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O. IVASHKO

Ph.D. in Economics, docent

B.PIDCERKOVNUY

DIRECTIONS OF REFORMATION OF THE FUEL AND ENERGY COMPLEX OF UKRAINE

The basic problems of fuel and energy complex of Ukraine are considered. The purpose and basic tasks of reformation fuel and energy complex are defined. The directions of increase of energy efficiency of national economy are grounded. The directions of intensification of development of alternative and renewable energy sources in Ukraine are offered.

Keywords: *a fuel and energy complex, energy security, reformation, energy efficiency.*

Problem statement and its relation to important scientific and practical tasks. Maintaining and strengthening Ukraine's national security depends primarily on the state of basic industries. These branches of industry include fuel and energy complex. The level of development of fuel and energy complex determines the place and role of government in the world.

At the beginning of the 21st century there are many unsolved problems in the energy sector of Ukraine. The fuel and energy complex of Ukraine was formed as a part of the USSR fuel and energy complex. Therefore, it does not meet the criteria for the fuel and energy complex of independent state. According to current energy trends, there is a need for deep restructuring of the Ukraine's fuel and energy complex.

The analysis of the latest scientific researches and publications. The problems of reforming the energy sector and its components, energy security of Ukraine have been studied by many national researchers – Alymov O. M., Amosha O.I., Baryakhtar V. G., Babushkin V. M., Voropay M. I., Dorohuntsov S. I., Ivanov M. I., Kantarovych V. L., Makarov O. O., Melent'yev L. A., Miller V. I., Potapov V. I., Piriashvili B. Z., Reshetnyak E. A., Stolyarov V. F., Fedorysheva A. M., Yashchenko Y. P. and others.

However, the problems of fuel industry during economic reforms need further study, because the internal and external factors of economic development have fundamentally changed. First of all, it refers to reforming the fuel complex in accordance with the conditions of market economy, identifying key issues and directions to improve energy supply and increase energy security.

Conceptual issues of research. For 21 years of independence the problems of energy security, energy efficiency, alternative energy sources, diversification of energy supplies are extremely important in ukrainian society. Ukraine's economy remains the most energy-intensive in Europe. There is practically one source of imported energy.

Thus, the main problems of the fuel and energy complex (hereinafter - FEC) are:

- 1) high energy intensity of national GDP;
- 2) dependence on supplies of energy recourses from one country – Russia;

- 3) limited domestic reserves of oil and gas;
- 4) the high price of gas imported to Ukraine (\$417 per 1000 m³ in the 4th quarter of 2012);
- 5) cross-subsidization in setting tariffs for gas and electricity;
- 6) permanent losses of National Joint Stock Company «Naftogaz of Ukraine»;
- 7) negative impacts of FEC on the environment.

The aim of reforming the energy sector of Ukraine is reducing energy dependence on energy imports. For this purpose it is necessary to perform a number of tasks, such as:

- reducing energy intensity of Ukraine's GDP through the introduction of energy-efficient equipment and technologies and energy loss reduction;
- establishment of effective monitoring state system of using energy resources;
- increasing the share of alternative and renewable energy sources in the energy balance (hereinafter - ARES);
- decrease the negative impact on the environment.

The Ukraine's FEC requires comprehensive substantial reform. The transformation should be performed in different ways: electric power industry, coal industry, oil and gas production and others. In our view, the main priorities are increasing energy efficiency of national economy and development of ARES. This approach has long been used in the EU and gives good results. Thus, the energy intensity of GDP (PPP) of Ukraine in 2010 was 0.55 toe/\$1000, Czech Republic – 0.22 toe/\$1000, Poland – 0.19 toe/ \$1000, Germany – 0.15 toe/\$1000 [10].

It should be noted that in 2010 Ukraine adopted the State target economic program of energy efficiency and the development of energy production from renewable energy sources and alternative fuels for 2010-2015. According to the State Agency on Energy Efficiency and Energy Saving of Ukraine, the percentage of implementation of the program in 2010 was – 35.9 % and in 2011 – 53 % [3].

We think that in order to perform the tasks it necessary to establish an effective government monitoring of the use of energy; intensify the implementation of measures to improve energy efficiency at the level of local communities; improve the mechanism of functioning of green tariffs; sign production sharing agreements with multinational corporations «Shell» and «Chevron» (more detail in the section «The mechanism of reform»).

The constant increase of the world prices of natural gas and oil, permanent losses «Naftogaz of Ukraine» make extremely important implementation of the proposed reform.

It should be mentioned that the reduction of energy consumption allows to avoid irretrievable loss of huge funds for the purchase of imported energy, increase financial support for the development of domestic innovative technologies, raise the competitiveness of Ukrainian products [1].

ARES is an important factor in reducing the use of imported fossil fuel resources for electricity generation and enhancing energy security, improvement of the ecological situation in Ukraine, development of Ukrainian industry and growth in construction [10]. The indicators of the development of alternative energy sources in the European Union are evidence for this. In 2010 the share of alternative sources energy in total energy consumption was in the EU-27 12.4 %,

Poland – 9.4 %, Germany – 11.0 %, Spain – 13.8 %, Lithuania – 19.7 %, Sweden – 47.9 % [2].

Consider the main steps to be taken to improve the energy efficiency of the national economy.

At first, is the introduction of the unified state monitoring system of production, supply, transportation, consumption and payment of energy resources and utilities. The relevant draft law has already been adopted in the first reading of Verkhovna Rada. The results of approbations of unified state monitoring system in Luhansk and Zaporizhia regions in 1998 revealed the difference up to 5-6 times between required to repay consumers and actually delivered energy and services both in scope and in quality [6].

Secondly, the gradual increase in gas prices and electricity rates for people, heat and power plants, individual industries. So, in 2010 the total consumption of gas was 57 billion m³. 6 billion m³ used metallurgy, 7 billion m³ – chemistry, 18 billion m³ – population, 11 billion m³ – utility companies and budgetary institutions. [10] At the same time, population, utility companies, and to some extent, metallurgy and chemical industry receive gas at a price lower than imports.

A similar situation is in the electricity sector. Tariffs for the population are in 2.3-5 times lower than average retail rates for the industry, depending on the category of business. Besides, the average price for electricity generated by thermal power plants is 67.11 kopecks/ kWh, nuclear power plants – 21.1 kopecks/ kWh, hydroelectric and pumped storage plants – 5.91 kopecks/ kWh. For instance, in developed countries and Russia the difference in prices for thermal and nuclear power does not exceed 30 % [12].

Given the above, the presence of large investment projects in the nuclear and hydropower, being 67 % of thermal power capacity owned by a private company as unacceptable consider creating a fund distribution of cost imbalance, as suggested in the Draft Law of Ukraine «On the basis of the electricity market of Ukraine».

Thirdly, bringing the standards for maximum permissible emissions of pollutants by thermal power plants to the EU Directive 2001/80/EC on the reduction of pollutant emissions. Thus, domestic thermal power plants have to reduce SO₂ emissions by 93 %, NO₂ - by 77 %, ash – 99 % compared to 2009 [10].

Fourth, a phased prohibition the sale of incandescent bulbs in Ukraine. By the end of this year «Ilyich lamps» should disappear in the EU, by 2014 - in Russia and the United States. Given the fact that more than 20 % of the electricity is used for lighting, energy saving potential of Ukraine in this area is significant [11].

Fifthly, the Draft Law of Ukraine «On energy efficiency of residential and public buildings» requires adoption. This law must be harmonized with the new EU Directive 2010/31/EC on the energy performance of buildings.

Finally, it is necessary to develop local mechanisms for energy efficiency. The local communities know best what needs to install, upgrade or replacement. Energy efficiency at the local level also depends on reforms in public administration, budget and tax systems.

Each region must have an energy efficiency (energy saving) program, and the city – municipal energy plan. With the support of USAID's project «Municipal Heating Reform» municipal energy plans were implemented in 6 cities (Lutsk, Lviv, Eupatoria, Myrhorod, Kurachovo and Kremenchug). Their realization began with the so-called soft measures – information campaigns, demonstration projects [8].

The main direction of increasing the energy efficiency of housing and communal services is stimulating the final consumer. It is reasonable offset the interest on loans for the implementation of such measures: insulation of building walls, floors, attics and roofs; installation and replacement windows, entrance doors; installation and reconstruction of electric heating using energy-saving technologies; installation and reconstruction of individual heating systems, which are alternative to natural gas, including heat pumps.

In order to avoid inappropriate use of credit reimbursement should occur in the presence of such documents: passport, identification code, loan agreement, the documents confirming proper use of funds [4].

However, for the intensification of ARES Ukraine needs:

1. Simplify administrative procedures, which are necessary for the construction and operation of solar and wind power plants. The implementation of some projects involves getting 122 permits. Also, green tariff should be applied after commissioning of the object, not after its approval in the National Electricity Regulatory Commission.

2. Develop and adopt a single procedure of solar and wind power plants accession to power grids and complete the draft law of establishment of the procedure the calculation of «local component» [12].

3. Set in the law of Ukraine «On Electric Power Industry» green tariff rate for electricity generated from solid waste, of 2.1. Broaden the action of green tariff for co-firing of biomass and fossil fuels (green tariff rate 2.0).

4. Propagate green tariff for energy produced from biogas. Only in the agro-industrial complex of Ukraine there's a possibility to replace the 2.6 billion m³ of natural gas per year. In order to make biogas projects interesting to investors green tariff rate should be 3.0 for electricity from biogas derived from biomass and agricultural waste; 2.7 - for other types of biogas (from municipal solid waste, sewage, etc.) [9].

5. Establish the state subsidy to buyers of bioenergy equipment in the amount of 20 % of its value, which will be paid only after the official commissioning [5].

6. Sign production sharing agreements with multinational corporations «Shell» and «Chevron». «Shell» «Shell» won the tender to develop the Yuzovska shale gas section, «Chevron» – the Oleska shale gas section. It should be noted that the doubtful enterprise «SPK-Heoservis» became a partner of National Joint Stock Company «Nadra Ukraine» [7]. We consider it is necessary to exclude the «SPK-Heoservis» from production sharing agreements on Yuzovska and Oleska squares. It is essential maximize defend Ukrainian interests, taking into account the best practices (for example, the project in Azerbaijan «Azeri-Chirag-Guneshli»).

Conclusions. Summing up the above, it should be noted that the unified state monitoring system can be fully entered into action for 3 years. In the updated Energy Strategy of Ukraine the standards for maximum permissible emissions of pollutants by thermal power plants will be harmonized to the EU Directive 2001/80/EC up to 2017. The experience of developed countries shows that it is enough 3-4 years for withdrawal from circulation of incandescent bulbs. The Law of Ukraine «On the energy efficiency of residential and public buildings» can be improved and adopted during the year. Effective local energy mechanism must operate constantly in different forms.

Described measures that will stimulate the development of ARES can be carried out in one year. However, signing of production sharing agreements for the law can take up to eighteen months.

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