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CHAPTER 5. SPECIFIC FEATURES OF LEGISLATIVE REGULATION OF SOLAR ENERGY IN UKRAINE

5.1. Legislation in the field of solar energy

Solar energy relations are relatively new for Ukraine, which is why the legal regulation of the use of solar energy as an alternative source has been actively developed during the last two decades of the last century and demonstrates the change in the energy development paradigm. The relatively higher environmental friendliness of solar energy was one of the factors that determined the special interest of the state in the priority legal stimulation of solar energy.

The foundations for the development of alternative energy generation in Ukraine, including solar, were laid by the adoption of two basic Laws of Ukraine: "On Energy-Saving" and "On Energy Industry". To support the development of solar energy and ensure energy conservation in general, government decrees approved the Comprehensive State Energy Saving Program of Ukraine dated February 5, 1997[1], as well as the Program of State Support for the Development of Non-Traditional and Renewable Energy Sources and Small Hydro– and Thermal Power Generation dated December 31, 1997[2]. However, these documents did not play a significant role in the development of solar energy due to their general nature and lack of clear mechanisms for their implementation. A special role in the development of solar energy belongs to the Law of Ukraine "On Alternative Energy Sources" dated February 20, 2003 and the legal mechanism of the "green" tariff.

The dynamic development of industry legislation regulating the functioning of alternative energy has had a significant impact on the effectiveness of legal regulation of the development and stimulation of solar

[1] Про Комплексну державну програму енергозбереження України: постанова Кабінету Міністрів України від 5 лютого 1997 року № 148. *Офіційний вісник України*. 1997. № 6. Ст. 945.

[2] Про Програму державної підтримки розвитку нетрадиційних та відновлюваних джерел енергії та малої гідро– і теплоенергетики: постанова Кабінету Міністрів України від 31 грудня 1997 року № 1505. URL: https://zakon.rada.gov.ua/laws/show/1505-97-п#Text

energy. Thus, an important element of the mechanism of state regulation of solar energy is the tariff and fiscal policy. That is why the system of legal protection of solar energy is complemented by the provisions of the Tax and Customs Codes of Ukraine[3], the norms of which contain provisions on the reduction of land tax for solar energy enterprise, exemption from taxation of profit from the main activity of economic entities in the field of energy, which produce energy from solar radiation, exemption from value-added tax on the importation into the customs territory of Ukraine of equipment that works on solar energy, equipment and materials for the production of energy from solar radiation, as well as exemption from payment of import duty on the specified equipment, equipment and materials.

The provisions of the Law of Ukraine "On Amendments to the Tax Code of Ukraine and Some Other Legislative Acts of Ukraine Regarding Improvement of Administration and Revision of Rates of Individual Taxes and Fees" of November 23, 2018 (entered into force on January 1, 2019) were aimed at further promoting the development of the solar energy sector[4]. In particular, the Tax Code of Ukraine states that until December 31, 2022, solar photoelectric panels, inverters and transformers of the appropriate capacities are exempted from tax on the added value of the operation.

The specificity of solar energy generation lies in the close relationship with land plots, which are the territorial basis for placing solar panels and other necessary solar energy installations. The adoption of the Law of Ukraine "On the Power Engineering Lands and the Legal Status of Special Zones of the Power Engineering Objects" dated July 9, 2010 [5] became a positive milestone in the development of industry legislation and contributed to the improvement of the organizational and legal basis for the provision and use of land plots for the location of energy facilities, in particular power plants using the energy of the sun. According to the legislative amendments, it is allowed to place alternative energy facilities that use solar energy not only on land designated as "energy land", but also on other land included in the general category of "industry, transport, communication, energy land, defense and other purposes" without the need

[3] Кузьміна М. Систематизація законодавства у сфері відновлювальної енергетики. *Економічна теорія та право.* 2016. № 2. С. 122–132.

[4] Про внесення змін до Податкового кодексу України та деяких інших законодавчих актів України щодо покращення адміністрування та перегляду ставок окремих податків і зборів: Закон України від 23 листопада 2018 року. *Офіційний вісник України*. 2018. № 98. Ст. 3220.

[5] Про землі енергетики та правовий режим спеціальних зон енергетичних об'єктів: Закон України від 09 липня 2010 року. *Відомості Верховної Ради України*. 2011. № 1. Ст. 1.

to change their intended purpose. Undoubtedly, this legislative provision greatly simplified access to land plots for placing solar energy facilities.

In the legal literature, attention is reasonably drawn to the fact that to ensure the production of energy in a quantity sufficient for the effective implementation of the solar power plant construction project, not only the legislative basis is necessary, but also a thorough study of the natural conditions of the area on which the land plot is located[6]. Thus, it is more economically advantageous to place solar energy facilities on land plots that are most exposed to sunlight, mainly with a slope to the south and located in regions with the maximum number of sunny days during the year. In order to maximize the efficiency of solar energy production, one should also take into account the proximity of such land plots to electrical grids or the presence of appropriate energy infrastructure, primarily transformer substations. In the opposite case, the costs of connecting a power plant on such a plot of land either significantly reduce the effect of investments in such a project, or make it unprofitable altogether. At the same time, in the case of placing solar installations on surfaces and objects other than the ground itself – for example, on the roofs and walls of buildings, land legal relations may not arise[7]. Therefore, despite the existence of specific features related to land use for solar energy facilities, these features are not yet reflected in current legislation."

Attention is also drawn to the technical nature of most of the legislation on alternative energy, which regulates procedural issues in the production of electricity from the energy of solar radiation. For example, in 2015, by the Law of Ukraine "On Amendments to Certain Laws of Ukraine Regarding Ensuring Competitive Conditions for the Production of Electricity from Alternative Energy Sources", the rights of household users regarding the installation of a generating plant operating on an alternative energy source in private farms were specified. In particular, concerning solar energy, the installed capacity should not exceed 30 kW. The production of electricity from the energy of solar radiation by private households is carried out without an appropriate license[8].

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[6] Чумаченко І. Є. Еволюція законодавства про сонячну енергетику в Україні. *Юридичний науковий електронний журнал.* 2021. № 11. С. 352–356.

[7] Харитонова Т. Є., Григор'єва Х. А. Особливості геліоенергетичних правовідносин в Україні (на матеріалах практики). *Часопис Київського університету права.* 2021. Вип. 3. С. 224–230.

[8] Про внесення змін до деяких законів України щодо забезпечення конкурентних умов виробництва електроенергії з альтернативних джерел енергії: Закон України від 04 червня 2015 року. *Відомості Верховної Ради України.* 2015. № 33. Ст. 324.

The impetus for the modernization of the field of alternative energy, including solar energy, was the adoption of the Law of Ukraine "On Electricity Market" dated April 13, 2017[9]. In particular, it provided for the possibility of concluding long-term contracts for the purchase of electricity produced under the "green" tariff, as well as agreeing to the purchase and sale of electricity between a guaranteed buyer and a business entity that produces electricity from alternative energy sources, and based on the results the auction acquired the right to support.

In April 2019, a number of legislative changes were adopted aimed at changing the protective conditions for the functioning of alternative energy, which directly affected the field of solar energy, namely: the planned transition from the support system based on the "green" tariff to the competitive model of stimulating the development of renewable energy by conducting auctions with distribution of support ("green" auctions). The justification for the proposed legislative changes was the high level of the "green" tariff (especially for solar power plants), which created an excessive price burden for consumers, which subsequently tended to rapidly increase with the commissioning of new power plants[10].

Of particular importance was the adoption of the Law of Ukraine "On Amendments to Certain Laws of Ukraine on Ensuring Competitive Conditions for Electricity Production from Alternative Energy Sources" dated April 25, 2019 [11]and the Procedure for Conducting Auctions for Allocation of Support Quota, approved by the Resolution of the Cabinet of Ministers of Ukraine dated December 27, 2019 No. 1175 (as amended by Resolution No. 889 of the Cabinet of Ministers of Ukraine dated August 2, 2022)[12], which determined the procedure for preparing and conducting an auction for the distribution of support quotas to stimulate producers of electricity from alternative energy sources. In particular, those business entities intending to produce electricity from solar energy, whose installed capacity is more than 1 MW, must participate in the auction. At the same

[9] Про ринок електричної енергії: Закон України від 13 квітня 2017 року. *Офіційний вісник України*. 2017. № 49. Ст. 1506.

[10] Дороніна І. І. Нормативно-правове забезпечення розвитку відновлюваної енергетики в Україні. *Державне управління та місцеве самоврядування.* 2020. Вип. 1 (44). С. 31–43.

[11]Про внесення змін до деяких законів України щодо забезпечення конкурентних умов виробництва електричної енергії з альтернативних джерел енергії: Закон України від 25 квітня 2019 року. *Відомості Верховної Ради України*. 2019. № 23. Ст. 89.

[12] Про запровадження конкурентних умов стимулювання виробництва електричної енергії з альтернативних джерел енергії: постанова Кабінету Міністрів України від 27 грудня 2019 року № 1175. *Офіційний вісник України*. 2022. № 66. Ст. 3967.

time, the condition for participation in the auction is the absence of an established "green" tariff for the object of solar energy and/or the absence of a previously obtained right to support based on the results of the auction for this object.

In July 2019, in order to eliminate inconsistencies in the procedure for setting the level of the "green" tariff for private households that produce electricity from the energy of solar radiation and whose generating units are located on land plots with a capacity of no more than 30 kW, amendments were made to Article 9-1 of the Law of Ukraine "On Alternative Energy Sources"[13].

Legislative changes regarding the stimulation of the development of alternative energy, including solar energy, which is aimed at reducing the size of the "green" tariff, which was the only effective means of stimulating the development of the use of renewable sources in Ukraine, deserve attention. Thus, according to the Law of Ukraine "On Amendments to Certain Laws of Ukraine on Improving the Conditions for Supporting the Production of Electric Energy from Alternative Energy Sources" from July 21, 2020, [14] the tariff for solar power plants that were put into operation before 2020 was reduced in the field of solar energy, with a capacity of more than 1 MW by 15%, with a capacity of up to 1 MW – by 10%; for solar power plants commissioned in 2020 and later, the reduction will be an additional 2.5%; in 2022, producers of "green" energy undertake to bear financial responsibility for the imbalance of their actual and accepted (forecast) electricity production schedules. The size of the permissible forecasting error will be 5% for SPP(solar power plant); from August 1, 2020, new solar power plants with a capacity of more than 1 MW will be able to be put into operation and count on state support only by participating in auctions. Undoubtedly, such unforeseen changes in legislation threaten to slow down the development of solar energy.

The permanent damage to a large part of the state's energy infrastructure as a result of military operations on the territory of Ukraine affected the *reduction of solar generation volumes, the deepening of the financial crisis in the market of alternative energy sources, and the limitation of* payments under the "green" tariff for the period of martial law. According to the estimates of the Secretariat of the Energy Charter (Energy Charter) dated

[13] Про внесення змін до статті 9-1 Закону України "Про альтернативні джерела енергії" щодо врегулювання питання генерації електричної енергії приватними домогосподарствами: Закон України від 11 липня 2019 року. *Офіційний вісник України*. 2019. № 63. Ст. 2193.

[14] Про внесення змін до деяких законів України щодо удосконалення умов підтримки виробництва електричної енергії з альтернативних джерел енергії: Закон України від 21 липня 2020 року. *Офіційний вісник України*. 2020. № 63. Ст. 2027.

January 27, 2023, approximately 20% of commissioned Ukrainian solar energy facilities have been destroyed, destroyed or are under occupation. These are mostly industrial power plants of Zaporizhzhya, Kherson regions and the Mykolaiv power plant, but numerous home solar plants were also affected[15]. Currently, about 60% of industrial solar power plants are concentrated in the southern and southeastern regions of Ukraine, where active hostilities are taking place.

With the introduction of martial law in the country, there are forced changes in the protection and legal mechanisms for supporting alternative energy, including solar energy. Thus, with the adoption of the Law of Ukraine "On the State Budget for 2023" the effect of the provisions of Part 3 of Article 8 of the Law of Ukraine "On Alternative Energy Sources", according to which the Cabinet of Ministers of Ukraine had to provide in the state budget for expenses for financial support of the guaranteed buyer for the payment of electric energy produced from alternative sources, in accordance with the budget requests of the Ministry of Energy of Ukraine, based on the calculations provided NCSEPU, in the amount of at least 20% of the forecast production of commodity electricity from alternative sources for the corresponding year[16].

A rather problematic issue of the wartime period should be considered the fact that the debt repayment to producers from alternative sources of energy, including solar, was temporarily postponed, and the percentage of payments for electricity supplied in 2022 was limited for the duration of martial law (up to 18% of weighted average size of the "green" tariff for 2021 for producers of electricity from solar radiation)[17].

In addition, since the introduction of martial law in Ukraine, the NCSREPU adopted a number of changes to regulatory acts, which significantly violated the rights of entities of decentralized private energy. In particular, with its latest resolutions, the National Energy Regulatory Commission of Ukraine completely changes the rules of the "green" tariff for private solar power plants, despite the guarantees provided by the state. The most criticized were the resolutions of the NCSEPU "On Approval of Amendments to the Rules of the Retail Electricity Market" dated October 5,

[15] Керівники АСЕУ: правові підсумки 2022 року для галузі ВДЕ та перспективи 2023. URL: http://reform.energy/news/kerivniki-aseu-pravovi-pidsumki-2022-roku-dlya-galuzi-vde-ta-perspektivi-2023-21255(дата звернення: 01.07.2023 року)

[16] Про Державний бюджет України на 2023 рік: Закон України від 03 листопада 2022 року. *Офіційний вісник України.* 2022. № 94. Ст. 5847.

[17] Про розрахунки з виробниками за "зеленим" тарифом: наказ Міністерства енергетики України від 15 червня 2022 року № 206. *Офіційний вісник України*. 2022. № 52. Ст. 3021.

2022 No. 1272, which amended the Rules of the Retail Electricity Market[18], as well as "On the peculiarities of determining the amount and carrying out calculations for the electricity produced by generators installations of private households during martial law in Ukraine" dated April 26, 2022 No. 396, according to which the owners of generating capacities of households for the wartime period were limited in calculations with payment of 1/3 of the cost of supplied electricity, provided for by law[19].

The result of a series of official appeals and a public information campaign launched by representatives of the sector of renewable energy sources was the restoration of the rights of the owners of home solar power plants, namely: the full payment of the "green" tariff was restored from January 30, 2023. In particular, the NCSEPU recognized Resolution No. 396 of April 26, 2022 "On the peculiarities of determining the amount and carrying out calculations for the electric energy produced by the generating units of private households during the martial law in Ukraine" as invalid from February 1, 2023, and determined the terms making full payment for the cost of electric energy produced by the generating units of private households in an amount that exceeds the monthly consumption of electric energy by such private households, purchased by universal service providers under contracts for the purchase and sale of electric energy at a "green" tariff by a private household[20].

Undoubtedly, this timely decision taken by the NCSEPU helped to relieve social tension and restore the rights of owners of private solar power plants. Given that there are currently about 45,000 private solar power plants with a total capacity of 1.2 GW in Ukraine, state bodies must take the necessary organizational and legal actions to maintain and stimulate solar generation. On the contrary, the current trends of the deepening of the financial crisis in the field of solar energy testify to the inefficiency and inconsistency of the state's energy policy regarding the order of calculations and the amount of payments under the "green" tariff in wartime conditions.

It is believed that for the stable functioning of the solar energy sector, it is necessary to ensure the immutability of the legislation regarding the

[18] Про затвердження Змін до Правил роздрібного ринку електричної енергії: постанова НКРЕКП від 05 жовтня 2022 року № 1272. URL: https://zakon.rada.gov.ua/rada/show/v1272874-22#Text (дата звернення: 01.07.2023 року)

[19] Про особливості визначення обсягу та проведення розрахунків за вироблену електричну енергію генеруючими установками приватних домогосподарств під час дії в Україні воєнного стану: постанова НКРЕКПвід 26 квітня 2022 року № 396. URL: https://ips.ligazakon.net/document/GK51432 *(втратила чинність)*

[20] Про визнання такою, що втратила чинність постанови НКРЕКП від 26 квітня 2022 року № 396: постанова НКРЕКП від 30 січня 2023 року № 153. URL: https://zakon.rada.gov.ua/rada/show/v0153874-23#Text

system of support for producers of electricity from solar radiation, the gradual repayment of debts, as well as compliance with the existing guarantees provided to investors at the legislative level.

At the beginning of 2022, in order to implement the provisions of the RED II Directive, the Government of Ukraine developed a draft of the National Action Plan for the Development of Renewable Energy for the period until 2030, which will determine the development of the industry for ten years and will be an integral part of the integrated National Plan for Energy and Climate. According to the project, taking into account the fact that the indicators of the National Plan of Action for the Development of Renewable Energy for the period until 2020 in terms of solar energy have been exceeded by more than three times, further stimulation by the state of the development of this sector of renewable energy will take place in minimal volumes. At the same time, implementation of solar energy projects can be carried out on market terms.

A moderate increase in the installed capacity of solar energy facilities, which produce electrical energy for supply to the network, is expected. At the same time, the growth of the installed capacity of solar energy is planned due to the installation of generating units by consumers, including energy cooperatives and private households, in order to cover their consumption[21].

An extremely important decision made during the war, which directly affects the further development of solar energy in Ukraine, is the approval by the European Commission on May 18, 2022 of the REPowerEU plan, which defines the development of renewable energy sources as a primary public interest and provides for an increase in the EU goal of achieving the share of RES in electricity balance in 2030 from 40% to 45%. As for the further development of solar energy, under the current market realities in Ukraine and in accordance with the goals set in the RePowerEU Plan, the sector of small solar generation will gain active development, namely the installation of photovoltaic systems on roofs of buildings and households. In particular, RePowerEU envisages the mandatory installation of solar panels on the roofs of buildings (new commercial and public) by 2025, as well as on the roofs of new residential buildings – by 2029. The goal of the Plan is

[21] Проект розпорядження Кабінету Міністрів України "Про Національний план дій з розвитку відновлюваної енергетики на період до 2030 року" від 20 січня 2022 року. URL: https://saee.gov.ua/uk/content/elektronni-consultatsii (дата звернення: 01.07.2023 року)

to increase the share of solar photovoltaic energy by 2025 and to reach a total of 600 GW by 2030[22].

Based on the analysis of the regulatory and legal basics of the operation of solar energy, it is possible to identify some of the most important features of legislative support in this area: 1) instability and declarative nature of the legislation; 2) non-specialized nature of legislation; 3) the procedural and technical nature of most norms, 4) a more significant decrease in protection compared to other types of alternative energy.

Legislation on solar energy was formed in the system of legislation on alternative energy. Despite a significant number of legal acts regulating the use of alternative energy sources, the regulation of relations in the field of solar energy is fragmentary and contradictory in some places. Given the established guidelines for the development of solar energy, support from the state can be traced, but for the most part, it is declarative and inconsistent, and in some places it has, on the contrary, a retrospective orientation[23].

The trend of dynamic development of industry legislation regulating the functioning of alternative energy allows us to note that the legal foundations of solar energy are mostly non-specialized, i.e. universal for all areas of energy production from alternative sources. That is, currently the legislative provision of alternative energy is based on the principle of maximum universality. However, if in some issues general norms are a priority way of regulating relations and establishing a unified legal regime, then the presence of objective features of solar energy relations requires their special regulation[24].

5.2. Legal features of solar energy relations

During the last decade, there has been a definite tendency in Ukraine towards the rapid development of solar energy – a type of renewable energy based on the use of the inexhaustible energy of the Sun. Among all types of

[22] Омельченко В. Сектор відновлюваної енергетики України до, під час та після війни. Razumkov, 2022. URL: https://razumkov.org.ua/statti/sektor-vidnovlyuvanoyi-energetyky-ukrayiny-do-pid-chas-ta-pislya-viyny (дата звернення: 01.07.2023 року).

[23] Чумаченко І. Є. Еволюція законодавства про сонячну енергетику в Україні. *Юридичний науковий електронний журнал.* 2021. № 11.

[24] Харитонова Т. Є., Григор'єва Х. А. Особливості правового регулювання сонячної та вітрової енергетики в Україні. *Європейський вибір України, розвиток науки та національна безпека в реаліях масштабної військової агресії та глобальних викликів XXI століття" (до 25-річчя Національного університету "Одеська юридична академія" та 175-річчя Одеської школи права):* матеріали Міжнарод. наук.-практ. конф. (Одеса, 17 червня 2022 року). Одеса: Видавничий дім "Гельветика", 2022. С. 626–628.

alternative energy in Ukraine, it is solar that has received the most powerful development, far ahead of all others. A fruitful synthesis of theoretical and practical materials, in particular court practice in this area, made it possible to highlight the main legal features of solar energy relations.

1) ***The complex nature of solar energy legal relations*** i.e. a combination of disparate relations, which have a different legal nature, but are strongly connected by a common goal – the production of electricity by transforming the energy of the sun. The peculiarity is that in each specific case, the set of constituent solar energy legal relations may be different. For example, in the case of the construction of a large solar power plant outside the settlement, such components as land, administrative, economic legal relations will be most actively manifested. However, the arrangement of a small solar energy facility on the territory of one's estate for private use will demonstrate a slightly different set of components: in particular, land, civil, urban planning, etc. Depending on the location of the solar power plant, ecological, water, etc. may also be added to the composition of emerging solar energy relations. Thus, the complexity of solar energy legal relations shows an interesting feature – its variable nature.

2) ***Specific land use in the field of solar energy*** has its characteristics that are worth studying in more detail:

a) in the field of solar energy, land *is used as a territorial-spatial basis*. The doctrine of land law has long supported the main thesis that land as a special object of law should be considered in three possible ways: as an object of nature, as a means of production, and as a territorial-spatial basis. To place solar panels and other necessary solar energy installations, the territory is needed: a) for these purposes, it is of little interest to the natural properties of the land and its quality; b) the territory must be unshaded, with free access to insolation (solar radiation); c) preferably flat or with slight relief. Depending on the scale and power of the planned solar energy facility, the area can be used: from a few tenths of a hectare to hundreds of hectares.

Practice proves that currently land relations claim the role of the central component of the appropriate complex of solar energy relations, and this will be visible in the further presentation of our research. However, it is difficult to make such a definite conclusion, since land legal relations may potentially not arise – which means that they may not be part of the analyzed variable complex. This happens in the case of placing solar installations on other surfaces and objects other than the ground itself – for example, on the roofs and walls of buildings;

b) *the frequent need to change the purpose of land plots.* The development of solar energy in the domestic version requires space. This directly entails the need to change the existing structure of land use in order to "cut out" land areas for the construction of new solar power plants. The

specificity of solar energy is that it requires land plots to be occupied by stationary installations and equipment, which makes parallel use of such land for other purposes practically impossible. It should be noted that scientific and technological work in the direction of solving this problem is actively being carried out, namely: agrovoltaic technologies have been developed, which are currently being tested, improved and adapted to industrial use, and in some places, they are already fully applied. Their essence consists in dual parallel use of land for agricultural production and generation of solar electricity[25]. For Ukraine, this is still a prospect, although the technology has already been implemented in Germany, Italy, and Asian countries.

Today, in the conditions of Ukraine, in the vast majority of ca, the placement of solar power plants requires a change in the purpose of the land plot. Based on materials of practice, it can be indicated that most often land plots are provided to place solar power plants: a) outside settlements; b) agricultural purposes; c) classified as pastures[26].

It is interesting that some decisions on changing the purpose of land plots for the purpose of placing solar power plants on them were contested in court with reference to the priority of agricultural land. Thus, during the preparatory procedures preceding the construction of a solar power plant in the Mykolayiv region, the purpose of the land plot was changed from agricultural to industrial land. At the same time, the plaintiffs considered the corresponding order of the State Geocadastre to be illegal, since "the case materials did not contain any evidence of the need to change the purpose of agricultural land and transfer it for the placement of a power plant, in particular, no evidence was provided of the absence of poor quality land unsuitable for agricultural use." However, the court's position was different: it is the State Geocadastre that determines the suitability of land for agriculture because it belongs to its discretionary powers – which means that the court should not interfere with the free discretion of this powerful entity[27]. It should be recognized that in this way the content of the articles of

[25] For more details, see: Павлига А. В. Щодо використання агровольтаїки в Україні: проблематика питання. *Верховенство права у процесі державотворення та захисту прав людини в Україні:* матеріали міжнар.наук.-практ. конф. (м. Одеса, 12–13 лютого 2021 року) Одеса: ГО "Причорноморська фундація права", 2021. С. 44–45.

[26]Харитонова Т. Є. Правові особливості використання земель для потреб сонячної енергетики. *Актуальні проблеми земельного, аграрного, екологічного та природоресурсного права*: матеріали круглого столу (Харків, 10 грудня 2021 року). Харків, 2021.

[27] Постанова Миколаївського апеляційного суду від 26 травня 2021 року у справі № 489/3874/20. URL: https://reyestr.court.gov.ua/Review/97192480 (дата звернення: 01.07.2023 року)

the land legislation and its principle regarding the priority of agricultural use was leveled.

No less important, but less discussed, is the question of the future ("post-energy") fate of such lands: for example, after the liquidation of the solar power plant. The automatic return of such a plot of land to the legal regime of agricultural land raises legal and practical doubts. First, the current legislation does not provide for a corresponding legal mechanism. Secondly, during its use for energy purposes, such land is exposed to influences, the consequences of which can irreversibly change its properties. That is, a plot of land after the termination of use for energy needs can be returned to agricultural use only in the case of carrying out the necessary analyses and studies, the results of which must confirm its suitable state for such use.

In addition, there is a question about making analogies with construction. For example, regarding the expediency of removing the upper soil layer before the construction of the corresponding solar power plant. However, it is difficult to evaluate such a step: on the one hand, it preventively protects the soil and allows it to be actively used for its main purpose in another territory; however, on the other hand, in the case of the liquidation of the solar power plant, the problem of restoration of such land emerges acutely. In particular, lease agreements for land plots for the construction of solar power plants specify the lessee's obligation to return such a land plot in a condition "no worse than the one in which the tenant received it for use";

c) *mainly leased land use*. The practice in Ukraine followed the path of concluding lease agreements, according to which land plots of state and communal property are transferred to investors for use for the placement of solar power plants for a long period (there are contracts for a term of 10, 30, but most often – for 49 years). Land lease contracts for the needs of solar energy are legally vulnerable, most often not because of their shortcomings, but because of the potential recognition of illegality and cancellation of decisions of public authorities, according to which such contracts are concluded. However, there are ca of land lease agreements for the placement of solar power plants being declared invalid based on violation of the requirements of land legislation at the time of their conclusion. For illustration, we can mention the case of invalidation of the land lease agreement between REN ENERGO LLC and the Main Department of the State Land Agency in the Odesa Region. The contested land lease agreement was concluded without carrying out a normative monetary assessment of the land plot, which by virtue of the provisions of Art. 13 of the Law of Ukraine "On Land Valuation" (as amended at the time of the conclusion of the disputed contract) was mandatory in the case of

determining the amount of rent for land plots of state and communal property[28].

In addition, it is possible to point to some regularity that can be traced in relation to the legal titles of solar energy land use: large solar power plants mainly operate on leased land use rights, while less significant facilities in terms of capacity tend to be located on privately owned lands;

d) *dependence on land use planning (town planning documentation)*. Within this feature, the following main aspects should be highlighted. First, the location of solar power plants can be foreseen in the urban planning documentation of the regional and local levels. Such a practice may indicate a thorough comprehensive approach to territory planning. In such ca, the investor and the local public authority, objectively assessing the interests of the state, community and business, weighing geographic, physical, weather and climate indicators, reach a joint conclusion about the feasibility of placing a solar power plant in a certain area.

Secondly, despite the instructions of the legislation, there are a of conflict of different public interests. For example, during the construction of a solar power plant near the city of Voznesensk in the Mykolaiv region, a dispute arose regarding the legality of the use of the land plot. According to the city council, the construction of this solar power plant occupied the plot together with the road, which means it violated the interests of the city community since this road is traditionally used for the removal of garbage to the landfill. That is, the satisfaction of the city's energy needs interfered with the satisfaction of cleanliness needs. According to the results of the trial, it was established that the construction of the solar power plant does not violate the interests of the Voznesensk community[29].

Thirdly, in some ca, the existing urban planning documentation acts as an obstacle for placing a solar power plant. This thesis is well illustrated by the case of a claim by an individual – the owner of land plots with an area close 38 hectares of the Poltava District State Administration, in which the land owner contested the refusal of the District State Administration to grant a permit for the development of a detailed plan of the territory for the purpose of locating the Shcherbanivsk solar power plant "Poltavaenergopark". The refusal was motivated by the fact that the planning scheme of the territory of the Poltava region shows the promising direction of the construction of the M-03 Kyiv-Kharkiv-Dovzhansky bypass

[28] Постанова Вищого господарського суду України 28 січня 2016 року у справі № 916/3036/14. URL: https://reyestr.court.gov.ua/Review/55340617 (дата звернення: 01.07.2023 року)

[29] Рішення Господарського суду Миколаївської області 24 вересня 2019 року у справі № 915/1298/19. URL: https://reyestr.court.gov.ua/Review/84728083(дата звернення: 01.07.2023 року)

road of the city of Poltava, which will pass through the land plots planned by the owner for the placement of a solar power plant. However, after studying the circumstances of the case, the court came to the conclusion that the refusal is illegal since the construction of the road is planned, but not started, moreover, the vector of its course is tentatively outlined and will be further specified[30].

Fourthly, persons interested in preventing the construction of a solar power plant or stopping its operation often base their arguments precisely on violations of urban planning legislation, especially on violations of procedural rules (approval of detailed plans, provision of public discussion, posting of timely announcements, etc.). That is why urban planning documentation can act as a tool to protect solar power plants from excessive pressure, and it also contains many opportunities for contesting the legal basis for the creation of the corresponding alternative energy facilities.

3) ***Specific interaction of solar energy facilities with the environment (environmental, legal and natural resource aspect).*** In his studies, M.A. Deinega rightly emphasizes that natural resources can be considered not only from the standpoint of "traditional" classification into land, water, forest resources, subsoil, plant and animal resources, but also divided into exhaustible and inexhaustible. Inexhaustible natural resources include, in particular, climatic (energy, thermal and other) resources[31]. That is, solar energy is an important natural resource. Although it is not valued as highly by society and policymakers as traditional fossil fuel resources, its importance is increasing, especially given the relentless expansion of humanity's technological capabilities.

We are used to the fact that the use of natural resources has an anthropogenic impact on the environment and has negative consequences: pollution, depletion, erosion, degradation, etc. The use of solar energy for the production of electricity is qualitatively different from the depicted traditional vision of modern nature management. Thus, the placement of solar panels and equipment, as a general rule, does not carry significant risks for the environment. In particular, this opinion is also held by the legislator, who did not foresee in the Law of Ukraine "On environmental impact assessment" the need to carry out such an assessment during the planning and construction of solar power plants (unlike, for example, wind or hydropower plants). It is fair to note that despite the fact that solar energy

[30] Рішення Полтавського окружного адміністративного суду 12 квітня 2021 року у справі № 440/7905/20. URL:https://reyestr.court.gov.ua/Review/97141464 (дата звернення: 01.07.2023 року)

[31] Дейнега М. А. Природоресурсне право: проблеми формування і розвитку: монографія / за заг. ред. В. М. Єрмоленка. Київ: НУБіП України, 2019. 340 с.

plants almost no direct threats to the natural environment, there is still the possibility of a side negative impact – in particular, during the production of individual parts and equipment, as well as through the generation of waste (for example, broken or old solar panels). This issue still needs its own legal regulation, taking into account the peculiarities of solar energy.

At the same time, the friendliness of solar energy to nature determines the revealed peculiarity of domestic judicial practice, namely: the rarity of contesting the formation or operation of solar power plants on the basis of their violation of environmental legislation or the assignment of environmental damage. Individual identified attempts of such argumentation were assessed by the court as insufficiently substantiated, since no evidence of negative impact on people and the environment was provided[32].

Despite the apparent simplicity of the identification of the natural resource component of solar energy legal relations, some interesting questions arise upon deeper investigation.

First, about *the complex nature of nature management*. So, in fact, during the operation of a solar power plant, two natural resources are used simultaneously: land and solar energy. However, due to the lack of special theoretical and methodological developments aimed at regulating the use of solar energy as a special natural resource, this component of solar energy natural resource relations is ignored. All the burden falls on the traditional, well-studied land legal component and in fact is completely reduced to the legal regulation of land use. However, this cannot be considered satisfactory, since the earth's surface is not always used directly for the placement of solar energy facilities (increasingly, roofs and walls of buildings, surfaces of vehicles, etc. are used for these purposes). That is, in the case of placing solar panels, for example, on the roof of a certain building, the legislation does not talk about nature use at all.

Secondly, the issue *of identifying the use of solar energy as a type of nature management*. In the science of environmental and natural resource law, much attention is paid to the traditional division of nature use into general and special (G.V. Anisimova[33], M.A. Deinega[34],

[32] Постанова Миколаївського апеляційного суду від 26 травня 2021 року у справі № 489/3874/20. URL: https://reyestr.court.gov.ua/Review/97192480 (дата звернення: 01.07.2023 року)

[33] Анісімова Г. В. Законодавчі проблеми забезпечення права загального природокористування. *Теорія і практика правознавства*. 2013. Вип. 1. URL: http://nauka.jur-academy.kharkov.ua/download/el_zbirnik/1.2013/Anis.pdf(дата звернення: 01.07.2023 року)

[34] Дейнега М. А. Предмет і система природоресурсного права: автореф. дис. … докт. юрид. наук 12.00.06. Київ, 2020. 38 с.

A.S. Yevstigneev[35], N.R. Kobetska, V.M. Komarnytskyi[36], I.O. Kostiashkin[37], O. G. Kotenyov[38], M. K. Cherkashina[39]and others), which emphasizes the importance of this issue. A person u solar energy throughout his life as a biological being, because the proper level of insolation is necessary for the body to function normally. Such nature use is unequivocally identified as general. From these positions, N.R. Kobetska's conclusion about the expediency of assigning the right of general nature use to the system of environmental rights of citizens and its regulation within the framework of the Institute of Environmental Rights seems very appropriate[40]. The right to general use of nature is characterized by general availability, free of charge, does not require any special permission and consolidation of these resources and serves to satisfy vital needs[41]. However, if a person begins to use the energy of the Sun to produce electricity, does this use of nature remain within the general limits?

The theory identifies several characteristic features of special nature management.

First, permission-based implementation. Yes, solar energy entities are required to obtain a special license for the production of electricity. However, the legal nature of such a license cannot be unequivocally identified as a natural resource permit. The fact is that in solar energy it is not the direct use of a natural resource – solar energy – but the production of the final product (electricity) that is subject to regulation. The license is aimed at regulating the special conditions of such production. This methodological approach can be explained by the different purpose of permits in "traditional" and "non-traditional" nature use: if in the first the main goal is to ensure the rational use and preservation of natural resources,

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[35] Євстігнєєв А. С. Проблеми правового забезпечення екологічної безпеки у сфері спеціального природокористування в Україні: автореф. дис. … докт. юрид. наук 12.00.06. Київ, 2019. 32 с.

[36] Комарницький В. М. Право спеціального природокористування: автореф. дис. ... докт. юрид. наук: 12.00.06. Київ, 2012. 36 с.

[37] Костяшкін І. О. Право загального землекористування громадян: автореф. дис. … канд. юрид. наук 12.00.06. Київ, 2005. 19 с.

[38] Котеньов О. Г. Принципи права природокористування: автореф. дис. … канд. юрид. наук 12.00.06. Харків, 2017. 22 с.

[39] Черкашина М. К. Юридичні гарантії права природокористування: автореф. дис. ... канд. юрид. наук: 12.00.06. Харків, 2008. 20 с.

[40] Кобецька Н. Р. Дозвільне та договірне регулювання використання природних ресурсів в Україні: автореф. дис. … докт. юрид. наук 12.00.06. Київ, 2016. 36 с.

[41] Анісімова Г. В. Законодавчі проблеми забезпечення права загального природокористування. *Теорія і практика правознавства*. 2013. Вип. 1. URL: http://nauka.jur-academy.kharkov.ua/download/el_zbirnik/1.2013/Anis.pdf(дата звернення: 01.07.2023 року)

then in the second – to ensure the proper production of electricity. Thus, in solar energy there are no direct permitting procedures for the use of solar energy as a natural resource.

Secondly, a certain part of natural resources is provided for special nature management. There is no direct allocation of solar energy as a natural resource, this happens only through territorial binding (location of the power plant) and the permitted capacity of the corresponding plant (the amount of solar energy use).

Thirdly, special nature management is subject to payment (in ca stipulated by the legislation of Ukraine, special nature management can be carried out free of charge (for example, placement of apiaries)[42]). According to this criterion, the analyzed nature use is also atypical, because in fact the user does not pay for the use of solar energy, on the contrary, the state creates special conditions so that it is profitable for the user to engage in such activities, to use the appropriate natural resource for the purpose of electricity production.

Therefore, even a schematic analysis indicates that the use of solar energy is a rather specific type of nature use, which does not easily fit into the existing division into general and special nature use and, in general, into the universal canons of natural resource law[43]. In our opinion, this is a concrete confirmation of the words of N. R. Kobetska that the legal regime for the use of natural resources is undergoing changes today and needs to be updated in accordance with changes in the socio-economic, political and legal system, including in terms of identifying new types of use natural resources, the use of new, unconventional means and forms of regulation for natural resource law[44]. That is, solar-energy nature use fully corresponds to the latest trends in the development of natural resource law and deserves further study in this direction.

4) ***Subject peculiarities of solar energy legal relations.*** The subjective component of the analyzed legal relations also shows interesting specific features, because during the last twenty years, a full-fledged sector of the economy – solar energy – has been formed in Ukraine. It is necessary to warn against a simplified view of its subject composition. Yes, it unites not

[42] Заверюха М. М. До питання правового регулювання використання земель лісогосподарського призначення в Україні. *Вісник Чернівецького факультету Національного університету "Одеська юридична академія"*. 2015. № 3. С. 119.

[43] Григор'єва Х. А. Сонячна енергетика і довкілля: правові грані взаємодії. *Актуальні проблеми земельного, аграрного, екологічного та природоресурсного права:* матеріали наук.-практ. конф. (Харків, 10 грудня 2021 року) / за заг. ред. А. П. Гетьмана, М. В. Шульги. Харків: Юрайт, 2021. С. 56–60.

[44] Кобецька Н. Р. Дозвільне та договірне регулювання використання природних ресурсів в Україні: автореф. дис. … докт. юрид. наук 12.00.06. Київ, 2016. 36 с.

only directly companies – owners of solar power plants – it forms a whole system of different participants, each of which performs its own functions. Thus, it is possible to single out three groups of specialized subjects of solar energy: a) energy producers; b) manufacturers of equipment; c) subjects of service provision (installation and assembly, repair, etc.).

At the same time, the system also includes numerous non-specialized, but no less important institutions. In particular, financial institutions create special credit products for investors in the field of solar energy. Thus, in Ukraine, some large banks offer special lending conditions for the creation of their solar power plant (for example, Ukrgasbank, the "ECO-Leasing" program from Oschadbank, [45]etc.).

Public administration bodies also play an important role in the development of solar energy. The analysis of numerous practices makes it possible to state a generally significant degree of support for the creation of solar power plants on the part of state authorities and local self-government bodies.

A characteristic feature of modern solar energy in Ukraine that should be noted is the significant specific weight of small installations owned by individual private persons-household owners focused primarily on the consumption of self-produced energy. That is, the heterogeneity of the solar energy sector is also increased due to the existence of different types of subjects – energy producers.

5) ***Support for the development of solar energy.*** In general, this type of alternative energy is covered by the general mechanisms of state support provided for the stimulation of relevant relations. At the same time, along with national support mechanisms, there are regional support mechanisms specialized in solar energy. For example, the compensatory support mechanism found, in particular, in the Program of Incentives for the Population, Condominiums, and Residential Buildings of the Zhytomyr Region regarding the effective use of energy resources and energy saving for 2015-2020, approved by the decision of the Zhytomyr Regional Council dated September 10, 2015 No. 1576, can be considered quite progressive. According to this program, private individuals who built a solar power plant were reimbursed for part of the money spent on such construction.

If the protection policy of Ukraine in the field of solar energy is to be characterized as a whole, it should be recognized as one-vector and regressive. They consist in the fact that the support system is designed in such a way that it stimulates, first of all, the construction of large

[45] Кредит від Ощадбанк на сонячні електростанції. URL: https://eco-tech.com.ua/cp71383-kredit-vid-oschadbank-na-sonyachni-elektrostantsiyi.html (дата звернення: 01.07.2023 року)

commercial solar energy facilities. At the same time, it provokes risks that inevitably accompany such projects: a) occupation of large areas of land; b) loss of agricultural land; c) change of landscapes, etc.

In our opinion, the main vector of support should be aimed at stimulating "household" solar energy, which closely borders on the concepts of energy efficiency and energy saving. As of the end of 2020, almost 30,000 Ukrainian families have installed SPP at home with a total capacity of 780 MW, and the amount of investment was 600 million euros[46]. However, the average cost of such a project is still quite significant.

That is why, understanding the progressiveness and prospects of consumer solar energy, developed countries are implementing interesting support programs. For example, the first project was launched back in 1991 in Germany "Thousand Solar Roofs" (later renamed "Two Thousand Solar Roofs"). A similar project – "100,000 solar roofs" – was adopted for all EU member states. In Japan, the development of solar energy is provided by the program "70,000 solar roofs", in the USA – "1 million solar roofs"[47].

Taking into account foreign experience and domestic realities, in our opinion, the center of gravity of solar energy in Ukraine should be shifted: from commercial industrial production for the purpose of obtaining profit – towards the reduction of energy consumption at the level of specific households (hou, enterprise, transport, etc.). Instead, the model of protection of solar energy built in domestic legislation stimulated the formation of commercial solar power plants, placed in an arbitrary order under the influence of investment plans, primarily oriented to state support[48].

5.3. Land legal and environmental issues of placement of solar power plants: a scientific and practical view

The rapid development of solar energy in Ukraine over the past ten years has been impressive: in 2019, our state entered the TOP-10 countries in the world in terms of the pace of development of green energy, and in 2020 – in the TOP-5 European countries in terms of the pace of

[46] Кострюков С. В. Історико-правові засади становлення сучасної сонячної енергетики. *Правові новели*. 2021. № 13. С. 75–82.

[47] Кузьміна М. М. Розвиток сонячної енергетики в Україні. *Науковий вісник Ужгородського національного університету. Серія "Право"*. 2014. Вип. 29. Т. 1. С. 183–186.

[48] Харитонова Т. Є., Григор'єва Х. А. Особливості геліоенергетичних правовідносин в Україні (на матеріалах практики). *Часопис Київського університету права.* 2021. Вип. 3. С. 224–230.

development of solar energy[49]. However, such an increase encountered some problems, both internal and external: ill-conceived evolution of legislation, difficulties in fulfilling obligations under the "green" tariff, loss of many capacities due to the conduct of military operations, etc. At the same time, the experience of the formation of solar energy in Ukraine in the second half of the 2010s – the beginning of the 2020s provides many grounds for scientific reflection on the readiness of domestic legislation for further scaling up of "green" generation. The fact is that the appearance of such non-traditional objects as solar power plants generates a whole set of consequences for the environment, society, the state, etc. However, the specifics of such consequences are not fully taken into account by the legislation. The impact of solar power plants on the surrounding natural environment and the negative impact of the environment on these alternative energy facilities are insufficiently comprehensively regulated. Corresponding inconsistencies and gaps are revealed in the process of active law enforcement.

The construction of solar power plants (SPP) in Ukraine entails a number of different consequences. In addition to definitely positive – in particular, increasing the production of "green" energy, reducing emissions into the atmosphere, contributing to the fight against climate change – some side effects of the rapid development of solar generation can also be traced. Such non-obvious consequences are clearly manifested, first of all, in practice. In this regard, the analysis of the court practice accumulated in recent years demonstrates some "bottlenecks" of the current legislation, which shows signs of adaptation to the appearance of new alternative energy facilities in Ukraine.

In order to find out how to ensure the optimal existence of a solar power plant in the environment, one should focus on the scientific and practical analysis of two interrelated issues: legal mechanisms for protecting the environment from the potential negative impact of solar power plants and legal means of protecting such power plants from external possible negative impacts. For this purpose, it is advisable to distinguish two logical blocks: protection of the environment from the influence of SPPs and protection of SPPs from the influence of the environment.

Protection of the environment from the influence of. Although solar energy is considered one of the safest for the natural environment, it is still not in an isolated hermetic space, and therefore has a certain impact on the environment. It so happened that in Ukraine the legality of the construction and operation of SPPs is sometimes contested with reference to violations

[49]Ігнатьєв С. Зелена енергетика в Україні на межі банкрутства. Що далі? URL: https://www.epravda.com.ua/columns/2022/04/10/685513/

of environmental and legal requirements. In this respect, the cycle of ca related to the construction of three SPPs in the Mykolaiv region became indicative. In these ca, the plaintiffs were natural persons – residents of the village and an agricultural enterprise. Their demands were legally differentiated: a) separately in relation to the three owners of ("PIVI PROGRESIVKA-BETA" LLC, "PIVI PROGRESIVKA-ALPHA" LLC, "PIVI PROGRESIVKA-GAMA" LLC); b) in relation to the subject of the lawsuit (according to civil lawsuits, the applicants demanded to cancel the orders of the Main Department of the State Geocadastre on approving land management documentation and providing land plots for lease with a change of purpose, as well as to declare land lease contracts invalid[50]; according to administrative lawsuits, they demanded to declare them illegal and cancel permits for performance of construction works, issued by the State Architectural and Construction Inspection Office [51]). Despite the legal "equilibrium" and formal differentiation, the main argument of these lawsuits was as follows.

The plots of land under the disputed solar power plants were state-owned and classified as agricultural lands. After the change in the purpose of the energy land, these land plots were leased for the placement of SPPs. However, the corresponding land plots are territorially located near the Tyligul estuary and are partially included in its coastal protective strip. The plaintiffs insisted that this objective fact is key, because, in their opinion, it means the need to conduct an environmental impact assessment (EIA), which was not carried out during the planning and design of the three SPPs. In their opinion, the coastal protective strip is a component of the water

[50] Рішення Березанського районного суду Миколаївської області від 18 березня 2021 року у справі № 489/3873/20. URL: https://zakononline.com.ua/court-decisions/show/95927631; Постанова Миколаївського апеляційного суду від 26 травня 2021 року у справі № 489/3873/20. URL: https://zakononline.com.ua/court-decisions/show/97295566; Постанова Верховного Суду від 24 грудня 2021 року у справі № 489/3873/20. URL: https://zakononline.com.ua/court-decisions/show/102221697; Рішення Березанського районного суду Миколаївської області від 18 березня 2021 року у справі № 489/3874/20. URL: https://zakononline.com.ua/court-decisions/show/95927634; Постанова Миколаївського апеляційного суду від 25 травня 2021 року у справі№ 489/3874/20. URL: https://zakononline.com.ua/court-decisions/show/97192480; Постанова Верховного Суду від 23 грудня 2021 року у справі № 489/3874/20. URL: https://zakononline.com.ua/court-decisions/show/102221692

[51] Рішення Миколаївського окружного адміністративного суду від 11 березня 2021 року № 400/2932/20. URL: https://zakononline.com.ua/court-decisions/show/95714554; Постанова П`ятого апеляційного адміністративного суду від 01 липня 2021 року у справі № 400/2932/20. URL: https://zakononline.com.ua/court-decisions/show/98009418; Постанова Верховного Суду від 01 листопада 2021 року у справі № 400/2932/20. URL: https://zakononline.com.ua/court-decisions/show/100722971

fund lands, and in accordance with Part 3 of Art. 3 of the Law of Ukraine "On environmental impact assessment" can have a significant impact on the environment and is subject to an environmental impact assessment of *"laying of cables,... on the lands of the water fund"*[52].

Considering this legal situation concerning three neighboring SPPs, the courts concluded the legality of the construction and operation of power plants without carrying out EIA. The main argumentation regarding this controversial issue boils down to the fact that: a) a coastal protective strip can be established on land of any category, and not exclusively on the lands of the water fund; b) according to the data of the State Land Cadastre, the relevant land plots are classified as energy lands and use restrictions have been established on them in the form of a coastal protective strip; c) the relevant department – the State Water Agency in its letter recognized the specified land plots as not belonging to the water fund, and therefore, the approval of any legal actions regarding them is not within its competence.

Protection of from the influence of other objects. The judicial practice of recent years has revealed not only those legal situations in which is a source of potential danger. The analysis of the materials of court ca and the decisions made on them demonstrates the insecurity of in situations where their proper optimal functioning is threatened by other objects. A vivid example can be the case in which the plaintiff was the owner of the solar (photovoltaic) power plant LLC "Ekotechnik Mynkivtsi" in Khmelnytskyi. According to the circumstances of the case, the LLC received the right to lease a plot of land for the construction of the SPP. However, a year later, at a distance 126 мfrom the power plant, LLC "Lifecell" began to build a base station. The owner of the appealed to the court because he considered his rights violated: the communication tower will overshadow the solar panels and thus creates obstacles in using the leased land for its intended purpose. As a result of the court proceedings, the legality of the construction of the base station was confirmed, despite the opposition of the owner[53].

This situation reveals another problem that accompanies the rapid development of alternative energy in Ukraine. Yes, the current legislation does not provide that there may be a certain objective need for a special security zone in the power plant.

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[52] Про оцінку впливу на довкілля: Закон України від 23.05.2017 року. *Відомості Верховної Ради*. 2017. № 29. Ст. 315.

[53] Рішення Господарського суду Хмельницької області від 27 липня 2021 року у справі № 924/354/21. URL: https://zakononline.com.ua/court-decisions/show/98606681; Постанова Північно-західного апеляційного господарського суду від 09 листопада 2021 року у справі № 924/354/21.URL:https://zakononline.com.ua/court-decisions/show/101237897; Постанова Верховного Суду від 15 лютого 2022 року у справі № 924/354/21.URL: https://zakononline.com.ua/court-decisions/show/103371144

Thus, the Law of Ukraine " On the Power Engineering Lands and the Legal Status of Special Zones of the Power Engineering Objects" stipulates that *"protection zones are established ... around power plants ... to ensure normal operating conditions of energy facilities, prevent damage, and reduce their negative impact on people and the environment, adjacent lands and other natural objects*[54]. At the same time, the dimensions of such security zones are established by the Cabinet of Ministers of Ukraine. Additionally, in Art. 25 of the Law stipulates that *" the boundaries of special zones of energy facilities are indicated in the land management documentation from the time of granting the land plot for the construction of the corresponding facility"*[55]. Owners and users of land plots within the special zones of energy facilities are not deprived of their rights to such lands, but they are issued *"a cadastral plan of their land plots with the boundaries of the special zones, as well as a written list of restrictions and encumbrances regarding the use of land in these zones"*[56]. In our opinion, such general legal requirements are quite logical, but are they sufficient to protect such a specific object and satisfy its legitimate interests?

An analysis of court decisions in the case of shading solar panels demonstrates the insufficient degree of such protection. First, restrictions on the use of land plots within the protection zones do not provide for regulation of the height of buildings. Secondly, the Law of Ukraine " On the Power Engineering Lands and the Legal Status of Special Zones of the Power Engineering Objects " stipulates that *"the boundaries of security and sanitary protection zones of energy facilities are indicated in urban planning documentation, land management documentation, and cadastral plans*[57]. " In our opinion, it would be appropriate to directly indicate in the Law that information on the specific content of restrictions on the use of land plots within the protection zones of energy facilities should be entered in the State Land Cadastre. This would contribute to the prevention of violations of the rights and legitimate interests of owners.

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[54] Про землі енергетики та правовий режим спеціальних зон енергетичних об'єктів: Закон України від 09 липня 2010 року. *Відомості Верховної Ради.* 2011. № 1. Ст. 1.

[55] Про землі енергетики та правовий режим спеціальних зон енергетичних об'єктів: Закон України від 09 липня 2010 року. *Відомості Верховної Ради.* 2011. № 1. Ст. 1.

[56] Про землі енергетики та правовий режим спеціальних зон енергетичних об'єктів: Закон України від 09 липня 2010 року. *Відомості Верховної Ради.* 2011. № 1. Ст. 1.

[57] Про землі енергетики та правовий режим спеціальних зон енергетичних об'єктів: Закон України від 09 липня 2010 року. *Відомості Верховної Ради.* 2011. № 1. Ст. 1.

Therefore, the scientific and practical analysis of some relevant court cases, in which the solar power plants themselves were subject to external influence and, conversely, became a factor influencing the environment, allowed us to: firstly, identify inconsistencies between land, water, and environmental legislation in terms of conducting environmental impact assessments during the planning and placement of solar power plants within the coastal protection zones of seas, bays, and estuaries; secondly, establish the low degree of consideration given to the specific needs of solar power plants regarding the limited height of surrounding objects within the protection zone[58].

5.4. State support for the development of solar energy in Ukraine

The modern world is imbued with ideas of greening, decarbonization, halting climate change, etc. All these ideas intersect in the issue of the development of solar energy, which is friendly to nature and contributes to the reduction of anthropogenic pollution of the environment. It should be noted that this direction of alternative energy is actively developing in Ukraine and the world. At the same time, in some countries (the USA, Germany, Japan, etc.), this process began a long time ago, several decades ago. For Ukraine, solar energy relations are relatively new, since they began to scale and began to have a significant impact on public life only during the last decade. Longer foreign experience in the development of solar energy allows us to draw from it an understanding of the process, regularities and perspectives that are important for Ukraine. This issue is especially topical due to the fact that currently in Ukraine it is possible to record a crisis of the legal model of support for alternative energy in general and solar energy in particular. It manifests itself primarily in the fact that the old protection model, built on a high "green" tariff, is recognized as burdensome, and the new protection model – based on "green" auctions – has not yet been introduced.

What to expect as a result of the development of the current situation and in which direction to develop solar energy in the future – these questions are currently one of the most timely and fateful in terms of the future energy security of Ukraine. The relevance of this problem is enhanced by the parallel promotion of the European Green Deal, which envisages the total decarbonization of social life and the economy in the EU by 2050. This external process for Ukraine will be accompanied by the introduction of additional trade requirements for domestic goods for its

[58] Григор'єва Х. А. Земельно-правові, екологічні та кадастрові питання розміщення сонячних електростанцій: науково-практичний погляд. *Правові новели*. 2023. № 20. С. 30–38.

producers – in particular, we are talking about confirming a certain degree of carbon neutrality. Of course, such a perspective indicates that it is impossible to lose the developed growth rates of alternative energy – they must be supported in the future, as a wide range of Ukrainian exporters will soon be interested in this.

Solar energy has already become an integral part of the energy supply in the modern world. Efforts made by governments, businesses, science and society in the direction of expansion of ecologically safe use of solar energy contributed to the fact that solar energy already has own niche in the world energy market. This, of course, was facilitated by the permanent decrease in the price of equipment, which makes solar energy more and more affordable.

However, the success of countries on this path varies, and this is not surprising, since some countries started their solar energy progress many years ago. Their legal experience, accumulated during all this time, is important for a deep understanding of the process taking place in Ukraine today.

A large-scale analysis of domestic and foreign scientific literature, legislation and law enforcement practice allows us to identify some main trends in the development of solar energy, extrapolate them to the current legal realities of Ukraine, and predict future development.

The first trend is ***a sudden interest in solar energy***. Indeed, the emergence and constant improvement, and now also the cheapening of solar energy technologies, ensured a formed public demand for clean and affordable energy. Under the influence of certain global (oil and coal prices) and local factors (discovery of natural gas deposits in a certain area, etc.), interest in the use of solar energy has weakened and strengthened. However, since its inception, technological growth in this direction has not stopped – it has only changed its pace.

At the same time, the corresponding trend is currently showing active growth. The need for solar energy became especially relevant against the background of the implementation of the Green Deal – an ideological and conceptual response to rapid climate change. It is not surprising that solving the problem of humanity's access to clean, cheap energy was brought to the level of one of the sustainable development goals (SDG 7).

It is important to note that solar energy is one of the most democratic, that is, accessible to the general public, and suitable for any level of scaling (from a pocket calculator to a full-fledged powerful power plant). Therefore, its development depends to a greater extent on the political will in one or another country, as well as on the price situation on the energy market – but not on the presence of significant geographical and climatic prerequisites. This thesis is proved, among other things, by the fact that the

level of insolation in Germany – the undisputed leader in the development of solar energy in the world – is objectively fixed at a level close to the indicators of Alaska. At the same time, countries that are endowed with much more significant climatic and geographical potential in the field of solar energy do not use it, remaining in a situation of energy dependence. The last statement is true, for example, for Turkey, which has the second largest solar energy potential among European countries, second only to Spain, but remains a stable importer of energy resources. Similar accusations are also directed at Malaysia, which has a serious potential for the development of ecologically safe solar energy[59], but prefers bioenergy production, causing international disputes due to the questionable sustainability of palm oil production[60].

The war in Ukraine, which became another factor in increasing the interest of governments and society in the quantitative and qualitative growth of solar energy, should be recognized as the last significant example illustrating this trend.

The second trend is ***the use of democratic and authoritarian methods of solar energy development***. Modern society is under constant informational pressure. Even though it creates many problems, such information availability contributes to environmental education, increasing environmental culture and awareness of the general population about the climate problems of mankind. All these processes led to the formation of an active public, which exerts influence on the governments of countries, promoting regulatory support for environmentally important decisions. In Western liberal democracies, political participation was originally conceived as actions that influence the choices of politicians or their programs of action[61]. Acts of resistance, for example in the form of demonstrations and protests, were eventually incorporated into the concept itself[62]. Against the background of the decline of traditional forms of participation in the Western world in the 2000s, political scientists have

[59] Malaysia's Solar Energy Potential Solar Energy Potential. URL: https://www.academia.edu/34670416/Malaysias_Solar_Energy_Potential_Solar_Energy_Potential

[60] Григор'єва Х. А. Непряма зміна землекористування (ILUC) внаслідок розвитку біоенергетики: правовий розріз проблеми. *Право і суспільство*. 2021. № 4. С. 97–104; Григор'єва Х. А. Готовність законодавства до світового розвитку біоенергетики (на матеріалах України, ЄС та Малайзії). *Актуальні питання стратегії державної екологічної політики України на період до 2030 року*: матер. кругл. столу (Харків, 21 травня 2021 року). Харків, 2021. С. 41–45.

[61] Verba S., Nie NH , Kim J.-O. Participation and political equality: A seven-nation comparison . Chicago: Chicago UniversityPress , 1972.

[62] Barnes S., Kaase M. Political action: Mass participation in five Western democracies . London& Beverly Hills: Sage, 1979.

documented a surge in new forms of political expression, such as political consumption and the involvement of civic groups, which have also come to be seen as political participation[63]. Public participation has always been perceived as a function of democracy, and therefore absent in authoritarian contexts[64].

At the same time, despite the active public of Western countries, which embodied the idea of democratic influence on solving environmental and energy issues, foreign experience shows that this is not the only possible way of developing solar energy. The example of China proves that the opposite way can be quite viable: when it is the government that pushes society to make economic decisions in the energy sector. Thus, since the early 2000s, the municipal government of the Chinese city of Shenzhen has voluntarily committed to increase the share of natural gas, solar PV, biomass and wind energy to at least 60% of total primary energy use in 2020[65]. For this purpose, renewable energy sources are implemented on a large scale and in a mandatory manner in the construction sector. Back in 2006, the Shenzhen municipal government announced the mandatory installation of solar water heating (SWH) systems in newly built houses. In the same year, the design of a rooftop SWH system was initiated in the suburb of Qiaoxiang to make the area a national example for energy conservation in buildings[66]. However, due to practical and organizational problems that arose during the operation of the corresponding equipment, this project faced criticism from the residents of the area.

In addition, the described example well illustrates the interesting phenomenon of "defense participation", which some foreign scientists write about. It consists in such ca when a person participates in something only in order to prevent other people from harming his own interests. The authors describe situations in which people perceive that the interests of others conflict with their own, and where participation provides no benefit to either

[63] Dalton RJ Citizen politics: Public opinion and political parties in advanced industrial democracies. Washington: CQ Press, 2014.; Norris P. Democratic Phoenix: Reinventing political activism. Cambridge: Cambridge University Press, 2002.

[64] Ping Huang, Vanessa Castán Broto, Linda Katrin Westman. Emerging dynamics of public participation in climate governance: A case study of solar energy application in Shenzhen, China. *Environmental Policy and Governance*. 2020. Vol. 30, Issue 6. P. 306–318.

[65] KhannaN., Fridley D., Hong L. China's pilot low-carbon city initiative: A comparative assessment of national goals and local plans. *Sustainable Cities and Societies*. 2014. Vol. 12. R. 110–121.

[66] Shenzhen Evening News., 2006 Shenzhen has applied to be the demonstration city for solar building integration. URL: http://news.sina.com.cn/c/2006-01-14/15567983726s.shtml

party[67]. In particular, defensive participation occurs when climate management affects everyday life and causes discomfort. Then citizens mobilize and resist such ecologically determined changes. We believe that this phenomenon can manifest itself in Ukraine as well, since there are several prerequisites for this: a) a permanent increase in the cost of electricity; b) a prospective increase in prices for consumer goods, which will naturally occur as a result of the implementation of decarbonization tasks in production, which will ultimately be paid for by the consumer. The above can become a solid foundation for the formation of a persistent negative public attitude towards alternative energy as a whim of the West and yet another ecological flirtation. It can be noted that similar problems arise even in developed countries. In particular, in Germany, residents of high-rise buildings have repeatedly expressed dissatisfaction with the fact that the owners of residential buildings are able to install solar panels, but they only receive payments with increased electricity prices[68].

Indeed, one cannot ignore the objective fact that greening in the economy is an increase in prices. In the conditions of the modern world, greening proces are becoming a new factor in the stratification of countries, deepening their inequality. This is already actively happening, because green protectionism is gaining a strong position in establishing environmental barriers and trade restrictions. For Ukraine, this is a new challenge, and the strategy of actions during its adoption should be well balanced.

The third trend is ***the direct dependence of the development of solar energy on the protection of the state.*** One cannot ignore the objective fact that solar energy is developing, first of all, in rich countries. The analysis of the historical and legal features of the formation of solar energy in Western and Eastern countries allowed foreign scientists to conclude that the development of solar energy in the world depends on two external factors: the price of traditional types of fuel and state support. Shifts in national solar support policies have led to regular cycles of ups and downs[69]. Indeed, a sharp change in the political attitude to solar energy, occurred as a result of the change of power in the USA in the early 80s of the XX century. ("the Reagan decade"), marked a loss of support, a decrease in investment interest, and ultimately a deep crisis in the industry. Instead, solar energy support programs were launched in the EU at this time.

[67] Weale A. Participation and representation. In Democracy. London: Palgrave, 1999. R. 84–105.

[68] Vahrenholt F., Lüning S. Die kalte Sonne: Warum die Klimakatastrophe nichtstattfindet. Hoffmann U Campe Vlg: Hamburg, 2012.

[69] Jones G., Bouamane L. "Power from Sunshine": A Business History of Solar Energy. Harvard Business SchoolWorking Paper, No. 12–105, May 2012.

Among European countries, Germany has achieved the greatest success in this field. This state became the founder of those important legal mechanisms supporting alternative energy, which later became reference and universal throughout the world due to their effectiveness. In particular, Germany in the early 90s of the 20th century. launched the program of effective support for individual solar energy "Thousand Solar Roofs"[70]. This idea was picked up by many other countries, quickly evolved and is still used today.

Also, one cannot ignore the fact that it was the German experience of introducing and paying for the "green" tariff that was adopted almost all over the world: almost all states, starting to stimulate alternative energy, followed the example of the German "green" tariff. The German scheme is characterized by a long contract term (20 years), guaranteed network priority, technology-specific tariffs on a sliding scale combined with a direct sales option (market premium) and, more recently, provisions for tariff evolution in response to deployment trends ("flexible ceiling"). These legal elements have created a stable investment environment and, therefore, a strong willingness of capital markets to finance renewable energy projects at relatively low interest rates[71]. This mechanism became a kind of symbol of alternative energy at the initial stages of its development. It is not surprising that Ukraine also used this experience, introducing a domestic "green" tariff.

However, it is important that Germany was the first to face the problems created by its own "model" protectionist policy. So, in this country more than ten years ago (when there were only isolated solar energy facilities of individual enthusiasts in Ukraine), the attractive "green" tariff, which played a positive role at the initial stage of the development of solar energy, began to turn into a problem. The high "green" tariff stimulated a large number of subjects to take advantage of the offered benefits – to receive state-guaranteed money for electricity produced from alternative sources. However, the more manufacturers there were, the more clearly the difficulties of such scaling became apparent. First, the tariff support mechanism indirectly contributed to maintaining a certain level of electricity production efficiency, because the producers had no incentive to make the process of generating this energy cheaper – they already had a guaranteed non-competitive income at the expense of state support. Second, at a certain point, the growth in the number of solar power producers reached such a specific weight that it highlighted the problem of overproduction. The fact is that the instability of electricity generation is currently the main technical problem of alternative energy. That is, at certain

[70] Кузьміна М. М. Розвиток сонячної енергетики в Україні. *Науковий вісник Ужгородського національного університету. Серія "Право"*. 2014. Вип. 29. Т. 1. С. 183–186.

[71] Lu¨tkenhorst , W ., Pegels , A . Stable Policies Turbulent Markets. Germany's Green Industrial Policy: The Costs and Benefits of Promoting Solar PV and Wind Energy. International Institute for Sustainable Development Research Report , 2014. https://doi.org/10.2139/SSRN.2396803

moments, a large (often excessive) amount of electricity is produced, which is not fully consumed, but the state pays for it according to the "green" tariff, regardless of whether such energy is consumed or not.

When such overproduction became critical, Germany reacted by changing regulatory requirements and protection policies: a) the pace and volume of commissioning of new solar energy facilities was limited; b) the "green" tariff began to gradually (and not suddenly!) decrease; c) the system of "green" auctions was improved; d) directed state support to the development, acquisition and use of energy storage, which will solve the problem of excess production and interruptions in energy supply[72].

It is very important that the corresponding decrease in the protectionism of German legislation was immediately reflected in real social relations: in particular, a number of bankruptcies and closures of solar energy enterprises were observed [73]. The study of this part of the German experience is often either ignored or used in a refined form – to justify the rule-making actions of 2020, when the system of state support in Ukraine, which guaranteed the established level of the "green" tariff for a long time, was rudely and seriously changed[74]. Indeed, the situation in Ukraine at that time was critical – the Guaranteed Buyer's debts to alternative energy producers were growing exponentially, and disaster was inevitable. However, this did not happen "suddenly", as the authorized bodies tried to present it – given the analyzed experience of Germany, such a trajectory of development was quite predictable, but the short-sightedness of public management in the energy sector led to the triggering of the situation and the need for emergency "manual" regulation.

In general, in the light of the comparative analysis, additional characteristic features of the Ukrainian version of the protection policy in the field of solar energy are revealed. In Germany, government support was aimed primarily at introducing solar energy into household consumption. This approach made it possible to form those impressive indicators that make this country a leader in the development of solar energy. In Ukraine, the protective legal model, "tailored" from German models, had the opposite effect: it stimulated the creation of hundreds of commercial solar power plants throughout the country. The main motivation for their construction and the business case was based on generous government support in the form of a guaranteed "green" tariff. At the same time, support for individual solar energy is ignored at the state level in Ukraine. Although it is not for nothing that this direction of solar energy was actively stimulated in developed countries (not only in Germany, but also in the

[72] Sireen Khemesh. Solar energy in Germany and USA. URL: https://www.academia.edu/31541378/SOLAR_ENERGY_IN_GERMANY_AND_USA

[73] Jones G., Bouamane L. "Power from Sunshine": A Business History of Solar Energy. Harvard Business SchoolWorking Paper, No. 12–105, May 2012.

[74] Харитонова Т.Є., Григор'єва Х.А. Енергетичний складник українського Green Deal: аналіз правових передумов. *Юридичний науковий електронний журнал*. № 2. С. 149–154.

USA, Japan, etc.). This is due to the relatively high cost of solar energy equipment. Although its cost shows a decrease (prices for solar panels in 2017 were 81% lower compared to 2009[75]), it remains quite significant for the Ukrainian population.

Based on the analyzed experience of Germany, it is possible to predict some consequences of the reduction of state support for solar energy in Ukraine and the transformation of its protection and legal model. So, a reduction in the pace of the appearance of new solar energy facilities in Ukraine will be a completely natural phenomenon. It should be emphasized that precisely because of this, Ukraine demonstrated good indicators of the development of alternative energy in recent years.

In addition, it is quite possible to close a certain part of the functioning solar energy facilities. For example, the judicial practice of 2020–2021 indicates a rapid increase in the number of ca of termination of land lease agreements for the placement of solar power plants based on systematic non-payment of lease payments (for example, in the Kherson region "Sonyachna Ferma Plus" LLC[76], "Energy Company "SMART ENERGY" LLC [77], in Kirovohrad Oblast Razdolna 1 LLC[78], in Transcarpathia Green Energy LTD LLC,[79]etc.). First of all, these trends indicate a high dependence of the successful operation of the specified projects on the previous level of state support. There are ca when the started investment project was stopped due to the "green" tariff crisis. For example, "Belz Solar" LLC in the Lviv region justified its non-payment of rent by the fact that due to the formation in 2020 of the multibillion-dollar debt of SE "Guaranteed Buyer" to producers of alternative energy, investors canceled the financing of the project for the construction of a solar power plant, for the location of which a plot of land was leased[80]. That is, the corresponding consequences of the change in the protection model are already felt.

The promised and "idealized" introduction of "green" auctions also raises questions. Although the relevant legal basis was formed several years ago, the procedure has not yet started.

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[75] IRENA (2018), Renewable Power Generation Costs in 2017, International Renewable Energy Agency, Abu Dhabi. URL: http :// www. irenaorg /-/ media / Files / IRENA / Agency / Publication /2018/ Jan / IRENA _2017_ Power _ Costs _2018. pdf

[76] Рішення Господарського судуХерсонської області від 17 березня 2020 року у справі № 923/68/20. URL: https://reyestr.court.gov.ua/Review/88407240#

[77] Постанова Південно-західного апеляційного господарського суду від 25 листопада 2021 року у справі № 923/614/21. URL: https://reyestr.court.gov.ua/Review/101421624

[78] Рішення Господарського суду Кіровоградської області від 27 травня 2021 року у справі № 912/748/21. URL: https://reyestr.court.gov.ua/Review/97349478#

[79] Рішення Господарського суду Закарпатської області від 20.05.2021 року у справі № 907/831/19. URL: https://reyestr.court.gov.ua/Review/97515954#

[80] Рішення Господарського суду Львівської області від 07.07.2021 у справі № 914/227/21. URL: https://reyestr.court.gov.ua/Review/98169640#

The conducted analysis of three main trends that can be observed on a global scale in the development of solar energy allows us to outline some directions for further improvement of the legal support of solar energy relations in Ukraine.

First, more and more serious challenges are facing Ukraine. Since during the times of the most favorable support, it was solar energy that developed the best, so it is currently becoming the objective pillar of our country's energy transition. As the experience of other countries has shown, alternative energy does not like sudden changes in protectionist policies, but, unfortunately, this is exactly what happened in Ukraine in 2020. Tactically, it was a step to save from financial collapse, but strategically, it was a serious failure of the state as a regulator of energy relations. That is why the state is now required to carry out a well-thought-out sequence of actions aimed, first, at stabilizing the situation on the energy market; secondly, to restore the confidence of investors; thirdly, to create favorable conditions for the further development of solar energy as the main asset in this field at the moment. In other words, the state must take responsibility for what is happening in alternative energy in general and solar energy in particular.

Secondly, it is important to change the vector of state regulation in the field of solar energy as soon as possible: if until 2020 state support for solar energy could be called commercially oriented, from 2020 to today it is stagnant, then from 2023 onwards, non-commercially oriented support should be implemented support Its essence is to focus state incentives on supporting the development of solar energy at the level of individual farms. For households, this is aimed at energy saving and the economy, for business entities – at greening and cost reduction.

To implement a new vector of state support for non-commercial solar energy, it is worth introducing compensation mechanisms at the state and regional levels. The development of cooperation with banks, the formation of energy cooperation deserves separate stimulation.

In our opinion, when deciding on the location of a certain solar energy facility, three important criteria should be evaluated in their entirety: a) the need for additional local energy supply; b) economic and ecological feasibility (combination of physical and economic indicators); c) feasibility of the solar energy project compared to alternative options for the use of the territory[81].

[81] Григор'єва Х. А. Правове забезпечення сонячної енергетики в Україні: між протекцією, конкуренцією та байдужістю. *Юридичний вісник.* 2021. № 6. С. 41–51.