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Renewable energy in Ukraine Q&A

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Update and trends

At the end of December 2018, the Ukrainian Parliament adopted at first reading revised bill No. 8449-d On Amendments to Certain Laws of Ukraine on Ensuring Competitive Conditions for Electricity Production from Renewable Energy Sources (bill on "green" auctions). The bill provides for the introduction of a new renewable energy support scheme, the feed-in tariff reduction, the procedure for conducting "green" auctions, including financial support for participation in such auctions. Final adoption of the law on "green" auctions is scheduled for the first quarter of 2019.

At the moment, energy-saving technologies and renewable energy developments are the main development focus of the energy sector. In

order to stimulate interest in renewables development, the Energy Efficiency Agency is working on launching a market of 'green' bonds in Ukraine. It plans to continue developing a package of primary and secondary draft laws in relation to guidelines for green bonds, reducing investment barriers and encouraging green investments in Ukraine. Within the framework of the energy efficiency development plan, in December 2017 the legislator abolished Value Added Tax and Excise Tax on the import of electric vehicles. In addition, it should be noted that the Energy Services Companies (ESCO) legislation, developed jointly with the Energy Efficiency Agency, has proven its effectiveness in the budgetary sphere. Moreover, in connection with implementing a new model of the electricity market in Ukraine, further improvement of primary legislation and the development and implementation of secondary legislation in the energy field are still under way.

Market framework

1. Who are the principal government participants in the electricity sector? What roles do they perform in relation to renewable energy?

The principal government participants in the electricity sector of Ukraine, in addition to the main legislative body (the Verkhovna Rada of Ukraine) and the main executive body (the Cabinet of Ministers), are:

- the Ministry of Energy and Coal Industry of Ukraine shapes and ensures the implementation of state policy in the electricity sector;
- the National Commission for State Regulation of Energy and Public Utilities (NKREKP) performs state regulation to achieve a balance between the interests of consumers, business entities operating in the energy sector and the state, to ensure energy security and European integration of the Ukrainian electricity markets. It is the main body that facilitates relations between the state and private participants in the energy sector, particularly in the renewable energy sector. It is also engaged in licensing activities in the energy sector, exercises state control and takes measures of influence. In addition, the NKREKP is responsible for converting the feedin tariff (the 'green' tariff) into the national currency of Ukraine (hryvnia);
- the State Agency on Energy Efficiency and Energy Saving of Ukraine (the Energy Efficiency Agency) implements state policy in the field of efficient fuel and energy resources usage, energy saving, renewable energy sources and alternative fuels. In addition to implementing state policy in the respective field, it is also responsible for increasing the share of renewable energy sources and alternative fuels in the energy balance of Ukraine. The Energy Efficiency Agency also conducts qualification tests for combined heat and power generation units, issues documents certifying that a particular fuel type is classified as an alternative fuel, keeps a register of alternative fuels and the state register of liquid biomass fuels and biogas producers;
- Energorynok is a state-owned company, performing the role of the wholesale electricity supplier. It is the manager of the settlements system, the manager of funds of the wholesale electricity market (WEM), the Secretariat of the WEM Council, the main operator of the commercial electricity metering system and the party to the agreement between the WEM participants that is responsible for the support of the WEM functioning. In addition, Energorynok has a special branch, a 'guaranteed buyer', which is obliged to buy all the electricity generated by energy facilities from renewable energy sources from the business entities for which the green tariff was set. Thus, the

presence of the 'guaranteed buyer' additionally stimulates renewable energy sources development, since it guarantees the purchase of all the produced electricity;

- Ukrenergo is a state-owned national transmission grid company, performing the functions of operational and technological management of the Ukrainian United Energy System (UES) and electricity transmission through the main electrical grid from the generation point to the regional electrical grids of power supply companies. At the regional level, the transmission systems are managed and the electricity supplier functions are performed by Oblenergos, jointstock companies with a state-owned interest, which are the main electricity suppliers to the population. Such companies are located in each oblast (administrative division of Ukraine). In addition, Oblenergos are responsible for organising the connection of energy facilities of newly established electricity producers to the electrical grid; and
- the State Agency of Ukraine on Exclusion Zone Management manages the Chernobyl zone, where it plans to construct solar power plants.

2. Who are the principal private participants in the electricity sector? What roles do they serve in relation to renewable energy?

The following private participants can participate in the production, distribution and consumption of electricity generated from renewable energy sources:

- producers of electrical and thermal power from renewable energy sources;
- energy conversion and transportation companies and organisations (energy suppliers);
- traders, purchasing electricity solely for the purpose of its resale, except the sale under the agreement on electricity supply to consumers;
- transmission system operators, ensuring the operation, dispatching, maintenance and development of electricity transmission systems;
- distribution system operators, ensuring the operation, maintenance and development of the electricity distribution systems;
- market operators, ensuring the functioning of the day-ahead market and intraday market and the organisation of electricity purchase and sale in these markets; and
- consumers.

It should be noted that renewable energy producers are in a more favourable position with respect to other participants for the following reasons:

- the feed-in (green) tariff was established to develop this sector (for more details, see question 6);
- there is a guaranteed buyer for the purchase of electricity generated from renewable energy sources, which is obliged to offtake all the power generated from renewable energy sources that is being sold to the guaranteed buyer; and
- the number of authorities exercising control over activities in the renewable energy sector was reduced owing to the less hazardous conditions of electricity generation.

3. Is there any legal definition of what constitutes 'renewable energy' or 'clean power' (or their equivalents) in your jurisdiction?

Pursuant to the Law of Ukraine on Alternative Energy Sources, renewable energy sources are defined as renewable non-fossil energy sources, ie, solar, wind, aerothermal, geothermal, hydrothermal, wave, tidal, hydropower, biomass, landfill gas, sewage treatment gas and biogas.

4. What is the legal and regulatory framework applicable to developing, financing, operating and selling power and 'environmental attributes' from renewable energy projects?

The following legislative acts make up the principal legal framework regulating electricity market activities:

- the Law of Ukraine on Electricity Market No. 2019-VIII dated 13 April 2017 is the principal law regulating relations in the electricity market;the Transmission System Code (Resolution of the NKREKP No. 309 dated 14 March 2018);
- the Law of Ukraine on Alternative Energy Sources No. 555-IV dated 20 February 2003 is a special legislative act regulating renewable energy itself and setting tariff rates and premiums;the Distribution Systems Code (Resolution of the NKREKP No. 310 dated 14 March 2018);
- a number of legislative acts adopted by the NKREKP: the Market Rules (Resolution of the NKREKP No. 307 dated 14 March 2018);
- the Code of Commercial Metering of Electricity (Resolution of the NKREKP No. 311 dated 14 March 2018);
- the Day-Ahead Market Rules and the Intraday Market Rules (Resolution of the NKREKP No. 308 dated 14 March 2018); and
- the Retail Electricity Market Rules (Resolution of the NKREKP No. 312 dated 14 March 2018). These legislative acts are the main secondary legal instruments applicable to the new electricity market functioning;

the Resolution of the NKREKP on Approval of the Procedure for Setting, Reviewing and Terminating the Green Tariff for Electricity for Business Entities and Private Households No. 1421 dated 2 November 2012 lays down the details in relation to the procedure for determining and setting the feed-in tariff; and

the Resolution of the NKREKP on Approval of the Licensing Conditions for the Performance of Business Activities on the Generation of Electricity No. 309 dated 22 March 2017 establishes a list of documents to be submitted to obtain a licence for the performance of electricity generation activities and determines a list of requirements, conditions and rules that are binding during the performance of these activities.

Apart from the above-mentioned legislative acts, the orders, regulations and rules adopted by the NKREKP, the Ministry of Energy and Coal Industry of Ukraine and the Energy Efficiency Agency for each specific area and type of energy facilities are also applicable to regulating activities in the renewable energy sector. As for environmental attributes, it should be noted that currently Ukrainian law does not define this concept.

5. Can environmental attributes be stripped and sold separately?

Given the fact that there is no statutory definition of 'environmental attributes', currently environmental attributes cannot be stripped and sold separately in Ukraine.

6. Does the government offer incentives to promote the development of renewable energy projects? In addition, has the government established policies that also promote renewable energy?

First, renewable energy in Ukraine is promoted through fixing the feedin (the so-called 'green') tariff at the legislative level, the guaranteed obligation of the state to purchase the generated 'clean' electricity from its producers, as well as through establishing a significant number of additional benefits for such electricity producers. A feed-in tariff is a special tariff for the purchase of electricity produced by electricity generating facilities, in particular by the commissioned construction units of power plants (launch complexes), from renewable energy sources (as regards hydropower, it is applicable only to hydropower plants up to 10MW). Both industrial companies and private households may take advantage of the feed-in tariff. At the same time, the feed-in tariff shall be set for each business entity generating electricity from renewable energy sources for each type of renewable energy, for each energy facility or for each construction unit of the power plant (launch complex). The feed-in tariff for electricity produced by generating units of private households is set for each type of renewable energy source. The feed-in tariff is fixed at the legislative level in euros until 31 December 2029. The NKREKP converts the feed-in tariff into the Ukrainian national currency on a quarterly basis at the average official exchange rate of the National Bank of Ukraine. The feed-in tariff is paid on all electricity generated, excluding electricity generated for the producers' own needs. The feed-in tariff rates vary depending on the date of the energy facility commissioning, including the construction unit of the power plant (launch complex) that generates electricity from renewable energy sources. The data on the feed-in tariff rates are provided in euros in the table below.

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Type	Capacity (kW)	Commission date			
	01.07.-31.12.2015	2016	2017 - 2019	2020 - 2024	2025 - 2029

Ground-mounted solar power plant		0.1696	0.1599	0.1502	0.1352	0.1201
Rooftop solar power plant		0.1804	0.1723	0.1637	0.1475	0.1309
Wind turbine	<600		0.0582		0.0517	0.0452
	600-2000		0.0679		0.0603	0.0528
	>2000		0.1018		0.0905	0.0792
Biomass			0.1239		0.1115	0.0991
Biogas			0.1239		0.1115	0.0991
Hydro plant	<200		0.1745		0.1572	0.1395
	200-1000		0.1395		0.1255	0.1115
	1000-10000		0.1045		0.0942	0.0835

Geothermal energy			0.1502		0.1352	0.1201
Solar power for private household	<30	0.2003	0.1901	0.1809	0.1626	0.1449
Wind turbine for private household	<30		0.1163		0.1045	0.0932

The use of equipment of Ukrainian origin by investors is stimulated by the relevant premium to the feed-in tariff (throughout all the term of its validity) if the electricity equipment is commissioned by 31 December 2024. Therefore, if equipment of Ukrainian origin is used at least at the level of 30 per cent, the premium to the feed-in tariff shall be 5 per cent. If equipment of Ukrainian origin is used at least at the level of 50 per cent, the premium to the feed-in tariff shall be 10 per cent. The level of use of equipment of Ukrainian origin at power plants generating electricity from alternative energy sources is defined as the sum of the respective percentage of specific items of equipment. The Law of Ukraine on Alternative Energy Sources provides an exhaustive list of equipment for each type of alternative energy source that qualifies for the feed-in tariff premium. The Ukrainian origin of equipment shall be confirmed by the appropriate certificate issued by the Ukrainian Chamber of Commerce. However, it is worth noting that such a premium to the feed-in tariff is not applicable to electricity equipment of private households. In addition, Ukraine has certain international obligations as it is a member of the European Energy Community. Moreover, on 5 December 2017, Ukraine acceded to the Statute of the International Renewable Energy Agency (IRENA). Currently, only entrepreneurs constructing renewable energy plants in the Chernobyl exclusion zone enjoy tax privileges; the rent for land use in the exclusion zone is paid at 15 per cent (ie, with an 85 per cent discount). Nevertheless, some tax benefits are still available for renewable energy producers. Thus, pursuant to the Tax Code of Ukraine, no VAT is applicable to transactions on import to the territory of Ukraine of:

- equipment, functioning on the basis of alternative energy sources, energy-saving equipment and materials, means of measuring, control and management of energy resources, equipment and materials for the production of alternative types of fuels or electricity from renewable energy sources; and
- materials, equipment, components for manufacturing equipment, functioning on the basis of renewable energy sources; raw materials, equipment and components for the production of alternative types of fuels or electricity from renewable energy sources; energysaving equipment and materials, products whose operation provides saving and rational use of energy resources; and means of measuring, control and management of energy resources.

In addition, pursuant to the Customs Code of Ukraine, the abovementioned goods are exempt from import and export duties, provided that the taxpayer uses them for their own production and that no identical goods with the same qualities are produced in Ukraine. Nevertheless, this tax benefit, while being settled on paper, cannot be implemented in practice due to the failure of the Cabinet of Ministers of Ukraine to approve the list of such goods with specification of codes under the Ukrainian Classification of Foreign Economic Activity Products. However, this tax benefit applies only to the projects implemented within the framework of cooperation between the central executive authorities of Ukraine, the Ministry of Economy, Trade and Industry of Japan and the New Energy and Industrial Technology Development Organization (NEDO). Also, the Tax Code of Ukraine provides that any transactions concerning the sale of electricity generated by qualified cogeneration units or from renewable energy sources are not subject to excise tax.

7. Are renewable energy policies and incentives generally established at the national level, or are they established by states or other political subdivisions?

The state policy for the development of renewable energy projects is established at the national level and does not depend on the construction region. However, it should be noted that special construction conditions may be established by local urban development regulations (in case of construction of renewable energy facilities for households or within cities). In addition, the following matters fall within the competence of local self-government bodies and executive authorities:

- approval of the issues related to locating energy facilities on the territory controlled by them, taking into account the local community interests;
- participation in the drawing up of plans for the electricity distribution systems' development on the territory controlled by them; and
- participation in the development and implementation of a system of measures related to the electricity-generating facilities operation in the event of an emergency situation in the Ukrainian United Energy System.

8. What mechanisms are available to facilitate the purchase of renewable power by private companies?

'Clean' power may be sold by its producers under bilateral agreements on the day-ahead market, on the intraday market and on the balancing market at the prices established on the respective markets or at the feedin tariff prices. Electricity producers for whom the feed-in tariff was set have the right to sell electricity generated by renewable energy facilities at the feed-in tariff prices (subject to the premium paid on top of the feedin tariff) to the 'guaranteed buyer', who, in turn, is obliged to buy all 'clean' electricity.

9. Describe any notable pending or anticipated legislative proposals regarding renewable energy in your jurisdiction.

Among the changes adopted in 2017–2018, the following ones are worth mentioning:

- the Law on Electricity Market No. 2019-VIII dated 13 April 2017 regulating electricity market activities, construction and connection of the electricity-generating facilities to the grid. The Law takes effect in stages and, according to the plan, will come into full force on 1 July 2020;it is now possible to conclude a preliminary agreement with Energorynok;
- the Law on the Regulation of Urban Development Activities No. 3038-VI dated 17 February 2011 underwent many changes. In particular, the classes of consequences (liability) of buildings and structures were changed: now, there are three classes of complexity, instead of five as was previously the case. The definition of technical specifications was amended. Changes were made to the procedure for carrying out the examination of construction projects. Changes were also made to the procedure for accepting completed construction projects for operation;the agreements and the Resolution were brought into line with the legislation, in particular with the Law on the Electricity Market;
- Resolution of the NKREKP No. 1314 dated 11 October 2012, approving the model agreements with producers generating electricity from renewable energy sources, also underwent many changes, in particular: some agreement provisions were specified to avoid conflicts associated with the interpretation of the agreement terms and conditions;
- the conditions for amending and terminating the agreement were specified; and
- the procedure for making such amendments or terminating the agreement was clarified;

a number of legislative acts adopted by the NKREKP: the Transmission System Code (Resolution of the NKREKP No. 309 dated 14 March 2018);

the Distribution Systems Code (Resolution of the NKREKP No. 310 dated 14 March 2018);

the Market Rules (Resolution of the NKREKP No. 307 dated 14 March 2018);

the Code of Commercial Metering of Electricity (Resolution of the NKREKP No. 311 dated 14 March 2018);

the Day-Ahead Market Rules and the Intraday Market Rules (Resolution of the NKREKP No. 308 dated 14 March 2018); and

the Retail Electricity Market Rules (Resolution of the NKREKP No. 312 dated 14 March 2018). On 18 April 2018, the Transmission System Code, the Code of Commercial Metering of Electricity, the Distribution Systems Code and the Retail Electricity Market Rules were officially published in the Uriadovy Kurier governmental newspaper and came into force on 19 April 2018; and

the Law on Environmental Impact Assessment No. 2059-VIII dated 23 May 2017 establishes legal and organisational principles for environmental impact assessments aimed at preventing damage to the environment. In comparison with the previous law (on ecological expertise), the new law introduces the European model of the procedure for environmental impact assessments and significantly expands the range of facilities that are subject to assessment; moreover, the assessment procedure has become more lengthy.

10. What are the biggest drivers of change in the renewable energy markets in your jurisdiction?

As noted above, Ukraine has certain international obligations, as it is a member of the European Energy Community. On 5 December 2017, Ukraine also acceded to the Statute of the International Renewable Energy Agency (IRENA). Through cooperation with these organisations, investors in renewable energy can receive funding for renewable energy projects in Ukraine under special conditions. A lot of banking institutions in Ukraine, both public and private, implement programmes to finance the construction of renewable energy facilities. International financial institutions also finance the development of renewables. Such institutions include, inter alia, the European Bank for Reconstruction and Development, the World Bank and the Overseas Private Investment Corporation (OPIC). Financial institutions also finance the construction and development of projects with a capacity of over 100MW. In addition, according to the Energy Strategy of Ukraine, the share of renewable energy is to increase to 12 per cent of the total primary energy supply and to at least 25 per cent by 2035 (including all hydropower generating facilities and thermal energy).

11. Describe the legal framework applicable to disputes between renewable power market participants, related to pricing or otherwise.

The legal framework applicable to disputes includes the Law on the Electricity Market, the Codes of Ukraine, in particular the Code of Administrative Procedure, the Commercial Code, the Civil Code and the Land Code, as well as antitrust laws. Furthermore, the Verkhovna Rada of Ukraine is currently developing the Draft Law on the Energy Ombudsman. According to the Draft Law, it is planned to appoint an authorised person to be responsible for the protection of consumer rights in the energy market. Complaints and disputes between electricity market participants are handled by the regulator, the NKREKP. The regulator shall, within the specified time limit, adopt decisions binding on the market participants they relate to. Such decisions must be published on the regulator's official website, except those parts of the decisions that contain confidential information. At the same time, the regulator's decisions may be challenged in court. To resolve these issues, the NKREKP developed and adopted the Resolution on Approval of the Rules for Considering Consumer Inquiries regarding the Actions of Business Entities Operating in the Energy and/or Public Utilities Sectors and Dispute Settlement. This regulation determines the priority actions to be taken by the entities and the order of consideration of disputes between market participants. In addition, according to the model agreement with Energorynok, if the producer is a foreign investment company, any disputes arising out of or in connection with the agreement shall be resolved by arbitration under the Arbitration Rules of the International Chamber of Commerce (ICS) or, with the consent of the producer, in the Commercial Court of Ukraine. The arbitral tribunal is to consist of three arbitrators appointed in accordance with the aforesaid Arbitration Rules. Arbitration will take place in Paris, and the language of arbitration shall be English. The governing law of the agreement shall be the substantive law of Ukraine.

Utility-scale renewable projects

12. Describe the primary types and sizes of existing and planned utility-scale renewable energy projects in your jurisdiction.

The major utility-scale renewable energy projects in Ukraine are solar and wind-power projects. As of the end of 2017, the following facilities were commissioned in Ukraine:

- 193 solar power stations with a total capacity of 742MW, accounting for 53.96 per cent of the total installed capacity;
- 20 wind farms with a total capacity of 465MW (33.82 per cent of the total installed capacity);
- 136 small hydropower plants with a total capacity of 95MW (6.91 per cent of the total installed capacity);
- six biomass power plants with a total capacity of 39MW (2.84 per cent of the total installed capacity); and
- 21 biogas power plants with a total capacity of 34MW (2.47 per cent of the total installed capacity).

At the same time, in 2017, 87 renewable energy facilities with a total capacity of 257MW were commissioned, which is 2.1 times more than 2016. In the first quarter of 2018 alone, renewable energy facilities with a total capacity of 159.4MW were put into operation. This means that capacities with a total output of 62 per cent compared to the full year figure for 2017 were commissioned in the first three months of 2018. In addition, according to the feasibility study for the construction of a park of ground-mounted solar panels in the Chernobyl exclusion zone, made by Tractebel Engineering with the financial support of the French government, the park's estimated capacity will be 1.2GW. This is comparable with the output of one of the power units of the Chernobyl nuclear power plant. Solar power stations are to be constructed and commissioned by blocks of 150MW each. At the moment, one solar power station with a capacity of 1MW has been already constructed.

13. What types of issues restrain the development of utility-scale renewable energy projects?

Utility-scale renewable energy projects do not experience any significant problems (different from other projects) associated with their development.

Hydropower

14. Describe the primary types of hydropower projects that are prevalent.

Hydropower makes up around 8 per cent of the total installed capacity of energy facilities in Ukraine; new facilities can potentially be located in any region with small or large rivers. In Ukraine, there are over 22,000 rivers, but only 110 of them are longer than 100km. Therefore, the main hydropower resources are located on small rivers. At the same time, as a result of the construction of hydropower facilities, large areas of land can be flooded, valuable fish species may become extinct and fertile soils can be degraded. Thus, the elimination of environmental risks is a prerequisite for further hydropower development. Hydropower projects are classified into the following types:

- hydroelectric power plants;
- hydro-accumulating electric power plants;
- small hydropower plants, from 1 to 10MW;
- mini-hydropower plants, from 200 to 1,000kW; and
- micro-hydropower plants, up to 200kW.

It should be noted that only small, mini- and micro-hydropower plants (ie, with a power output up to 10MW) are eligible to obtain the feed-in tariff. According to the National Renewable Energy Action Plan, thanks to the modernisation of existing facilities, the restoration of old small hydropower plants and the construction and commissioning of new hydropower generating facilities in Ukraine, it is possible to achieve the following increase in electricity production:

- micro- and mini-hydropower plants: up to 130GWh in 2020 (with a total capacity of 55MW);
- small hydropower plants: up to 210GWh in 2020 (with a total capacity of 95MW); and
- large hydropower plants: up to 12,950GWh in 2020 (with a total capacity of 5,200MW).

15. What legal considerations are relevant for hydroelectric generation in your jurisdiction?

In addition to the general legal aspects of the energy facilities' construction, environmental and water legislation is of special importance for hydropower generation. The main disadvantage of the construction of small hydropower plants, especially on mountain rivers, is the threat to the natural state of the ecosystem. Therefore, it is always necessary to assess the environmental risks associated with such power plants. Furthermore, during the construction of hydropower facilities, it is necessary to comply with the regulations and rules established by the Water Code of Ukraine. This Code specifies the peculiarities of land allocation, obtaining authorisations and operation of facilities using water resources.

Distributed generation

16. Describe the prevalence of on-site, distributed generation projects.

Ukrainian law does not specifically define the concepts of 'microgrid', 'distributed generation', 'distributed energy' or 'on-site generation'. Instead, households in Ukraine have the opportunity to implement private renewable energy projects (installations up to 30kW that use solar or wind energy). At the same time, households are not eligible to receive premiums to the feed-in tariff for the use of equipment of Ukrainian origin, and the feed-in tariff is paid for the electricity supplied after the deduction of electricity generated for customers' own needs.

17. Describe the primary types of distributed generation projects that are common in your jurisdiction.

The primary types of distributed generation projects are solar power plants and wind farms. According to the State Agency for Energy Efficiency and Energy Saving of Ukraine, the increase in solar panels installed by the households is the latest trend in the alternative energy sector of Ukraine. This is attributed to the positive legislative changes made in 2015, allowing private households not only to sustain their electricity needs by means of using renewable energy sources, but also to sell any such excessive energy generated under the feed-in tariff. The trend has been continuously growing for the past two years. Thus, pursuant to the Law of Ukraine on Electricity, private households are

entitled to set up electricity generating facilities with a capacity of up to 30kW and sell electricity produced from solar or wind energy under the feed-in tariff to the electricity distribution company of an amount exceeding the monthly consumption of electricity by such private households.

18. Have any legislative or regulatory efforts been undertaken to promote the development of microgrids? What are the most significant legal obstacles to the development of microgrids?

No legislative or regulatory efforts have been undertaken to promote the development of microgrids. Once the development of the energy system is completed and the authorisation system conditions and connection terms are facilitated, private renewable energy projects are expected to develop further.

19 What additional legal considerations are relevant for distributed generation?

As current legislation does not contain such concepts, no additional considerations are applicable.

Energy storage

20. What storage technologies are used and what legal framework is generally applicable to them?

The legislation on renewable energy facilities does not establish any specific rules for the use of storage technologies. Therefore, such facilities are subject to national regulations in relation to occupational safety and health, in particular to a number of national standards (DEST) adopted by the Interstate Council for Standardisation, Metrology and Certification and technical regulations. The application of certain technical regulations and DEST depends on the types of storage technologies, the conditions of their use and the installation location. At the same time, given the rapid development of the Ukrainian energy sector and the need for balancing in the electricity market, the development of a regulatory framework applicable to storage technologies may be expected in the medium term.

21. Are there any significant hurdles to the development of energy storage projects?

Since energy storage projects are currently not widely implemented in Ukraine, the lack of a regulatory framework is the most significant hurdle to their development.

Foreign investment

22. May foreign investors invest in renewable energy projects? Are there restrictions on foreign ownership relevant to

renewable energy projects?

Foreign investors may invest in renewable energy projects. There are no legislative restrictions on foreign ownership relevant to renewable energy projects. Restrictions may include the prohibition for non-residents to acquire land. There are no such restrictions, however, on the land lease. What's more, it is usually cheaper and easier to lease land. Hence, most owners of renewable energy facilities, both Ukrainian and foreign, lease the land plots on which they then construct electricity generating facilities. In addition, renewable energy projects may be subject to national and international restrictions on currency control, anti-money laundering and crime control. Moreover, international treaties, in particular the provisions of the Financial Action Task Force, shall, in addition to the national legislation, be applicable during financial monitoring.

23. What restrictions are in place with respect to the import of foreign manufactured equipment?

Regarding equipment, general safety and tax restrictions are currently in place. There are no special restrictions with respect to renewable energy equipment.

Projects

24. What government authorisations must investors or owners obtain prior to constructing or directly or indirectly transferring or acquiring a renewable energy project?

Government authorisations to be obtained differ depending on the method of acquiring a renewable energy project. The main authorisations and permits include:

- an approval of the Anti-Monopoly Committee if the assets value threshold or the market share held by owners of energy facilities is exceeded;
- a licence for carrying out power generation business activities (an application for such a licence may be filed along with the application for the feed-in tariff);
- setting the feed-in tariff, which shall be granted by the NKREKP based on the producer's application. For more details, see question 27;
- commissioning the newly constructed renewable energy facility; and
- technical conditions for connection to the electrical grid.

The legislation does not contain any other special requirements in relation to renewable energy projects. It should be noted that, apart from the aforesaid documents, there are also national requirements for business registration, land lease and construction.

25. What type of offtake arrangements are available and typically used for utility-scale renewables projects?

The laws provide for special operational conditions for producers for which the feed-in tariff is set: Hence, the balancing group of feed-in tariff electricity producers is a balancing group where the guaranteed buyer is the party responsible for settling imbalances within such a group. For 'non-green' electricity generation, the role of the party responsible for balancing is performed by a market participant who is obliged to report and fulfil its hourly electricity schedules (or those of the balancing group) based on the volumes of purchased and sold electricity, and is financially liable to the transmission system operator for its imbalances (or the imbalances of the balancing group). However, for 'green' electricity generation, it is determined in advance that the guaranteed buyer should perform this role. The guaranteed electricity buyer is a business entity that must, in accordance with the law, buy the electricity from the producers for which the feed-in tariff was set and perform other functions provided for by the law. This means that the state guarantees the purchase of electricity from producers at the feed-in tariff prices. The guaranteed buyer is obliged to buy all the electricity generated by the energy facilities from renewable energy sources from the business entities for which feed-in tariff was set at the feed-in tariff prices, taking into account the premium paid on top of the feed-in tariff, during the entire term of the feed-in tariff, if such business entities belong to the balancing group of feed-in tariff producers. At the same time, the output volume of electricity generated from renewable energy sources shall, in each accounting period (month), be determined by deducting the volume of electricity consumed for producers' own needs based on the metering data of electricity consumption for their own needs. The sale and purchase of such power at feed-in tariff prices shall be carried out on the basis of a bilateral agreement between the producer, for whom the feed-in tariff is set, and the guaranteed buyer. The power purchase agreement with the feed-in tariff between the guaranteed buyer and the business entity generating electricity from renewable energy sources shall last for the full term of the feed-in tariff. In order to be able to sell power at the feed-in tariff prices, the producer must:

- become a market participant in the manner prescribed by the law;
- enter into a bilateral agreement with the guaranteed buyer and join the special balancing group of feed-in tariff electricity producers based on that agreement; and
- on a daily basis, provide the guaranteed buyer with its daily power output charts for the next 24 hours in the manner and form provided for in the bilateral agreement with the guaranteed buyer.

The guaranteed buyer must, at the request of the business entities intending to generate electricity from renewable energy sources, enter into a power purchase agreement at any time before the construction commences or the respective facilities are commissioned to generate power from renewable energy sources and before the regulator sets the feed-in tariff. If the energy facility for which the power purchase agreement was concluded under the feed-in tariff is not commissioned within three years from the date of registration of the respective declaration of the commencement of construction works or receipt of the permit for the performance of construction works, the concluded agreement shall become invalid.

26. How are long-term power purchase agreements procured by the offtakers in your jurisdiction?

Are they the subject of feed-in tariffs, the subject of multi-project competitive tenders, or are they typically developed through the submission of unsolicited tenders? Agreements on the supply of electricity generated from renewable energy sources may be concluded both directly with consumers and with Energorynok (a guaranteed buyer). The conclusion of long-term agreements with the guaranteed buyer is provided for by the Law on the Electricity Market and by Resolution of the NKREKP No. 1314 dated 11 October 2012, approving the model agreements with producers generating electricity from renewable energy sources.

The guaranteed buyer must, at the request of the business entities that will generate electricity from renewable sources, enter into a power purchase agreement at any time before the construction commences or the respective facilities are commissioned and before the regulator sets the feed-in tariff.

27. What government authorisations are required to operate a renewable energy project and sell electricity from renewable energy projects?

In order to be able to operate a renewable energy project and obtain the feed-in tariff, the following is required:

- a calculation of the cost of production of electricity generated by the renewable energy facility;
- itemisation of the costs of production of electricity generated by the renewable energy facility (copies of contracts for the purchase of goods, works and services, a statement on the number of employees and a certificate on the book value of fixed assets with a breakdown by groups as at the date of filing the application for the feed-in tariff);
- a registered declaration of the commencement of construction works or a permit for the performance of construction works;
- technical conditions for the connection of renewable energy facilities to the electrical grid;
- a registered declaration of the facility (or launch complex) readiness for operation or an equivalent certificate; and
- the project documentation estimates for the renewable energy facility construction.

Moreover, renewable energy producers must obtain a licence for carrying out power generation business activities (an application for such a licence may be filed along with the application for the feed-in tariff). It is also desirable to obtain a guarantee of the origin of electricity, a document issued by the state authority at the request of the electricity producer, confirming that a portion or a certain volume of electricity is generated from renewable energy sources. Once the feed-in tariff is set, the producer must connect to the electrical grid to supply electricity and enter into an agreement with Energorynok.

28. Are there legal requirements for the decommissioning of renewable energy projects? Must these requirements be funded by a sinking fund or through other credit enhancements during the operational phase of a renewable energy project?

Currently, legislation does not provide for any such requirements or opportunities.

Transaction structures

29. What are the primary structures for financing the construction of renewable energy projects in your jurisdiction?

The primary structures for financing the construction of renewable energy projects do not differ essentially from the structures for financing the construction of similar projects in other European countries. At the same time, it should be noted that it is possible to conclude a preliminary agreement with Energorynok for the supply of electricity generated from renewable energy sources, which facilitates obtaining financing from various financial institutions, particularly the international institutions (see question 10).

30. What are the primary structures for financing operating renewable energy projects in your jurisdiction?

The primary structures for financing the operation of renewable energy projects do not differ from those used in other countries. Activities in the renewable energy sector are financed both with funds originating from wholesale electricity tariffs as a result of introducing a special statutory target premium to the tariff rates; funds from companies, institutions and organisations; funds out of national and local budgets; voluntary contributions; and other funds not prohibited by the law. At the same time, it should be taken into account that when using the project funding from financial institutions, such loans should, as a rule, be paid back first. The renewable energy facilities may be used as a pledge for such loans, leading to restrictions on their free sale until the loan is repaid.