ENERGY SECURITY OF BELARUS: STEREOTYPES, THREATS, TRENDS[1]

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SUMMARY

The issue of energy security is on the agenda of many countries. However, the policy debate on energy security often focuses on the issue of reducing a country's energy *dependence* rather than energy *security*. In any case, both dimensions seem to be of equal relevance to Belarus.

The scale and the magnitude of the energy security challenge has been recognized by the Belarusian government. Its efforts to address the challenge have hitherto concentrated on modernizing the energy sector and reducing energy consumption. However, the implementation of this policy has been hampered by a lack of financial resources and sectoral reforms and by the non-market status of Belarus' energy enterprises and the legal framework governing relations in the energy sector. What is therefore required is a comprehensive sectoral reform that would involve private investors as well as technical assistance from international organizations.

There is no doubt that Belarus needs to intensify its cooperation with neighbouring countries. At the same time, enhancing energy security through the construction of a nuclear plant by a Russian contractor, and using Russian credit resources, does not seem to be a viable option.

CONTENTS

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1. Introduction

Ensuring energy security is crucial to maintaining state sovereignty and achieving stable, efficient and sustainable development of society. For many governments, energy security is among the most important national priorities. At the same time, it is a complex problem that involves different types of threats and challenges – internal and external, current and long-term ones. Each country therefore needs to understand the essence of the problem, identify threats and develop reliable and effective methods to address them. It is worth noting that energy security is organically part of the state security system and, above all, economic security. A country with a weak and inefficient economy cannot enhance its energy security.

Questions of energy (and economic) security is of extreme importance for Belarus. However, it would not be entirely correct to consider the threats and challenges of energy security of the country solely through the prism of diversification and security of supplies. Equally important is the improvement of the overall efficiency of the energy sector and the economy as a whole that would make them more stable, predictable, effective, and capable of sustaining economic growth in the long term.

The authors of this paper attempt to assess the problems and prospects for energy security in Belarus from a general point of view and with respect to existing government priorities. We also make a number of proposals for policy makers regarding the direction of economic policy that would strengthen the energy security of the country.

2. What is energy security and why it is relevant for Belarus

The concept of energy security has relatively recently entered the modern economic vocabulary. Having appeared following the introduction of the 1973 oil embargo against the US by OPEC, the concept was originally interpreted as a country's energy self-sufficiency. However, later it has become apparent that one needs to distinguish between the concept of 'energy independence' and 'energy security'. A country may be energy *dependent* but not necessarily *vulnerable*, if it is able to acquire energy resources abroad at market prices and to ensure the security of energy supply through reliable contracts and different suppliers. Conversely, if a country itself produces energy using outdated technology, and its energy is expensive, it becomes vulnerable, even if not dependent on external suppliers. The worst case scenario is when a country is energy-dependent and has difficulties in ensuring its energy security.

There are different definitions of energy security. In this paper we present only two. The first was given by the Director of the Institute of Energy of the National Academy of Sciences A. Mikhalevich who defined energy security as (1) the continued and reliable supply of energy resources in developing economy in the required volume and at reasonable prices, (2) avoiding large-scale accidents in the energy sector, and (3) the guaranteed supply of energy to deal with natural and technological disasters unrelated to energy.

There is another definition, which describes energy security as the state of a country's fuel and energy complex that enables the effective use of internal and external resources to ensure a reliable energy supply to business sector and the population without compromising a country's economic security.

Thus, while the first definition focuses on the diversification and security of supplies (i.e. it considers energy security through the prism of volatility), the second definition addresses the issue of energy security from the perspective of sustainable development for the entire energy sector of a country. In our view, the last definition more accurately reflects the concept of energy security.

Researchers define the optimal level of energy security as the total stock of internal stability of the complex energy system, whose balance would not be disturbed even by the most serious destabilizing factors. However, given the limited amount of resources of the majority of countries, even in the developed world, and the growing number of threats of various types (e.g. industrial accidents, international terrorism, or natural disasters), the strategic objective of any country would be to *attempt* to achieve this optimal level (because it is rather unrealistic to expect that any country would be able to achieve and maintain the optimal energy security). In this sense, the process becomes more important than the result.

The main factors that weaken the energy security of Belarus are:

- low availability of internal energy resources (85% of all energy resources is imported, of which 95-98% is imported from Russia);
- high share (approximately 60%) of natural gas in the balance of the country's energy consumption (e.g. local fuels account for about 10%). Natural gas is used for the production of 95% of heat and electricity;
- high energy intensity of the economy;
- high degree of wear in the energy complex;
- high costs of importing energy - both because of the high energy intensity, and because of the gradual transition of the country to international prices.

The scale and the magnitude of the challenge has been recognized by the Belarusian government. Thus, the country's concept of energy security and the mechanism of its development, entitled 'State complex programme of modernization of basic production assets of the Belarusian energy system, energy efficiency and increasing the share of the country's own energy resources until 2011' (hereafter referred to as 'state programme'), has been approved in a presidential decree. The basic directions of the programme, its advantages and limitations are described below.

3. GOVERNMENT POLICIES ON ENERGY SECURITY AND THE "BOTTLENECKS"

GOVERNMENT PROGRAMME. In October 2007, Belarus has approved the new concept of energy security and the state programme. Earlier documents were approved in 2005. However, according to the official point of view, the old concept is outdated because of the changed parameters of cooperation between Belarus and Russia in the field of energy. The country needed to reduce energy dependence on Russia, and new instruments are designed to respond to new challenges.

The focus of the state programme is on three areas: increased use of local energy resources, modernization of fixed productive assets (FPA) in the energy sector and energy efficiency. The main provisions of the new programme are:

- decrease the share of gas in the balance of the country's energy consumption from 70% to 50% by 2020, and in electricity generation - from 95% to 75%;
- reduce the energy intensity of GDP by 30% by 2010 from a 2005 baseline (with GDP growing by more than 1.5 times) and 60% by 2020;
- further diversification of energy resources (in particular, it is planned to build three coal-fired stations);
- forming energy reserves (it is planned to build gas storages by 2020 which would ensure smooth operation of the economy for 45 days during the winter;
- increase the share of local fuels in the production of electricity and thermal energy from 25% to 30%;
- ensure performance in accordance with 12 threshold criteria - indicators that will determine the country's energy security (energy intensity of GDP growth, the share of local energy resources in the balance of the country's energy consumption, the share of the dominant

energy supplier in the gross consumption of primary energy, depreciation of fixed assets, etc.).

All of these areas are very important, as the country indeed needs to enhance the use of its own potential of energy resources, modernize its power plants, and deal with question of energy conservation. Thus, without considering in detail the positive aspects of the programme (due to the limited scope of this paper), we shall concentrate on the gaps and limitations of this policy.

The increased use of local and alternative energy resources, apart from obvious advantages, has not always obvious (but very important) disadvantages. These are the following (1) the technological features of plants, working on local energy resources, are only effective for small and medium-size boilers in rural areas; (2) it is doubtful if there is a sufficient amount of local energy resources, and 3) transition to local energy resources requires significant investments. Accordingly, the potential of this policy for Belarus should not be overestimated.

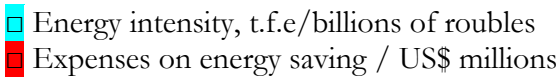
Upgrading FPA in the energy sector power is essential. The depreciation of assets is approximately 60%, which, according to the concept of energy, is close to the pre-crisis level. In the near future there might be a shortage of generating capacity. However, the Belarusian government estimates that the energy sector requires approximately US$19 billion in investments, even if neither the government nor the energy companies have even half of the required funds. It is worth noting that the absence of market reforms in the sector and the legal basis for its functioning make it impossible to attract private investors and international donors. The EBRD index of the electricity sector reform in Belarus is 1, which is one of the worst rates in the CEE countries. This reflects the lack of reforms and the absence of a market regulator in the sector.

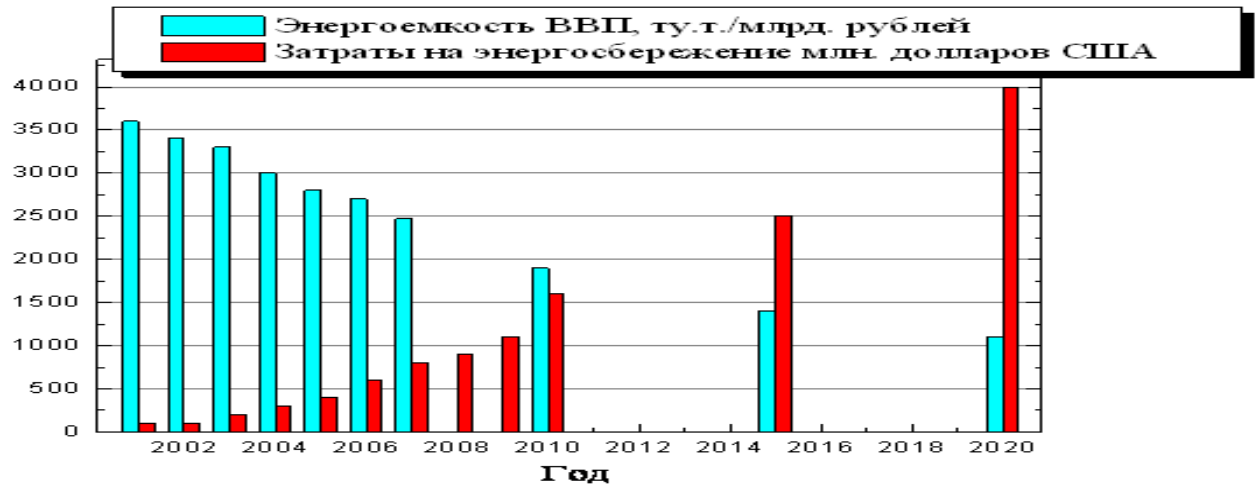
INCREASING ENERGY EFFICIENCY. It is no secret that the Belarusian economy is on the one hand characterized by low energy efficiency (i.e. high energy consumption per unit of GDP), while on the other by high (albeit unused) capacity to reduce the costs by lowering energy consumption. For example, in 2005, in Belarus, 0.48 kWh was required to produce US$1 of GDP, while in the OECD countries this amount was 0.3 kWh (GDP 2000).

Belarus has made some important steps in the right direction. The energy intensity of GDP has indeed declined, but it is still higher than in Western countries. At the same time, the progress in decline gradually decreases. For example, while in 2009 energy consumption was set to be reduced by 8%, it decreased by only 5%. This is due to the lack of funds, the prevalence of administrative resources, and decreasing returns to scale (a more significant investment is needed to achieve the necessary impact, see Fig. 1). For example, as early as 2005, the cost of saving 1 ton of fuel equivalent has increased from US$100 in 2001 to US$461, as the previous years saw the implementation of predominantly low-cost, quick-return activities and organizational-economic measures. The potential of these measures is exhausted, therefore the costs of policies to increase energy efficiency are growing and will continue to grow in the future.

The solution to this problem is impossible without the reform of the entire energy and utilities sectors. This however is not yet on the agenda of the government.

Fig. 1. Reduction of energy intensity of GDP and the cost of energy saving in the Republic of Belarus





Source: A. Mikhalevich, 'Energy Security of the Republic of Belarus: components, challenges and threats', http://democraticbelarus.eu/files/docs/energyclub/1/Mihalevich-RB-energy.pdf.

The state programme represents correct and comprehensive attempts to respond to modern threats and challenges. However, its implementation is hampered by a chronic problem, which is the lack of funds. Translating "everything that could be" translated into local fuel, modernizing the entire energy system, carrying out reconstruction of existing underground gas and oil storages and building new ones, constructing nuclear power plants is indeed very expensive. On 13 September 2008, Head of the Directorate of Investment Development of the Ministry of Energy, Vladimir Bobrov, announced that Belarus needs US$31 billion on these matters. Approximately US$19.1 billion is going to be invested in the energy system itself, and US$12 billion would be spent on energy conservation measures. However, the country has no such resources.

Similar restrictions exist for the policy of supply diversification. The questions of alternative (from Russia) oil, gas and electricity supplies have become relevant to the Belarusian government since 2006. Nonetheless, Belarus remains vulnerable to the threat of Russian energy blockade and there seems to be no way of diversifying gas imports. Yet, as noted above, it could substitute at least in part gas with coal or with renewable energy sources, although this would be very costly. There is a similar pattern in the field of oil supplies. Securing oil from an alternative (non-Russian) supplier is technically possible (by rail or the "Druzhba" pipeline). However, the economics of such shipments have not been perceived positively.

ADDRESSING ENERGY SECURITY: THE CONSTRUCTION OF NUCLEAR PLANT

The involvement of nuclear fuel in the energy balance will, according to the official point of view, increase the country's economic and energy security (The consumption of gas and the cost of the production of electricity will decrease, as nuclear energy is cheaper than gas). It is assumed that with the construction of a nuclear power plant Belarus will be able to annually replace 5 billion cubic metres of gas (20%) and increase the export of its own energy resources.

However, the discussions about the construction of a plant took place in closed-door sessions (they were only formally open to the public). In addition, the public has been offered many arguments in favour of the project that emphasized the safety aspect. At the same time, the issues of economic efficiency of the project are being kept secret. Experts, however, have some concerns:

- growth of external debt of the country: it is assumed that to build a nuclear power plant Belarus will take from Russia a credit amount of US$9 billion, while the country's external debt increases at critical rate;
- competitiveness of the electricity produced at current gas prices and the cost of servicing the loan;
- the possibility of selling electricity for export: a number of nuclear power plants are going to be built in the region (Kaliningrad, Lithuania, Poland and Estonia);
- strengthening the energy security of the country: the growing dependence on Russia as a supplier of fuel and the creditor is unlikely to strengthen the energy security of Belarus.

CONCLUSION: SOME PROPOSALS FOR DECISION MAKERS

Among the main problems and challenges facing the energy sector and negatively affecting the country's energy security are the following:

- high energy intensity of the Belarusian economy;
- significant losses of the resources in the networks;
- depreciated infrastructure;
- non-market nature of tariffs (cross-subsidies by type of energy and consumers);
- energy dependence on gas;
- dependency on one supplier (i.e. Russia);
- high transaction costs in the industry;
- the lack of funds for the modernization due to the legal framework within which the sector is functioning as well as state regulated tariffs.

Given the multiplicity of problems and threats, and their complexity, the policy of ensuring energy security of the country should be divided into two directions. The first direction should focus on the diversification of supplies and aim to ensure their safety and maintain Belarus' image as a responsible transit country and partner. In this regard, Belarus does a lot – from the construction and expansion of storage facilities to finding alternative routes to enhance regional cooperation and increasing the share of local fuels. At the same time, a comprehensive solution to this problem requires substantial resources. From an economic point of view, Belarus could hardly manage to alter the dominant position of gas in its energy balance. Building a nuclear plant would only slightly reduce gas consumption, since a significant amount of electricity is produced in a combined cycle (together with the production of heat, which is supplied to urban consumers through a central heating system). Yet again, moving away from dependence on Russia as the main supplier of gas but becoming reliant on its credits and the provision of fuel for a nuclear plant (and, possibly, its utilisation) does not appear to be an effective solution.

It is therefore more appropriate for Belarus to concentrate its limited resources on the second aspect of the energy security problem, namely improving the effectiveness of the sector, enhancing its solvency and ability to buy fuel and energy at market prices, modernizing its energy plants, and providing economic incentives to enterprises and the public for pursuing energy saving policy.

All these problems could only be solved in a comprehensive manner. First and foremost, the reform of the sector (its restructuring, corporatization) should create market incentives for owners to reduce costs and losses, and to modernize. Secondly, in order to attract private funds the sector needs to be profitable. To achieve this, appropriate conditions should be created for the investors (both local and foreign) through the reform of ownership structure and privatization in the sector, and through the transition to market pricing and increased energy tariffs for the population and businesses. This will give a powerful incentive to implement a more active energy conservation policy and to review the efficiency and competitiveness of industrial

enterprises. Energy prices should include the necessary investment component for the accumulation of funds for the modernization of the energy production.

Thirdly, it is important to increase the efforts in the field of energy conservation policy, both through the upgrading of thermal power stations and the transition to new technology (equipment) as well as strengthening efforts to reduce losses. The latter task could be carried out both through the commercialization of the sector and by attracting private investors and international technical assistance programmes. Another critical area in this context is an appropriate regulatory framework for cooperation between private and public sectors (private public partnerships or PPPs) for implementing energy-saving technologies, primarily in the utilities sector and the modernization of power plants. PPPs assumes various forms of the involvement of the private sector – from the transfer of ownership to management contracts. Thus, such partnerships represent a private initiative and involve private funds and private interests. They allow to choose the most effective projects and solutions, attract cheap resources, and monitor performance. The state acts only as a partner providing proper incentives for such partnerships. Many international technical cooperation organizations view PPPs as the preferred form of implementation of their programmes. Therefore the early development of the necessary regulatory framework for the use of PPPs in the reform and financing of the energy and municipal sectors of the country is critical.

Fourthly, it is necessary to reconsider the parameters and priorities for socio-economic development of the country both in terms of the forecasted production rates and the main sources of the economy. The energy (and economic) security of the country can not be based on two refineries and reduced rates of Russian oil supplies. The country needs to be alert to the possibility that in new economic and political conditions refining and supply of petroleum products for export will no longer be profitable. The transition to market methods of organizing production and governance of the country may make profitable the sale rather than production of energy. Direct and indirect subsidies (including through subsidizing prices for fuel energy sources) to unprofitable activities and companies should also be stopped. Decreasing production and reducing the required volume of imported oil and gas will also be an important factor in strengthening of Belarus' energy security.