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NGO EXPERT WORK INFLUENCE ON THE FORMATION AND IMPLEMENTATION ON ENVIRONMENTAL AND ENERGY POLICY OF UKRAINE IN THE PROCESS OF DEVELOPING RENEWABLE ENERGY SOURCES

The article examines the results of expert work of NGO as an opportunity to participate in the formation and implementation of environmental and energy policy, ensure spreading renewable energy sources as an answer in energy crisis in Ukraine and EU. The recent EU decisions aimed to reduce fossil fuels are analyzed. The consequences of the low professional level political management in energy field decision-making process have been established. The main NGOs institutional development expert topics, which will ensure effective development of renewable energy sources on the local level, are determined. Based on the theoretical developments of the dissertation research, one of the Ukrainian NGO activity as an expert – analytical organization in the field of environmental management and energy policy were reviewed: analytical products were analyzed as a tool influence on formation environmental and energy policy on national and local level. Author provides own analyses of represented analytical product via graphs and analyzing causes. According to providing analysis, there were highlight five problems in today's policies to get aim in expanding the use of renewable energy: the model of centralized power supply does not correspond to today's Ukrainian realities, energy regulation management among the regions, outdated utilities, too large energy generating capacity, high-voltage networks are not properly ringed. Despite that fact, that it may be look like technical problems only, today it is crucial part of real changes in the way to develop renewable energy infrastructure, especially on the local level. In order to respond to the people's needs and avoid energy poverty in Ukraine, recommendations were given for the further NGO institutional development in the process of forming and implementing environmental policy in the context of the renewable energy sources development.

Key words: NGO, public policy, environmental policy, local policy, EU, institutional development, renewable energy.

Statement of the problem. Considering all of the critical energy challenges that Ukraine and world community has faced this year the urgency of the transition to renewables was the central message highlighted by EU leaders at COP27 this November [1]. The annual report of the Global Carbon Project scientific group [2] says if the level of CO₂ emissions recorded this year continues, then in 9 years the average temperature on Earth may rise to a dangerous 1.5 °C. 19 European Governments have increased ambitions on decarbonization in the last two years. Now the European Union is facing a once-in-a-lifetime dilemma: how to cut its dependency on energy while keeping the lights on for citizens and businesses across the continent. Answering multiple threats to their security, European countries have already heightened their ambition for the decarbonization of the economies and taken some steps to accelerate the shift from fossil fuels towards renewables. In May 2022 the EU has launched the

REPowerEU plan that envisages that 45% of the EU's energy mix in 2030 will consist of renewable energy, up from 40% in the earlier Fit-for-55 plan [3]. Reaching the target will require the EU to install a total capacity of 1,236 GW of wind and solar by 2030, which is 16% higher than the 1,067 GW envisaged in the Fit for 55 strategy. These plans should provide an 82% share of non-fossil energy sources in electricity generation in the EU by 2030, which is a significant increase compared to the 74% share projected under the plans that were set at the end of 2019. In response to that next steps were promoted. The 27 member states have subsidised renewables to the tune of €73 billion (versus a still-enormous €50 billion for fossil fuels). The EU countries have heightened its energy consumption reduction target from 9% to 13%, meaning that the EU will cut its energy use by an additional 4% points by 2030 compared to the reference scenario. The EU has planned to add nearly 40GW of solar in 2022, according to

SolarPower Europe (SPE). This would be up 45% from the 27GW added last year, which itself was the highest in a decade. The European Heat Pump Association has projected a 30% increase in sales in 2022, on top of 35% growth in 2021. In August, eight EU countries bordering the Baltic Sea agreed to increase offshore wind power capacity sevenfold by 2030, to reduce their dependence on Russian energy. A lot of initiatives has been launched on the national levels. The German government has launched “Onshore wind energy act” that seeks to overcome hurdles that have slowed the expansion of German wind power capacity over the past years, it allows wind power installation on 2% of Germany’s land area by 2032, and seeks to install 10 GW of onshore wind power capacity annually – almost five times more than the average installation over the years 2018–2021 [4]. Due to such determinate policy, the EU’s emissions of carbon dioxide (CO₂) from energy use have fallen by 5% over the August-October 2022 compared with the same period in 2021. As these policies bear fruit in the future, it assume Europe will become more energy secure than ever and accelerate its journey towards a net-zero future.

It is vital for Ukraine, as a candidate for the EU membership, to develop the infrastructure and energy measures within the framework of the EU environmental protection requirements, in particular the REPowerEU plan and possibly to get support from the Recovery and Resilience Fund (RRF) which is aimed at supporting the energy and infrastructure projects and reforms. It is stated in the document that the EU together with Ukraine will continue to ensure the security of supplying and functioning the energy sector, while paving the way for the future electricity and renewable energy trade, as well as rebuilding the energy system under the REPower Ukraine initiative. Successful implementation of the REPower Ukraine can help Ukraine weather, while facilitating sustainable development. Moreover, synchronized efforts of Ukraine and Europe will contribute to the achievement of the climate goals of the European Union. However, due to results one of Ukrainian NGO, there were identified amount of fundamental, historical problems in environmental and energy policies, which are blockage to development renewable energy resources in Ukraine.

Analysis of recent research and publications. Publications regarding consideration of issues of NGO expert work as opportunity to influence on the formation and implementation on environmental and energy policy of Ukraine in the process of developing renewable energy sources partly were

represented in various research search Ukrainian scientists as O.M. Sukhodolya, Yu.M. Kharazishvili, V.R. Kupchak, Y.I. Kogut, E. Dybtsyna, N. Pohribna etc. Foreign scientists can include: S. Stewart, P. Nore, M. Jefferson, K. Rietig and other. However, there are no scientific research, which be based on analysis everyday monitoring situation in Energy sector of Ukraine, which were prepared NGO, expert-analytical center which reflect today’s social-political crisis in Ukraine, damages of all energy network and, as a cause of presented problems, needs in narrow field knowledge for further effective NGO work on the local level.

Task statement. The purpose of the article is to analyze the expert work of NGO as tool of influence on the formation and implementation on Environmental and Energy policy of Ukraine in the process of developing renewable energy sources. Based on the results of analyses expert work of NGO, to provide suggestions for improving public policy in energy and environmental policies of Ukraine.

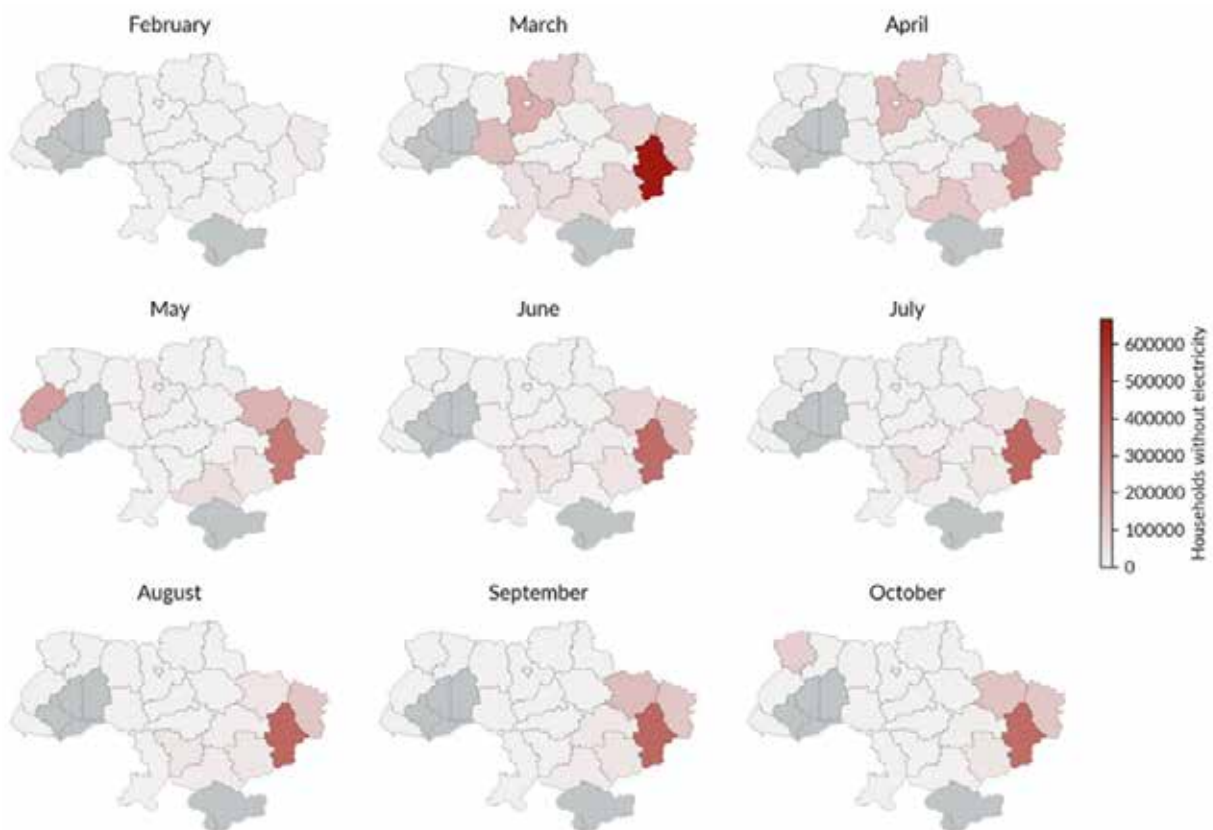
Outline of the main material of the study. Decentralization of energy supply based on the use of local sources of renewable energy is a more effective solution in the modern country’s conditions, which in its turn cause development well skilled local NGOs. On our opinion, a good example is when, a NGO that has grown to an expert and analytical center of the national level with the international participation is NGO, expert-analytical center DIXI Group. An organization that has a number of unique expert and analytical products in the field of «energy-renewable energy-environmental management-environmental policy-green course» and has an successful experience to communicate with EU Institutions [5]. Due to the work of experts, civil servants and politicians have the opportunity to receive analytics that are not produced by Ukrainian state authorities and make a sufficiently informed decision. The presented graphs create focal point for this article, were prepared by the author on the basis of the NGO DIXI Group everyday collected, checked and analyzed reports from more than 100 official primary sources: ministries, government agencies, network operators and energy companies. The information was collected from official websites and official pages in social networks, in some cases – also from relevant official media reports [6].

Using products of the NGO, expert-analytical organization DIXI Group is “Daily Review: Energy” as a basis, author of the article analyzed the Daily Reviews: Energy for the period February 2022 – October 2023, and prepared proposals, which can

become a strong argument in the further process of shaping and implementing environmental policy, choosing regions that should primarily develop renewable energy sources and pursue a policy of decentralization of energy resources, raise expert skills of local NGO. Also, need to mentioned, from the mid-September to the end of October 2022, the Ministry of Energy, as well as local communities, energy supply companies have ceased to provide specific indicators for the region on their official websites, that is, those that can be measured and used in building a diagram or completely suspended posting any information. Thus, the error in displaying the real situation is significant from mid-September to the end of October. Which, in turn, opens up the issue of transparency and availability of data in energy and natural resource policies. Taking into account that the availability of access to the indicated type of information is fundamental for the real participation of all interested political actors in the process of formation and implementation of environmental and energy policies, we note that DIXI Group experts have another analytical product «Energy Transparency Index», was developed in 2018 to assess the real state of availability and quality of information in the energy sector and to diagnose gaps [7].

The presented graphs 1–2 contain a list of regions with a mandatory distribution by territorial affiliation by region and the ability to determine which part, East of Ukraine, Center of Ukraine, North of Ukraine, West of Ukraine, suffered the most and at what specific time.

Dark gray color indicates that there is no information for this research time part. White color (meaning 10,000–20,000 households per day without electricity) indicates the absence of long outages – no more than 12 hours, minor outages that cannot be called large-scale in the specified area. Pink color (meaning 20,000–40,000 households per day were without electricity) indicates the presence of an average duration of outages no more than 24 hours. Red color (meaning 40,000–50,000 households per day were without electricity) indicates the presence of a high duration of outages more than 24 hours. Purple color (meaning 50,000–60,000 or more households per day were without electricity) indicates a lack of electricity at a critical level. Due to such problems as the lack of technical equipment for the restoration work, lack of access for specialists to the place of restoration work. Which means that the indicated problem of electricity supply for a significant number of residents cannot be solved within a month.



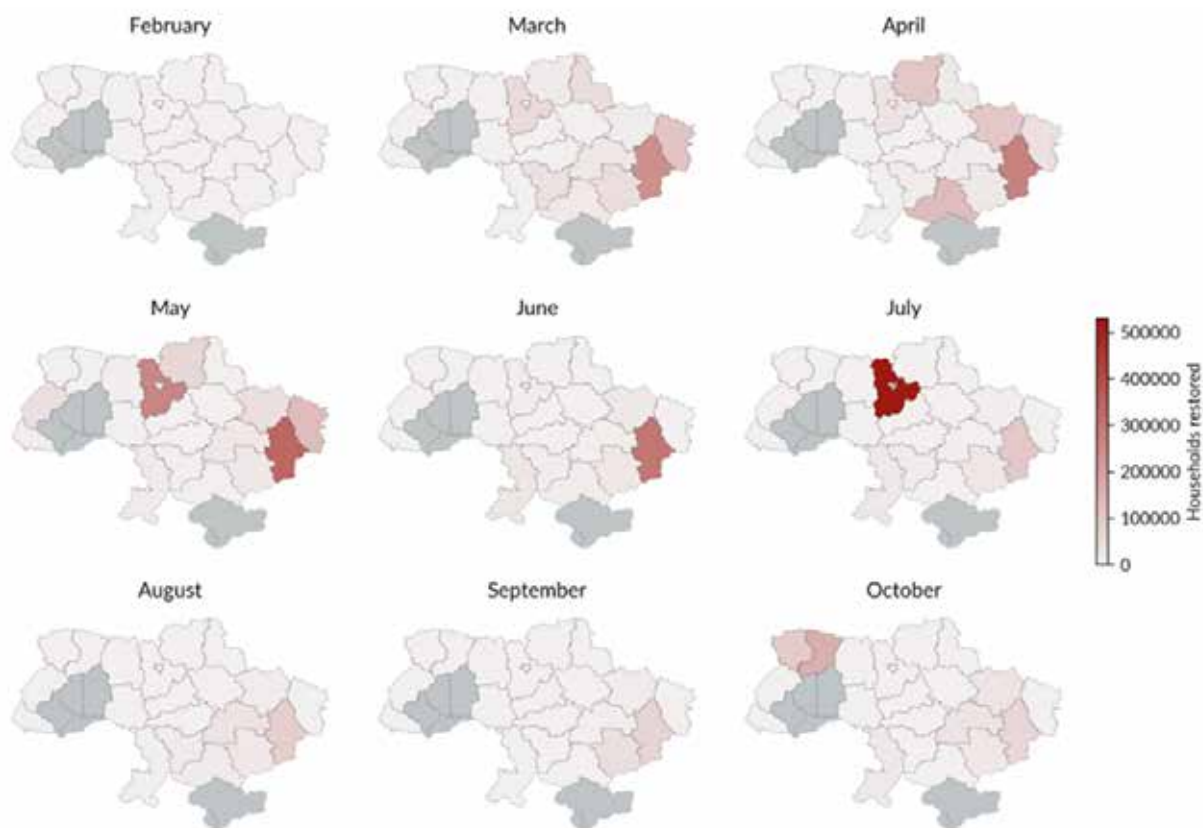
Graf 1. The number households left without electricity supply

According to the presented graph 1, no significant outages were observed in February, and there was no information for certain areas (indicated in dark gray color). In March, regarding the lack of power supply the most critical situation were in Donetsk, Luhansk, Vinnitsa, Chernihiv, Sumy, Kharkiv, Zaporozhye and Kyiv regions. At the same time, the situation in the Donetsk and Lugansk regions remained critical until the end of the research period. Since April, gained data for the Lugansk region has remained static with the value of the lack of electricity for 50,000 or more households. It can be commented as a result of the lack of the ability of official bodies, employees of the energy company to provide access to electricity supply.

Daily monitoring shows the problems of the process of restoration work of power supply within 24 hours, every month from February to October inc. Dark gray color means that information on the restoration of energy supply was not published at all on official websites. White in meaning for 100,000–200,000 households were restored access to electricity per day during the specified month. Employees of supplier companies, electrical engineers eliminated damage with the wording “on the same day”. Pink color (meaning 200,000–400,000 households per day had access to electricity restored during that

month). Employees of supplier companies, electrical engineers eliminated damage with the wording “during the day”. Red color (meaning for 400,000–500,000 households per day access to electricity was restored during the specified month) indicates the presence of a high duration of outages for more than 24 hours, large-scale damage, lack of physical and technical capabilities, significant consumption of equipment to replace damaged ones. Purple color (meaning for 500,000–600,000 or more households per day, access to electricity was restored during the specified month) indicates the intensive work of electrician teams in non-stop mode, a significant consumption of equipment to replace damaged ones.

In February, the official websites of more than 100 daily monitoring resources provided information about the restoration work, which amounted to less than 100,000 households. Since March, according to the compiled graf, repair work has been recorded in a number of regions. At the same time, the need to replace the damaged energy infrastructure was not fully covered in a 1:1 ratio. Thus, when comparing the damage and renewal schedules, it is possible to identify the activity of the inflicted damage, the shortage of the necessary equipment and specialists, and the physical ability to access the work location. In March, Kyiv, Sumy, Odessa, Zaporizhia, Donetsk



Graf 2. The number of settlements/households with restored electricity supply

and Luhansk regions became leaders in the intensity of replacement of damaged energy infrastructure. At the same time, full-scale repair work in the Donetsk region continued on a monthly basis, until the last month of daily monitoring. In April and May, the indicated recovery trend continued with the leadership positions of the Donetsk region. Throughout July, full-scale work on the resumption of electricity supply was carried out in the Kyiv region. In the period August – October, among the stable work of specialists in Donetsk, Zaporozhye, Kharkov, active work on the replacement of equipment in the last month of monitoring was carried out in Volyn and especially Rivne regions. Based on the results of daily monitoring in the period February-October, we can assume a number of managerial reasons that triggered the lack of balance in the energy system of Ukraine, the lack of technical details for restoration work. All provided authors analysis of everyday NGO DIXI Group monitoring may generally use by government authorities' different level for formatting and implementing energy policy in crisis, with preview for further development renewable energy infrastructure and encourage other local NGO to extend their knowledge and skills for active participation in ensuring local energy and environmental policies.

Let's provide specifying of identified problems and its cause on needs of expert knowledge for NGO members.

Since the USSR times, Ukraine has had a well-branched network of high-voltage lines and substations that can duplicate each other, as well as an excess of generating capacity – Soviet industry was quite energy-intensive. In addition, during the years of Ukraine's independence, a number of units were launched at the Zaporizhzhya, Khmelnytsky, and Rivne NPPs. If everything is in order, there is no shortage of electricity in the country and it can be easily exported to EU countries. Actually, this is what the Soviet power grid was designed for: high-voltage lines from the Khmelnytsky and Rivne NPPs go towards Poland and Hungary, from the South Ukrainian NPP – towards Moldova and Romania, from the Burshtyn and Dobrotvir TPPs – towards Poland and Slovakia. Despite the extensive network of high-voltage lines and surplus generation designed for export, this network also has significant shortcomings, which currently has a significant impact on the energy security of the country in a crisis situation.

Analysis of the results of the conducted daily monitoring of the number settlements/households which left without electricity supply and number settlements/households where electricity supply was

restored during the day show the reasons to claim that the model of centralized power supply, which was the core idea USSR energy system and now is promoted by EU lobbyists in Ukraine, does not correspond to today's Ukrainian realities. Today, the centralized energy system is more vulnerable and absolutely does not correspond to the results obtained after the decentralization reform in Ukraine. As the local authorities' right for the formation and implementation of local policy differ from the right in the energy sphere. There is an urgent need to establish a decentralized energy system, less vulnerable and with the possibility of forming and implementing energy policy on the local level. Taking into account the results of the analytical review, it is possible to create a plan for the development of expert NGOs that would become a reliable support in the process of decentralization of energy policy with the maximum possible use of renewable energy sources, coordinating it with environmental protection territory restrictions.

Another problem that was identified during the analysis of daily monitoring, is energy regulation management among the regions. In the USSR, the problem of peak loads was solved simply – due to the size of the state, the peaks in different regions did not come at the same time. Therefore, flows of electricity were created from regions where the current load is lower to regions where it is higher. With the disconnection from the network of the former USSR, this became impossible, so peaks in Ukraine began to be extinguished by additional inclusion in the work or withdrawal from it of generating capacities. Since nuclear power plants are not able to quickly change power, thermal power plants, hydroelectric power stations or specially built for such purposes hydroaccumulating stations were used for this purpose. The latter are the same HPPs that, thanks to the volume of the reservoir, have the opportunity to additionally accumulate water in periods when it is not consumed for the production of electricity. As of today, the territory controlled by Ukraine has decreased, so the problem of the lack of balance in the power grid has become even more acute. During the monitoring, due to a decrease in frequency at the Rivne, South Ukrainian and Khmelnytskyi NPPs, emergency protection was activated, all power units were automatically disconnected, which led to an imbalance of the power system throughout the territory, a blackout of the Ukrainian power system took place, and the vast majority of electricity consumers in all regions of Ukraine were cut off. All together, it opens up an opportunity to identify what kind of expertise knowledge needed for representatives of government,

local authorities and NGOs representatives, namely the principles of building a local power grid according to the requirements of a particular region and the cybersecurity of the local energy network.

The third problem is outdated utilities. In 2021, the technical conditions of the Ukrainian unified energy system infrastructure [7, 8] was assessed as critical in many Government documents due to the high degree of wear and tear of equipment, outdated technologies, the lack of sufficient investments, is a source of increased danger, leads to the need for unscheduled shutdowns of consumers from electricity and heat supply for repair work. At most power stations, the design resource of the equipment has already been exhausted and it is operated beyond the park operation period. 65% of the total length of overhead power lines have been operated for forty years or more. 61% of the main equipment of electrical substations have worked out their estimated technical resource. In distribution electric networks, 82% of overhead lines and 81% of cable power transmission lines are subject to major repair, reconstruction and replacement. 79% of the power units of generating companies of thermal power plants are working beyond the park operation period [9]. Based on the indicated situation, NGOs work may focus in the field of encouraging Government, state-owned companies to pursue a policy of updating the technical energy fund. Also, NGOs may work on the creation of investment portfolios local energy network and represent it to the business and foreign investors.

The fourth problem is too large energy generating capacity. Before independence of Ukraine, the bet was put on large nuclear power plants and hydroelectric power stations, as it made the cost of electricity cheaper. Currently, the lowest cost is the cost of electricity produced by hydroelectric power plants, then at nuclear power plants, and then everything else. As of the end of 2021, Ukraine had 9.7 GW of renewable energy capacity, of which 78.6% were solar plants and 17.3% were wind power plants. Other capacities relate to biomass, biogas and small hydropower plants. According to the estimates of the Ukrainian Wind Energy Association, as of September 2022, only 27% of the total installed wind capacity in Ukraine is producing electricity, the rest are not working due to damage to transformer substations and overhead power lines. Due to Ukraine's strong agricultural sector, biogas power plants may enter the competition in the future. However, currently there are only a few such plants. For example, in the Rivne region, the first cogeneration plant for the production of electricity and heat from gas

was built and launched recently. The first cogeneration plant has an electrical capacity of 1 MW and a thermal capacity of 1.2 MW [10]. Unfortunately, "Green" energy, is still expensive. At the Recovery Conference in Lugano (Switzerland), Ukraine presented a plan to build 30 GW of "green" energy until 2032, which will require \$130 billion in investments [11]. Recovery Plan aimed at accelerating sustainable economic growth, energy independence and the Green Deal. Based on the actual results of the review, taking into account price of the development green energy infrastructure, need to specify green energy technology, people's needs and environmental restrictions for each region. It is necessary to look for a balance of the costs and benefits of energy project, which requires an integrated approach of communication between research institutions, business, government, NGOs with expert knowledge of planning and conducting green energy projects.

The fifth problem is that high-voltage networks are not properly ringed. During the entire period of Ukraine's independence, no targeted program focused on the decentralization of electricity production and supply. Because of this, today's Ukraine has lost the ability to effectively regulate power in the energy network. During the years of independence, it was planned to build several lines of 330 kV and 750 kV, which would slightly correct the problem. Some of them were built. The started construction of the 750 kV line from the Rivne NPP to Kyiv, which was supposed to partially compensate for the shutdown of the Chornobyl NPP, was completed in December 2015. A year later, a branch of the Khmelnytsky NPP – Chornobyl NPP line to the same "Kyivska" substation was completed. In November 2020, the 750 kV Zaporizhzhya NPP – Kakhovska line was put into operation. The construction of the 330 kV Novoodesk – Artsyz overhead line was stalled due to environmental problems (it crossed nature protection zones), and some other projects remained under development. This problem demonstrates the importance of "political will", the state course of development and its further financing, the choice of projects for financing by the state budget. Based on the realities and procedural aspects, NGO use role of an adviser or "watchdog" in the process of discussion, planning of energy projects on a national and international scale, which require high level of expertise and previous professional experience in advocacy campaigns.

Conclusions. Considering the today's Ukrainian energy infrastructure and all the above mentioned historically based problems the situation in the Ukrainian energy system is seemed as critical, about

10 million citizens permanently take a risk to be left without electricity supply. Which, in turn, opens up an additional field for the NGO work and local authorities, businesses – «energy poverty».

Based on the results of the analysis of the Daily Review: Energy” materials for the period February 2022 – October 2023, the decentralization of the energy system of Ukraine as a whole is the main task, expanding the use of renewable energy sources at the local level is one of the tools to achieve energy security at the national and local

levels. However, given the need to decentralize the energy system with a focus on the advantage in the use of renewable energy sources, which, in turn, can negatively affect on the territories and objects of the national and local nature reserve fund, it is necessary through the national educational program to provide training for representatives of local governments and representatives of local NGO on highly specialized topics that will help ensure the informed participation of civil society organizations in this long-term process.

Bibliography:

1. COP 27. URL : <https://cop27.eg/#/> (дата звернення: 27.03.2023)
2. Pierre Friedlingstein, Michael O’Sullivan, Matthew W. Jones and oth. Global Carbon Budget 2022. Earth System Science Data Volume 14, issue 11, 4811–4900, 2022. URL: <https://essd.copernicus.org/articles/14/4811/2022/> (дата звернення: 27.03.2023)
3. REPowerEU: A plan to rapidly reduce dependence on Russian fossil fuels and fast forward the green transition, 18 May 2022 Brussels. URL: <https://www.eurointegration.com.ua/experts/2022/07/7/7142746/> (дата звернення: 27.03.2023).
4. The Onshore Wind Energy Act, 2022. URL: <https://www.bundesregierung.de/breg-de/themen/klimaschutz/onshore-wind-energy-act-2060954> (дата звернення: 27.03.2023)
5. NGOs interactions with EU Institutions within the process of forming and implementing EU policy: effective public policy tools for the environmental policy of Ukraine. URL: <https://www.inter-nauka.com/issues/administration2022/6/8277> (дата звернення: 27.03.2023)
6. DIXI Group: Daily Review: Energy. URL: <https://dixigroup.org/analytic-cat/viina-v-ukraini/> (дата звернення: 27.03.2023)
7. DIXI Group: Energy Transparency Index of Ukraine <https://index.ua-energy.org/en/>
8. Transmission system development plan for 2019–2028, Ukrenergo. URL: <https://ua.energy/wp-content/uploads/2018/03/PROEKT-Planu-rozvytku-systemyperedachi-na-2019-2028-roky.pdf> (дата звернення: 27.03.2023)
9. Energy of Ukraine: challenges and initiatives, 2020 Razumkov Center. URL: https://razumkov.org.ua/uploads/article/2020_energy_initiatives.pdf (дата звернення: 27.03.2023)
10. The first cogeneration plant was built and launched in the Rivne region. URL: <http://www.golos.com.ua/article/367793> (дата звернення: 27.03.2023)
11. Recovery Conference in Lugano (Switzerland) <https://www.urb-international.com/>

Порєва В.О. ВПЛИВ ЕКСПЕРТНОЇ РОБОТИ ГРОМАДСЬКОЇ ОРГАНІЗАЦІЇ НА ФОРМУВАННЯ ТА РЕАЛІЗАЦІЮ ЕКОЛОГІЧНОЇ ТА ЕНЕРГЕТИЧНОЇ ПОЛІТИКИ УКРАЇНИ В ЧАСТИНІ РОЗВИТКУ ВІДНОВЛЮВАЛЬНИХ ДЖЕРЕЛ ЕНЕРГІЇ

У статті розглядаються результати експертної роботи громадської організації як інструмент участі у формуванні та реалізації екологічної та енергетичної політики, забезпечення поширення відновлюваних джерел енергії як відповіді на енергетичну кризу в Україні та ЄС. Проаналізовано останні рішення ЄС, спрямовані на скорочення використання викопного палива. Встановлено наслідки низького професійного рівня політичного менеджменту в процесі прийняття рішень у сфері енергетики, відновлюваних джерел енергії. Визначено основні напрями експертної роботи з інституційного розвитку громадських організацій, які забезпечать ефективний розвиток відновлюваних джерел енергії на місцевому рівні. На основі теоретичних розробок дисертаційного дослідження розглянуто діяльність однієї з українських громадських організацій як експертно-аналітичної організації у сфері екологічного менеджменту та енергетичної політики: проаналізовано аналітичні продукти як інструмент впливу на формування екологічної та енергетичної політики національної і місцевої рівень. Автор надає власний аналіз представленого аналітичного продукту за допомогою графіків та аналізу причин. Згідно з наданим аналізом, було виділено п’ять проблем у сьогоднішній політиці, спрямованої на розширення використання відновлюваної енергії: модель централізованого енергопостачання не відповідає сьогоднішнім українським реаліям, проблема регулювання енергетики між регіонами, застарілі енергетичні мережі, занадто великі енергогенеруючі потужності, високовольтні мережі не

закільцьовані. Незважаючи на той факт, що це може виглядати лише як технічні проблеми, сьогодні це важлива частина реальних змін у шляху розвитку інфраструктури відновлюваної енергетики, особливо на місцевому рівні. Для побудови конкурентоспроможної діяльності громадської організації, яка зможе брати участь у формуванні та реалізації національної екологічної та енергетичної (природно-ресурсної) політики з метою просування відновлюваної енергетики, необхідно створити національну освітню програму з основними цільовими групами: місцевими громадськими організаціями та представниками органів місцевого самоврядування. Щоб відповісти на потреби сучасних громадян та уникнути енергетичної бідності в Україні, були надані рекомендації для подальшого інституційного розвитку громадських організацій в процесі формування та реалізації екологічної політики в частині розвитку відновлювальних джерел енергії.

Ключові слова: громадська організація, публічна політика, екологічна політика, місцева політика, ЄС, інституційний розвиток, відновлювана енергетика.