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# UKRAINE ALTERNATIVE ENERGY MARKETING ASPECTS

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**Introduction**. Energy provision is a key issue of Ukrainian macroeconomic stability and economic growth. For many years a significant part of Ukrainian energy market has been dependent on natural gas, petroleum products, and power plants fuel purchases. Importing problems made gas, oil, nuclear fuel, and later coal levers of pressure on Ukraine from the neighboring state side. Additional factors, currently breaking out the energy market balance, include the loss of fuel and energy complex objects and hydrocarbon resources development perspective territories due to Crimea annexation and military actions; and ruining oil and gas infrastructure at the east of the country. That is why one of the possible ways of solving the problem is launching new nonconventional and renewable energy sources (RES) like wind and solar energy, biomass energy and geothermal heat. This enables renewal and balancing regions energy provision and strengthening the state energy security. The latter is an integral to the state economic and national security, a necessary condition of country's existence and development, and country's social sphere stabilization.

**Recent research and publications review.** The issue of RES development is topical for a great number of researchers of different branches of science and practice including the following: Y.S. Vasilieva, O.O. Veklych, A.V. Zhovtianskyi, S.I. Dorhyntsov, B.M. Danylyshyn, M.I. Dolishnii, S.O. Levytska, S.Y. Kasian, M.P. Kovalko, K. Kniazhdvirska, L.G. Melnyk, S.O. Smyrnov, A.M. Fedoryshchev, Y.D. Khakimov and others. Meanwhile the issue of RES peculiarities and its market efficient development remains relevant. The researchers' attention is mainly concentrated on energy saving problems. At the

same time the issues of renewable energy sources information, market launching and mechanism of using are still unclear.

**The article aims** at energy market peculiarities investigation and RES marketing systems main directions justification.

**Basic material and results.** Considering intensity and the scale of energy resources use and the environment protection problems complicating, it is necessary to activate the search of ecologically cleaner sources for energy producing, and form their supply and demand on the domestic market. The sources of these energy types are inexhaustible, but their using efficiency and the degree of needs satisfaction on the domestic or international markets should be assessed.

Methods of solar, wind, geothermal, waves, ebb and float, biogas energies etc. are being intensively worked out in the world developed countries. These countries are significantly changing their energy sector structure. Two main tendencies can be observed at present: substitution of traditional energy sources with renewable ones, and reduction of common energy consumption at the expense of energy efficient technologies and measures implementation. More and more countries develop and realize their plans and strategies to supply their energy need by means of renewable energy sources. Eventually 50-100 % of energy needs can be supplied in the way mentioned [1].

Having sighed the association with EU, Ukraine undertook a commitment to meet high European RES using standards. The national policy on renewable energy was ratified up to 2020. According to it, energy share obtained from RES will be equal to 11% by 2020. This policy realization will allow substitution of more than 10 bln cubic meters of gas [2].

Substantial significance in RES realization belongs to International Renewable Energy Agency (IRENA). This is an international organization giving support to countries changing to stable energy future, it is also a main constituent of international cooperation, a centre of advanced experience in renewable energy sphere.

IRENA contributes to wide implementation and stable use of all the RES types for the purpose of energy safety and economic growth and development. 144 countries are current IRENA members, and 31 countries have applied for joining the organization.

Ukraine joining IRENA is a positive factor. It enables RES marketing improvements: applying for Abu Dhabi Fund for Development (ADFD) concerning obtaining loans for RES projects; getting access to all the IRENA available information about RES using, the latest investigations results, advanced experience and progressive mechanisms of renewable energetic development funding.

Experts from International Renewable Energy Agency (IRENA) together with specialists from the State Agency on Energy Efficiency and Energy Saving of Ukraine, and Ukrainian specialized associations have developed "Memorandum of renewable energy sources development in Ukraine by 2020". It contains not only RES using potential analyses, but also economic benefits from its share increase in the country's ultimate energy consuming. It was approved that annual technically attainable RES energy potential in Ukraine in 2015 was equal to 68,6 mln tones of oil equivalent (o. e.). It is equal to 98 mln tones in units of fuel equivalent [3]. Having studied all the RES types, the analysts claim them to be a sufficient quantity to substitute nearly a half of total energy consumption in Ukraine (table 1).

Tabble 1

**Renewable sources potential in Ukraine**

| Renewable sources types | Annual technically attainable energy potential | |
|---|---|---|
| | TWh/ per a year | O.e. mln ton per a year |
| Wind energy | 60 | 15 |
| Solar energy | 38,2 | 4,2 |
| Heat energy | 32,5 | 2,8 |
| Water energy | 28,9 | 7 |
| Bio energy | 178 | 21,7 |
| Geothermal energy | 98,6 | 8,4 |
| Environmental energy | 146,3 | 12,6 |

Made by the authors with the base on the source [3]

Currently, according to Ukraine Energy Strategy for a period of time up to 2013 RES share in the country total consumption in 2010 may reach 13.2% [4]. Such a target index should meet the main European energetic association principles, mentioned in the "Green book" of "European strategy on constant, competitive and safe power economy", and the chosen direction towards increase in using renewable energy sources, and total power of nonconventional and renewable power economy in Ukraine by 2030. At the same time IRENA experts prove Ukraine ability to increase this index up to 21.8%**.** They assume 73% of renewable energy sources potential owned by Ukraine to be used for heat producing, 20 % - for energy oscillating, and 7% - for a transport sector [5].

Experts expect the share of the world renewable energy to reach 36% by 2030 due to technologies existing, energy efficiency increasing, and better access to energy recourses, quality changes in objects of traditional generation, and social changes connected with consumers' habits.

Experts from the Renewable Energy Institute NAS of Ukraine have defined and proved the basic and prognostic indices according to the main RES types, considering which significant amounts of total energy consumption covering in Ukraine were defined at the expense of renewable energy sources using (table 2).

Table 2

**Dynamics of producing electric power from nonconventional and renewable energy sources in 2020-2010, TWh**

| **RES including the following:** | **2020** | **2025** | **2030** |
|---|---|---|---|
| Wind generation | 1,9 | 3,8 | 7,4 |
| Solar generation | 0,8 | 1,4 | 2,6 |
| Small hydroelectric power station | 0,7 | 1,3 | 2,1 |
| Bio generation | 0,2 | 0,2 | 0,3 |
| Generation from the other RES | 0,1 | 0,1 | 0,2 |
| **Total RES generation** | **3,6** | **6,8** | **12,6** |

Made by the authors with the base on the source [2,3]

It should be mentioned here, that Ukraine undertaking commitments for providing stable development impose a range of restrictions on the national economics and its energy sector as for the necessity of energy industry innovative renewing, RES, national economics energy consumption, power economy influencing the environment etc.

Positive results development realization determines the necessity of developing marketing system specifically for energy plants. It should be considered here that marketing in the energy industry of domestic economics market differ significantly from the marketing in the other fields of the national economy. It is connected with technological and economical peculiarities of energy commodities.

First of all, demand for energy commodities in a great many in defined by the following factors: countries economical development dynamics, energy saving technologies implementing efficiency and speed; RES using efficiency. Secondly, energy commodities demand dynamics and level in the country reflect the domestic economy economic growth, science and technologies progress, quality and living standards, attitude to the environment,

Thirdly, RES using in the prospective contributes to decline in the energy commodity cost value, and is the main source of specific enterprise efficiency expanding, increasing its profitability and business entities cost effectiveness. It can be explained by price reduction for those goods and services, caused by energy costs decreasing while manufacturing them.

RES potential as for its competiveness with traditional power assets are proved by scientists. Thus at the beginning of exploitation, generated energy cost value and tariffs are higher than those of the power assets; though in a while energy obtained from RES becomes competitive, that’s why investments in their construction have more rapid time to value over the whole exploitation period of cycle. That’s why defining risks in proper time and considering their influence level on RES development enables getting competitive advantage while searching for investors and consumers.

The least risky way as for firm's economic management is applying complex creative marketing that is a combination of a new product-based marketing with customer-bases marketing. The idea is in firm's simultaneous making a new product whilst forming demand by drawing customer's attention to it. Marketing in launching alternative energy can also be defined as socially-ethical or socially responsible one. It is due to the fact that organizations not only define the needs and interest of target markets to RES but satisfy them in more effective and productive ways than traditional energy. It can be seen in increasing welfare of consumer and society. RES using is based on meeting customers' sensible, healthy requirements; environmental protection and improving; ecology problem solving; preserving non-renewable resources and improving living standards.

Accordingly RES using has a range of advantages over traditional energy: its supply is inexhaustible; using it is eco-friendly and safe; its large-scale use will increase country's energetic safety; merely the fact of using it is by itself a symbol of a country or an individual success. At the same time experts point out RES low productivity, its dependency on weather changes, and disability to satisfy all the human needs.

It should be noted here, that the most of RES types are considered to be free, though purchasing necessary equipment is very costly. This results in a kind of discrepancy appearing in the evidence that mainly rich entities and developed countries can afford using free energy. While more interested in RES applying countries don't have modern energy infrastructure. This is true speaking about Ukraine, for which using nonconventional energy sources could have been a way to solve the problem of energy saving and energy sources diversification, increasing environmental protection efficiency. For this reason it makes sense to redirect spending, made on importing, transporting, storage of carbohydrate recourses and disposition atomic waste materials to RES development. This in turn can stimulate domestic equipment manufacturing development and forming a new powerful economic segment.

Reproductive energy provision is a field involving the achievements of engineering sciences and meteorology, chemistry etc., in its turn it contributes to the small and medium-sized business development. Thus in Germany hundreds of thousands workers are employed in the energy production subfield, and the dynamics in XXI is constantly increasing. A major amount of new workplaces appeared in high tech and engineering enterprises of small and medium-sized business. Overall spending on RES is significantly smaller than economic results of their activity [6].

Consequently, to improve the situation, the RES development mechanism in Ukraine is needed to take place in terms of economic competition with other energy sources, together with simultaneous implementing of perspective RES technologies government support measures, which reflect social interest towards economic security level increasing, eco-friendliness and global climate changes countermeasures.

Modern state of Ukrainian energy supply requires large-scale combination of using traditional and nonconventional energy sources. Government programs introduce using the following RES: wing energy (constructing wind power stations); hydropower (mainly by constructing small and mini-HPP); solar radiation energy, the Earth deep-layer heat (geothermal), environmental heat (i.e. the Earth upper layers – the grounds), underground water; lakes, rivers, seas water with the use of heat pump, industry manufacturing secondary heat; biomass, biogas, coal bed methane, combustible raw refuses and industrial refuses, and some other kinds of alternative fuels.

Increasing technologies efficiency and reliability with RES, decreasing technologies costs and prices for the energy they produce, all these enable setting more ambitious goal for a period by 2035. RES more intensive development will also be stimulated by using local fuels (mainly biological solids) in cogeneration plants. To solve the problem of Ukraine ECO integration with the bigger share of RES, it is proposed to pay more attention to developing demand management system.

**Conclusions.** RES development and use will enable forming competitive relations in FEC and on the related markets, in turn contributing to improving pricing and tariffs policies by implementing economically based level of prices and tariffs on energy sources. The latest have to compensate economically based costs on production, transporting and energy resources supply.

Assuming that RES are potentially effective, though not properly developed in Ukraine, their complex marketing research should combine deep analysis and forecasting competitive possibilities on energy market with other types of energy production; market capacity should also be constantly studied; information about key trends in its development should be obtained as well as information on price conjuncture of energy market in a definite region. Marketing competency is a major means of meeting the goals set as for RES using by every market entity. The possibility of obtaining energy resources from alternative sources will mean that state in its turn will increase the renewable energy part in a balance of consuming primary energy resources, widen and maintain energy balance structure optimization, provide diversification in energy supply, and entering European energy market.

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**Liubov M. Tytarenko,** PhD, associate professor; Maxym V. Bytenko, Poltava National Technical Yuri Kondratyuk Univeristy. **Ukraine alternative energy marketing aspects.** The article investigates Ukrainian energy market problems and peculiarities. The differences between marketing in energy industry of domestic economy market and marketing in other fields of national economy are defined. The main directions of RES marketing system optimization are justified.

**Key terms:** energy market, traditional power system, renewable sources of energy, marketing, marketing systems.

**Титаренко Любов Михайлівна**, кандидат економічних наук, доцент, **Бутенко Максим Вікторович**, студент Полтавського національного технічного університету ім. Ю. Кондратюка. **Маркетингові аспекти альтернативної енергетики в Україні**. Визначено проблеми та особливості енергетичного ринку в Україні. Встановлено, відмінності маркетингу в енергетичному сегменті ринку національної економіки від маркетингу в інших галузях народного господарства. Обгрунтовано основні напрями оптимізації маркетингової системи ВДЕ.

**Ключові слова**: енергетичний ринок, традиційна енергетика, відновлювальні джерела енергетики, маркетинг, маркетингові системи

**Титаренко Любовь Михайловна**, кандидат экономических наук, доцент, Бутенко Максим Викторович, студент Полтавского национального технического университета им. Ю. Кондратюка**. Маркетинговые аспекти альтернативной энергетики в Украине.** Определены проблемы и особенности энергетического рынка в Украине. Установлено различия маркетинга в энергетическом сегменте рынка национальной экономики от маркетинга в других отраслях народного хозяйства. Обоснованы основные направления оптимизации маркетинговой системы ВИЭ.

**Ключевые слова:** энергетический рынок, традиционная энергетика, возобновляемые источники энергии, маркетинг, маркетинговые системы

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