy Holding is starting to seek partners who would buy parts of its 51% share. The idea is only 20% of the shares to be state owned. The project is frozen till the new government makes an analysis of the situation and the contracts.

Summer 2009 – the Bulgarian Government holds payments that utility NEK was to make to Atomstroyexport – three tranches of 300 Million in a frequency of one tranche per three months.

3 August 2009 – Minister of the Economy and Energy Traycho Traykov announced that the project costs will be 10 Billion Euro: ”So far 440 million Euro were paid for consultancy, preparation of the project by “Atomstroyexport”, for equipment and demolishing of what is left on the site – this is money enough for energy efficiency of all buildings in Sofia. If that had happened there wouldn't be a need to construct one of the two planned reactors in Belene.”

1 September 2009 - Russian Prime Minister Putin meets the Bulgarian Prime Minister Borisov in the fringe of a World War II commemoration in Gdansk, Poland. Putin declares that there will be no problems in the cooperation between the countries in case Bulgaria decides to withdraw from some of the joint projects (the South Stream gas pipeline, the oil pipeline Burgas -Alexandropus, Belene NPP).

9 September 2009 – CEO Tapio Kuula of Finnish utility Fortum declares to Greenpeace that his company is not interested in participation in Belene. Fortum was mentioned as one of the companies in negotiation with RWE for a part of its stake.

15 September 2009 – Minister of the Economy and Energy Traycho Traykov announces that the penalty to be paid to Atomstroyexport in case of withdrawal from the contract is 800 million Euro. He also announced that the Ministry is working on a new structure for financing including selling of 30% of the state share and new small shareholders.

16 September 2009 – the Russian minister of energy Sergey Shmatko declares that Russia is interested in buying the state share of Belene NPP.

October 2009 – Prime Minister Borrisov makes official visits to France and Germany and receives Italian Prime Minister Berlusconi in Sofia including talks about the future of the Belene NPP. Merkel, Sarkozy and Berlusconi do not take any initiative regarding the project. The government reiterates its stance that no public money will flow into the Belene project.

5 October 2009 – Standard and Poor's downrates NEK from BB to BB- because of its participation in Belene.

28 October 2009 - German utility RWE has abandoned plans to participate.

19 February 2010 – Finance Minister Dyankov rules out any state guarantees for loans to finance Belene NPP.

June 2010 - the Bulgarian government announces an indefinite freeze on planned construction works on Belene nuclear power plant due to uncertainty of the capital return and price.

7 July 2010 - Bulgaria aims to limit the cost of the Belene nuclear plant being built by Russia's ZAO Atomstroyexport to 7 billion euros (\$8.8 billion).

December 2010 - A non-binding memorandum of understanding signed between NEK EAD, Rosatom, Altran and Fortum on shareholding in new project company with NEK having 51 per cent in "Belene Power Company", France's Altran Technologies 1 per cent and Finland's Fortum Corporation between 1 and 25 per cent. The remaining shares to be taken by Rosatom.

16 March 2011 - Rosatom gives NEK ultimatum for Belene NPP to sign until end of March and sets price at EUR 6.3 B

12 April 2011 - The Bulgarian government signs a consulting contract with UK-based company HSBC for the financial analysis for the project for the construction of the Belene nuclear power plant.

30 June 2011 - NEK and ASE agree on further EPC contract.

22 July 2011 - Russia's Atomstroyexport launches lawsuit against the Bulgarian National Electric Company (NEK) demanding that latter pay EUR 58 M euro in arrears for works on the construction of the Belene nuclear power plant.

3 October 2010 - NEK and Atomstroyexport sign Addendum № 14, extending validity period of the Agreement dated of 2006 to 31st March 2012 (EPC).

6 October 2011 – NEC tables lawsuit in Geneva against Russia's state nuclear company Atomstroyexport over delayed payments on the equipment taken from Belene NPP

25 October 2011 – BEH announces that British bank HSBC, consultant of Belene nuclear project, has started working on an assignment for attracting financing by Russia's Rosatom

27 October 2011 – Rosatom threatens to double claim over Belene NPP delay.

5 January 2012 – Bulgarian Nuclear Energy regulator announces that both Kozloduy and Belene NPP have successfully passed stress tests.

January 12, 2012 – Prime Minister Borisov states that fate of NPP Belene will be revealed until the end of January 2012.

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