

BELARUS ENERGY SECURITY AND ENERGY UNION PERSPECTIVES

ARCIOM BYSTRYK

BRUSSELS 2015

Belarus energy relations with the EU

Gas and oil transit from RF

In terms of energy, for the EU Belarus first of all is the country through which natural gas and oil transit from Russian Federation.

In 2014 through Belarusian section of the Yamal-Europe pipeline and "Gazprom Transgaz Belarus" the EU received **45.4 billion m³** of Russian gas, that accounts for about 31% of gas supply from Russia to Europe (146.6 billion m³) or about **8%** of all gas consumption of EU.

Through Belarus via the pipeline "Druzhba" pumped more than **50 million tons** of crude oil per year - about **10%** of the consumption of European refineries.

Belarus energy relations with the EU

Energy programs and projects

1991 - Technical Assistance to the CIS (Commonwealth of Independent States) countries (**TACIS**) (first energy projects of the EU in Belarus)

2007 - European Neighbourhood and Partnership Instrument (**ENPI**), funded by the European Commission (instead of the TACIS program)

2009 - "Eastern Partnership" (**EaP**) in Belarus

Period until the end of 2010 - **Declaration on Cooperation** between the Government of the Republic of Belarus and the Commission of the European Communities in the energy sector (projects in the gas sector and transit).

Since 2010, there has been a **flagship initiative of the EP dealing with energy security in Belarus** (program for cooperation in such issues as energy efficiency and renewable energy)

Most projects are funded by the European Commission through the program of the Interstate Oil and Gas Transport to Europe (**INOGATE**).

Belarus is also involved in the Covenant of Mayors initiative (program of the European Commission for technical support – **EuropeAid**) – 11 participants

Energy security in Belarus

The Republic of Belarus doesn't have enough of its own primary fuel and energy resources (FER).

It is highly dependent on imported oil and gas supplied from the Russian Federation.

The share of imports in total consumption of primary FER is about 85%.

These realities define the key principle of the state energy security:

1. improving the structure of the fuel and energy balance (FEB) with the rational use of energy resources,
2. maximum use of local fuels and renewable energy sources,
3. the introduction of energy-efficient and environmentally-friendly technologies in all sectors of economy.

Energy policy agenda of Belarus

Current policy and strategy of the Republic of Belarus in the field of energy and energy efficiency for the period up to 2020 and its implementation in the field of energy saving are aimed at structural changes in the national economy and its modernization based on energy-efficient technologies.

Set goals:

- to reduce GDP energy intensity by at least 50% in 2015 and not less than 60% in 2020 compared to the 2005 level;
- to achieve saving of fuel and energy resources in the amount of 5.2 million TCE for the period 2016-2020;
- to ensure the share of domestic energy resources in the balance of boiler and furnace fuels of 30% in 2015 and 32% in 2020.

Energy policy agenda of Belarus

The main policy objectives of energy strategy are:

1. modernization and development of generating facilities of electric and thermal energy
2. reduction of the use of natural gas in the production of electricity and heat by increasing the use of local fuels, renewable energy and technologies producing energy by using waste
3. modernization and improvement of grids
4. development of the infrastructure of information technologies (IT) and the central management of the technologies
5. improvement of the financial recovery of energy suppliers
6. improvement of tariff policy, including staged cancellation of cross-subsidies
7. reduction of energy imports

Energy policy agenda of Belarus

8. improvement of the structure of centralized energy system management
9. creation of conditions for non-discriminatory access to the energy grids
10. improvement of the legal and regulatory framework in the energy sector with the possibility of the formation of market conditions, as well as creation and development of nuclear energy
11. reduction of greenhouse gases
12. development of projects of cross-border energy grid projects in order to create opportunities for the electricity trade
13. increase of funding of scientific research and experimental projects

Belarus: key energy security risks

1. Low supply of its own energy resources
2. High energy intensity of the economy
3. High proportion of natural gas in the energy balance of the country
4. High degree of depreciation of fixed assets in the energy sector
5. Import of energy resources mostly from one country (Russia)

Causes and effects of current key energy security risks

1. Strong dependence on a single supplier of energy resources (Russia)
Effect: strong influence of the Russian political forces on the situation in Belarus
2. Significant energy inefficiency
Main reasons:
 - inefficient heating in large cities (losses in heating plants up to 30%)
 - energy-intensive industries with outdated equipment; inefficient generating capacity in CHP
 - state tariff policy that discourages saving

Causes and effects of current key energy security risks

3. Lack of structural reforms

This system factor does not allow to restructure and to involve private investors, which ultimately leads to a shortage of funding of the sector

4. "Socially-oriented" policy of the Belarusian government, which is seen, for example, in cross-subsidies in the provision of energy services in the residential sector

State tariff policy leads to the deterioration of the energy system and greatly devalues the idea of energy saving in the home and daily life in the minds of citizens

Insight of emerging energy security risks

The Belarusian Government should:

1. reform the energy sector which will make it possible to use market mechanisms and the capacity to attract investments in energy efficiency technologies and equipment
2. use and expand ongoing research related to energy losses and final consumption, and continue funding at the national and sectoral level
3. facilitate and encourage cooperation between national research institutions and international scientific and engineering community for further development of advanced technologies, the implementation of pilot projects in the field of energy efficiency and renewable energy
4. pay special attention to the development of renewable energy sources with the objective to develop energy systems towards sustainability. The use of renewable energy sources should always be taken into account and reflected apart from the use of non-renewable domestic energy resources, as well as individual targets set for renewable energy sources and other local energy sources

Insight of emerging energy security risks

5. continue to organize active work in the Republic of Belarus on the harmonization of technical normative legal acts in the field of energy efficiency and renewable energy with international and European acts
6. persist in the policy of elimination of cross-subsidies in energy prices (tariffs)
7. ensure the implementation of market-oriented principles and appropriate regulatory legal and regulatory framework, based on international experience, while developing the legislation in the energy sector
8. analyze and determine the system of measures to accelerate the improvement of the structure of financing energy efficiency and development of renewable energy sources in favor of increasing the share of enterprises' own funds, private equity, borrowed and external funds

Insight of emerging energy security risks

9. encourage the creation and implementation of ESCO and other market mechanisms to attract investments in energy efficiency; initiate the implementation of the exchange of experiences, training, and implementation of pilot projects in this area in cooperation with international organizations
10. strengthen cooperation with commercial banks in order to create and promote financial and credit products in the field of energy-efficient technologies and energy saving equipment
11. continue to promote the raise of awareness in the sphere of energy efficiency and training of civil servants and general public at the local, regional and national levels

Possible solutions and opportunities, including potential role of EU, EaP

1. to share experience in energy system's upgrading from EU experts to Belarusian experts
2. to give knowledge of the energy saving to experts, executives etc.
3. to organize educational projects and programs for citizens, schools, universities, NGO's
4. to demonstrate the energy-efficient technologies
5. to provide consulting for state organizations (for example, in energy planning)
8. financing programs
9. crediting of small and medium business

Belarus experience and good practices

1. Construction of energy-efficient apartment buildings

For the period 2007-2012, 18 energy-efficient buildings with forced ventilation with heat recovery of ventilation emissions were built.

Since 2013, the design and construction of 3 energy-efficient residential buildings has been carried out within the framework of the UNDP GEF "Improving the energy efficiency of residential buildings in the Republic of Belarus".

Additional measures will ensure the level of heat losses of up to 25 kWh/m² per year in the houses. Heat consumption for hot water supply will be reduced by at least 40%.

Belarus experience and good practices

2. Multi-Comfort House

In 2013, the construction of the first Multi-Comfort House in Belarus which is situated 30 km from Minsk was completed.

The concept of **Multi-Comfort House** got its development in 2005. It represents an integrated system, whose purpose is to achieve balance between energy efficiency, comfort living and respect for the environment.

Consumption of thermal energy for heating "Multi-Comfort House" during the heating period is $25 \text{ kW}\cdot\text{h}/\text{m}^2$ per year.

Total specific consumption of primary energy for all domestic needs is about $110 \text{ kW}\cdot\text{h}/\text{m}^2$ per year.

Such indicators are 4-5 times lower than current standard and 7-9 times lower than average energy consumption.

Belarus experience and good practices

3. Stimulation of renewable energy

To encourage the development of renewable energy sources the Government has introduced raising factors to the tariffs for electricity produced from renewable energy sources by individual entrepreneurs and legal entities that are not part of state production association of electric power "Belenergo".

For the first 10 years from the date of implementation of the equipment for using energy from water flows the multiplying coefficient is set at 1.1, previously 1.3.

For the equipment using solar energy the coefficient is reduced to 2.7, previously 3.

Belarus experience and good practices

4. Wind power

The first megawatt-class wind power installation (1.5 MW) was earned in the spring of 2011 in the village of Hrabniki (Navahrudak district, Hrodno region). For four years of its work it has proved its efficiency. It was planned that the average annual power generation will be approximately 3.8 mln kWh. In practice, the wind turbine produces 10% more electricity. For example, in 2012 - 4.35 mln kWh, in 2013 - 4.0 mln kWh.

Mahiliou region is considered to be a leader in the number of wind turbines in Belarus. There are more than 15 wind turbines owned by different organizations. In 2013, new wind farms with total capacity of about 3.2 MW were put into operation.

Low-power wind farms also proved their viability. In 2012, near Kobrin 3 wind turbines began to generate electricity, each one with capacity of 7.5 kW.

All in all there are 26 wind turbines operating in Belarus now.

Total capacity of all wind turbines installed on the territory of Belarus is 7.4 MW.

Nearly 1840 sites were revealed on the territory of Belarus on which more than 8000 wind turbines can be installed.

Belarus experience and good practices

5. Solar power

In the spring of 2015 in the reserve "Sporovsky" with the support of the Small Grants Program of the Global Environment Facility a solar power plant of 100 kW and cost of 150 000 dollars was installed. During an average summer day the plant produces 60 kWh, at the peak - up to 100 kWh.

In August 2015 in the Shchuchyn region the first solar power plant in Hrodna region was run at full capacity. Its electric power is 1.2 MW, it covers an area of 2.4 hectares. It can produce 8500 kWh of energy within a day.

Energy Union Strategy gives Belarus the following opportunities

1. To develop the regulatory and legal framework in the energy sector based on the achievements of the Energy Union for insuring the legislation acting in Belarus now,
2. To begin to prepare for the convergence of the energy systems of the EU and Belarus in order to reduce dependence on energy supplies from Russia
3. To take part in the forums dedicated to the development of the energy structure of the EU, to discuss major joint infrastructure projects

*Common topics
for Energy Union Strategy
and Belarusian national energy strategy*

1. Diversification of energy supplies
2. Development and modernization of energy infrastructure
3. Increase of the use of renewable energy sources and local fuels
4. Reduction of greenhouse gas emissions
5. Increase of energy efficiency of the housing sector

Challenges and possible barriers

The biggest obstacles may arise from the fact that the necessary reforms of the energy sector are in a sense a threat to the socio-economic model existing in Belarus.

For example, the abolition of cross-subsidies (according to many experts, one of the most important steps to reform the energy system) will inevitably lead to a significant price rise of energy services for the population. That is an unpopular measure which current government does not dare to take in the crisis situation of the Belarusian economy.

Recommendations for future cooperation

As the experience of working with representatives of the energy sector in Belarus shows, the level of competence of employees in the sphere is high enough.

The problems are only in the management and financing of national and regional energy infrastructures.

Taking into account current difficult situation of Belarusian economy, it can be argued that the situation in energy system will be changed without external support.

Provide concluding remarks

Ideally, the process of development of the Belarusian energy system should go taking into account the experience, goals and objectives of the EU member states, as some of them started a difficult path of reform more than 20 years ago. Cooperation between Belarus and the EU within the framework of the Energy Union Strategy can help to avoid mistakes on the way of reformation of Belarusian energy system to the European standards that will allow to improve common energy security in the region.

Thank you for the attention!

ARCIOM BYSTRYK

bystryk@ecoidea.by

+375291208548

Center for Environmental Solutions

<http://ecoidea.by>

info@ecoidea.by

+37517 334 53 23