UDK 72

PROSPECTS FOR GREEN ENERGY IN UKRAINE

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Abstract. The analysis of basic ecological problems, traditional energy sources related to negative influence is conducted on an environment in Ukraine. In a project innovative resource-saving technologies are stopped up on the basis of the use of alternative sunny energy. A structural decision is worked out for a modern dwelling-house (Odessa) with the use of restorative energy - sunny panels. The climatic terms of Odessa are used in a project. In this project the roof of house is directed abortively, that is why used the variant of placing of sunny batteries on a free area in a court. Sunny batteries are set from the sunny side of house (from south) with the aim of providing of maximally possible power of sunny energy in sunrise-to-sunset.

Relevance of topic. An important mission of «green» energy for Ukraine is power independence, – state energy efficiency. Development of restorative energy is straight related to the climatic obligations of Ukraine. From data of Worldwide organization of health protection, contamination of air is one of the basic risk factors for a health, related to the environment. In Ukraine in the cut of types of economic activity ¾ of volumes of atmospheric emissions is on the supply of power mediums facilities of permanent infrastructure (electric power, to gas and others like that) and on processing industry.

In the report of Institute of economic researches and political consultations specified that historical climatic data show the height of temperature in Ukraine, and climatic prognoses specify on the further height of temperature. On a period 2010-2070 forecast increase of temperature on all territory of Ukraine (Fig. 1). The greatest height of temperatures is foreseen in the East and Central regions of Ukraine (Fig. 1) [1].

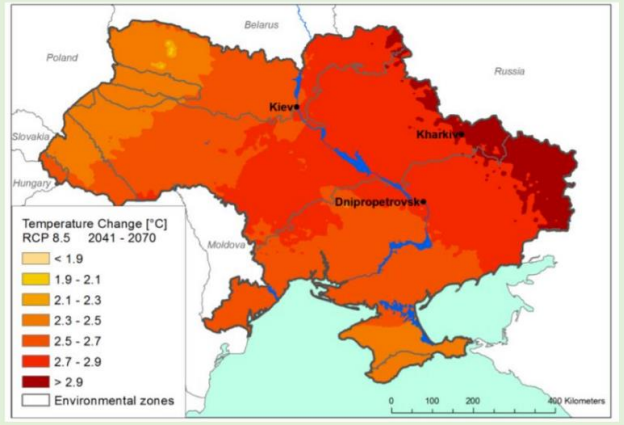

Fig. 1. Forecast of temperature increase on the territory of Ukraine

An increase of concentration of greenhouse gases in an atmosphere is one of the most important factors of rise in temperature in Ukraine.

Problem of reduction of emissions from stationary sources that cause a «hotbed effect», in particular to dioxide of carbon and methane, is important and requires a decision especially in the Central and South regions as such, that have the greatest indexes in relation to this contamination. There is a consumption of energy per head of population in Ukraine, and also the amount of emissions of CO_2 in a count per head of population for 30 grew short in over 3 times. It took place foremost through deindustrialization (Fig. 2). However, such problem is actual in Ukraine [2].

Fig. 2. Emissions of CO_2 and consumption of primary energy in Ukraine

Conclusion: by Basic directions of activity in Ukraine in relation to prevention of change of climate from realization of public policy in the field of change of climate on a period 2030 to is: reduction of anthropogenic emissions and increase of absorption of greenhouse gases and providing of the gradual passing to low-carbon development of the state; adaptation is to the change of climate, increase of resistibility and decline of the risks related to the change of climate.

Ukraine undertakes important steps for expansion of the use of restorative sources of energy and alternative types of fuel within the limits of the more wide strategy in relation to the decline of dependence on the traditional fossil types of fuel. It is calculated, that our country has potential, 2030 to tenfold to increase the use of restorative energy and on 15% to shorten the consumption of natural gas [3]. As restorative energy sources after regions and what type of restorative sources of energy are exactly distributed prevails in a that or other area it is possible to see on rice (Fig. 3) [4, 5].

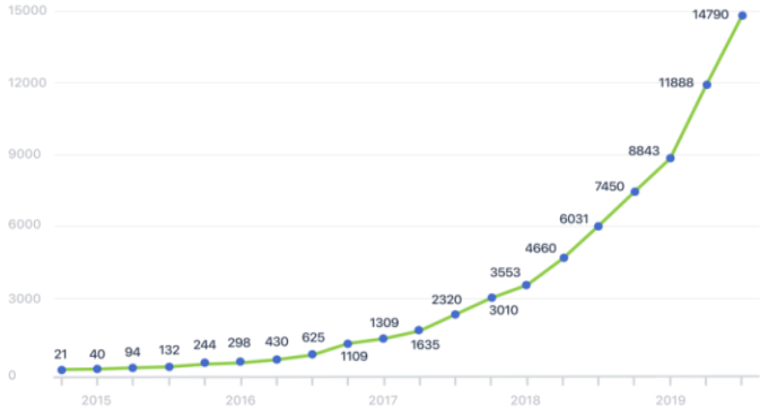

Fig. 3. Power strategy of Ukraine before 2035 year

The rates of development of green energy grow (Fig. 3) in Ukraine. In 2017 «Power strategy of Ukraine», according to that 2035 to Ukraine plans to increase the fate of restorative energy in the energy balance to 25%, was accepted in Ukraine. By the state on 2020 the fate of restorative energy in Ukraine presents approximately 3-4% and, alike, that at such level this increase will cease for a long time.

A climate and geographical location of Ukraine are friendly to development of sunny energy and building of sanitary and epidemiological station. As in Ukraine sunny energy - sufficiently popular restorative sources of energy, it is possible to look after, that regional distribution of the set objects of restorative sources of energy correlates insolations with a level. Even the north areas of country have considerable potential for development of this industry, that does not yield to majority of the European regions. (Fig. 4) [6].

Sunny energy of Ukraine is relatively new industry of electro-energy of Ukraine, which develops headily. The end of 2020 is set the state sanitary and epidemiological station by general nominal power.

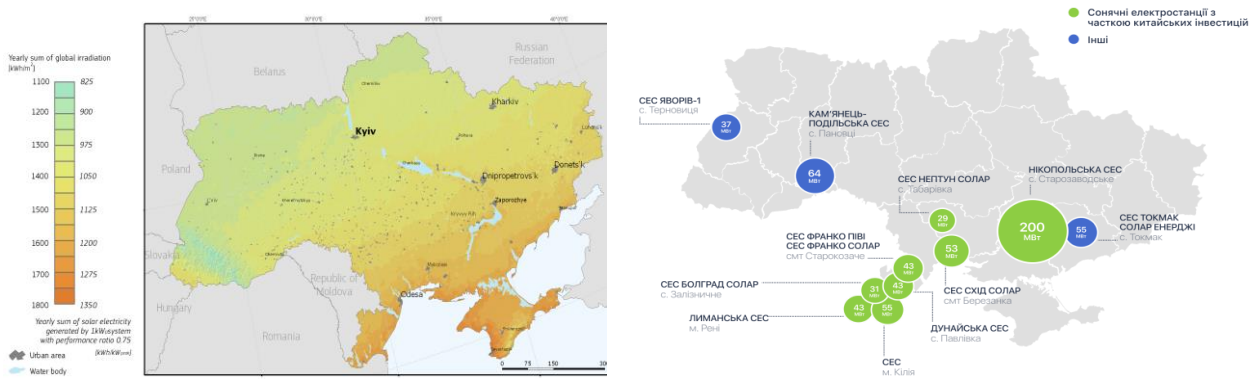

Fig. 4. Potential of sunny energy in Ukraine

Research object: a research object are structural receptions used for planning of energy-keeping sources of electric power are sunny batteries - in the project of the housing building located in Odessa.

Research methods. Practical realization in work it is attained by application of methodologies of calculation and planning of sunny panels for private building that is foreseen relevant by normative documents.

Work of results. The energy saving sources of electric power are used in a project - sunny batteries are in a project for the housing building located in Odessa. Analysis of climatic terms in Odessa showed that a climate in city is warm with plenty of sunny days (Fig. 5).

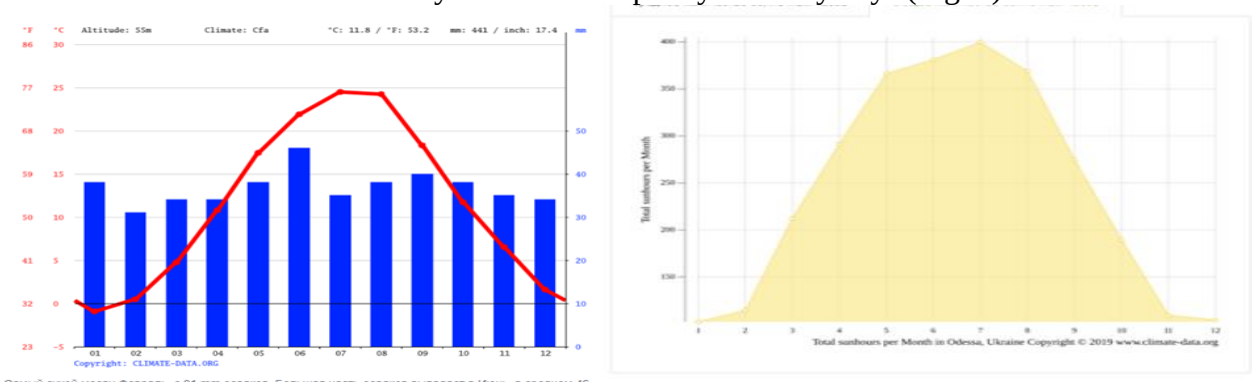

Fig. 5. Climatic graph of the city of Odessa

In the offered project he is provided as a result of next measures: planning of an eco-house taking into account «sunny architecture» – large surface with sunny batteries, is situated in direction southward, with heat-insulated walls – on a north; decline of heat loss double or triple as compared to the ordinary construction of windows due to the use of wide window profiles with the internal warming; triple glazing with low emission coverages; by the «warm» controlled from distance scopes on the edges of wooden double-glazed windows; by heat efficient shutters; diminishing of heat loss is on 10...15% due to providing of impermeability of construction: dense contiguity of structural elements of house friend.

In Fig. 6 the fundamental type of fluidizer is given feed of domestic technique in a cottage. Except sunny batteries that place on a facade or on the roof of cottage, to setting two important devices – chemical accumulators and regulator is a transformer enter also. In the day-time sunny batteries feed both electric devices and charge accumulators. At night and in the conditions of insufficient level of illumination of feed a source there are exceptionally accumulators. Regulators-transformers are needed for automatic control of charging-discharging of accumulators, switching of loading processes a sunny battery is an accumulator and for the concordance of initial tension of battery with the face value of apparatus.

Fixing of sunny batteries on a roof is obvious, but not always the best decision for a private house. The slope of a roof sent to the south really provides the best result from the stationary methods of fastening of sunny batteries, but variants are not limited thereon.

Fig. 6. Photo of object

In this project the roof of house is directed abortively, that is why used the most effective variant of placing of sunny batteries on a free area in a court. Sunny batteries are set from the sunny side of house (from south) with the aim of providing of maximally possible power of sunny energy in sunrise-to-sunset.

For the calculation of necessary amount of sunny batteries for a house, expected several factors: to the size of roof; amounts of consumable electric power are in a month; sums that ready to invest in a project; that is prescribed power in an agreement on the use of electric energy.

Conclusions:

General availability and inexhaustibility of source are basic advantages of sunny energy. Favourable climate – level of insolation (that is an amount of sunny radiation is on the square meter of terrene) – in most areas of Ukraine allows to Ukraine to become one of world leaders in area of sunny energy.

Favourable legal field that really stimulates investing in alternative energy, green tariff after that the state buys all electricity back, mine-out CEC - one of the greatest in Europe.

In a project innovative resource-saving technologies are stopped up on the basis of the use of alternative sunny energy. A structural decision is worked out for a modern dwelling-house (Odessa) with the use of restorative energy – sunny panels.

The permanent increase of electricity charges does justified investments in the generation of own electricity. Already it is now possible to talk about the parity of prices between an alternative and traditional electroenergy.

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