

Renewable Energy and Energy Efficiency

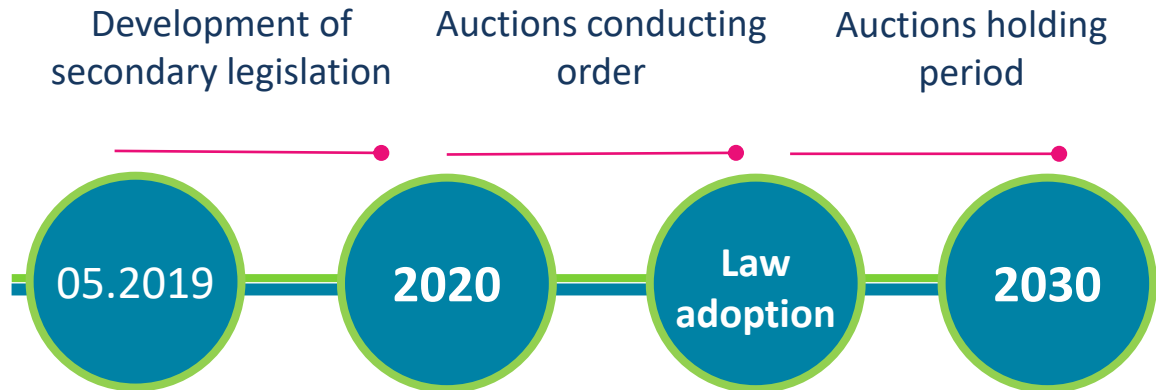
Green Energy Projects



**Ministry
of Energy
of Ukraine**

Law of Ukraine about Renewable Energy Auctions

NEW RENEWABLE ENERGY INCENTIVES INTRODUCTION



PPA terms
20 years



**Obligatory participation:
from 2020:**



SPP ≥ 1 MW;



WPP ≥ 5 MW;

Other key points:

**All types of
RES** will
participate in
auctions

Electronic
Trading System
PROZORRO

Financial guarantee
15 000 € for 1 MW
**Land and
Specifications for
accession**

Premium for the
use of Ukrainian
equipment **5% -
10%** (current law)

Specifications are valid:
**SPP – up to 2 years;
WPP, CHP on biomass,
small HPP – up to 3
years**

LAW OF UKRAINE INTRODUCTION AMENDMENTS TO THE RENEWABLE ENERGY SUPPORT SYSTEM # 810-IX DATED 21.07.2020

Reduction of the “feed-in” tariff

FiT reduction Commissioning: 1.07.2015 – 31.12.2019

- SPP (≥ 1 MW): minus 15%
- SPP (< 1 MW): minus 7.5%
- WPP : minus 7.5%

For SPP above 1 MW and less 75 MW

- -2.5% Commissioned between 01.01.2020 to 31.10.2020;
- -30% Commissioned between 01.11.2020 to 31.03.2021;
- -60% Commissioned between 01.01.2020 to 31.10.2020;

For SPP above 75 MW

- -2.5% Commissioned between 01.01.2020 to 31.10.2020;
- -60% Commissioned after 01.11.2020;

For WPP regardless of power

- -2.5% commissioned after 01.01.2020

LAW OF UKRAINE INTRODUCTION AMENDMENTS TO THE RENEWABLE ENERGY SUPPORT SYSTEM # 810-IX DATED 21.07.2020

Local content premium

Premium rate	Share of local equipment
10%	50 - 70%
20%	70 - 100%

Responsibility for imbalances

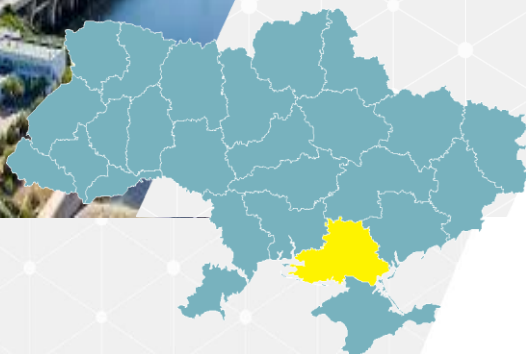
- RES < 1 MW:
 - from 01.01.2021: 10% (+10% every year)
 - from 01.01.2030: 100%
- RES ≥ 1 MW:
 - from 01.01.2021: 50%
 - from 01. 01.2022: 100%

Limitation of new SPP and WPP capacity addition at FiT

- SPP (< 75 MW): from 01.04.2021:
minus 60%
- SPP (> 75 MW): from 01.11.2020:
minus 60%

Renewable Energy and Energy Efficiency

Construction of Kakhovka HPP-2



Key indicators

Coordinator: Ministry of Energy of Ukraine

Owner: PJSC Ukrhydroenergo

Location: Kherson region,
Dnieper River

Installed capacity: 250 MW e

Financial indicators

NPV: 1,617 billion UAH

IRR: 7,3%

DPP : 20 years

PI: 1,12

Investments volume: 18 121,4 million UAH

Project status

✓ Development of project documentation stage "P" - project

Socioeconomic effect

✓ will allow Ukraine to meet the requirements for frequency and power control for the integration of Ukraine's power system into the European Network of Transmission System Operators for Electricity (ENTSO-E), in particular, in the ranges of secondary and tertiary regulation;

✓ will allow the operation of HPP-1 and HPP-2 in the peak part of the daily modes of the power system;

✓ additional electricity generation of 44 million kWh due to full use of flood water discharges;

✓ optimization of joint work of the Dnieper and Kakhovka hydro systems;

✓ extension of the service life of HPP-1 and the hydro system as a whole

Completion of Tashlyk PSH construction



Key indicators

Coordinator: Ministry of Energy of Ukraine

Owner: National Nuclear Energy Generating Company of Ukraine/

Location: Mykolaiv region,
Southern Bug River

Installed capacity: 6 hydroelectric installations
in generator mode— 906 MW, in pump mode—
1 266 MW

**Planned annually
production:** 872,5 GW * year

Financial indicators:

NPV: 11970,7 million UAH

DPP: 11 years

Investments volume: 14 254 million UAH

Renewable Energy and Energy Efficiency

Project status

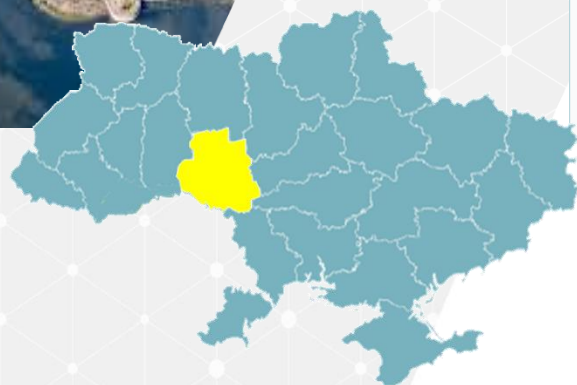
- ✓ readiness of the starting complex of the hydropower unit № 3 is about 60% (capacity 151 MW);
- ✓ **need in**
in completion of works and commissioning cut-off dam in Tashlyk reservoir-coolers of South-Ukraine NPP;
- ✓ deconservation and commissioning of units № 4-6

Socioeconomic effect

- ✓ coverage of peak loads;
- ✓ filling night "failures" in united power grid of Ukraine;
- ✓ creation of an emergency reserve of high-speed capacities in the Southern region of Ukraine, including for the South-Ukraine NPP, which has a significant uneven daily load schedule

Renewable Energy and Energy Efficiency

Construction third turn of the Dniester HSPP as a part of three hydroelectric



Key indicators

Coordinator: Ministry of Energy of Ukraine

Owner: PJSC Ukrhydroenergo

Location: Vinnytsia region, Dniester river

Installed capacity:

972 MW (3 hydroelectric on 324 MW in generator mode and 1 263 MW in pumping mode (3 hydroelectric on 421 MW))

Planned annual production : 2110 mln .

Financial indicators

NPV: 2 016 mln UAH

IRR: 7.6%

DPP: 23.7 years

PI: 1.10

Investments volume 26 459 mln UAH

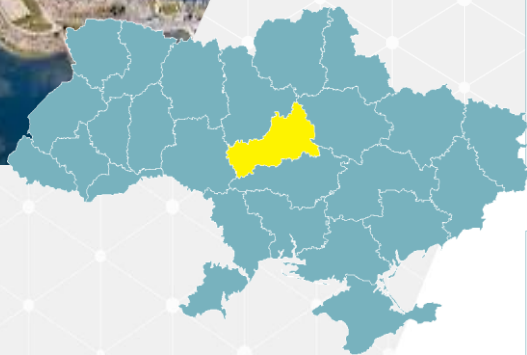
Project status

✓ Project documentation of stage "P" was not developed. Different variants of characteristics of hydraulic units are considered

Socioeconomic effect

- ✓ reduction of load failures at night, with simultaneous improvement of the mode of operation of thermal power plants and nuclear power plants in relation to their unloading;
- ✓ regulation of load and interconnection flows in the United Power Grid (UPG) of Ukraine;
- ✓ creation of a mobile emergency reserve of 972 MW of generating capacity in the UPG of Ukraine;
- ✓ fulfillment of Ukraine's requirements on frequency and power control for the integration of the Ukrainian power system into the European Network of Transmission System Operators for Electricity (ENTSO-E);
- ✓ creation of a regulation reserve for integrating generation within "feed-in" tariff

Construction of Kaniv HSPP



Key indicators

Coordinator: Ministry of Energy of Ukraine

Owner: PJSC Ukrhydroenergo

Location: Cherkasy region, Dniester river

Installed

capacity: 1000 MW (4 hydroelectric on 250 MW) in generator mode and 1040 MW in pumping mode (4 hydroelectrics on 260 MW)

Financial indicators

NPV: 13 617 mln UAH

IRR: 9,52%

DPP: 18 years

PI: 1,38

Investments volume 42 560 mln UAH

Renewable Energy and Energy Efficiency

Project status

✓ III stage of three-stage design (Working documentation)

Socioeconomic effect

- ✓ reduction of load failures at night, with simultaneous improvement of the mode of operation of thermal power plants and nuclear power plants in relation to their unloading by the amount of working capacity of Kaniv HSPP;
- ✓ regulation of load and interconnection flows in the United Power Grid (UPG) of Ukraine;
- ✓ creation in the UPG of Ukraine of a mobile emergency reserve of 1000 MW of generating capacity;
- ✓ fulfillment of Ukraine's requirements on frequency and power control for the integration of the Ukrainian power system into the European Network of Transmission System Operators for Electricity (ENTSO-E);
- ✓ creation of a regulation reserve for integrating generation within "feed-in" tariff

Renewable Energy and Energy Efficiency

Installation of hybrid installations - battery energy storage and photovoltaic systems



Key indicators:

Cordinator: Minenergo

Owner: PJSC "Ukrhydroenergo"

Location: at the Branches of PJSC "Ukrhydroenergo":

- Kyiv HSPP;
- Kaniv HPP;
- Kremenchug HPP;
- Serednyodniprovska HPP;
- Dniester HPP.

Installed capacity: SPP – 90 MW and electric storage batteries – 878 MW, of which:

- at Kyiv HSPP (SPP - 11 MW and electric batteries - 75 MW);
- at Kanivska HPP (SPP - 30 MW and electric accumulators - 278 MW);
- at Kremenchug HPP (SPP - 15 MW and electric batteries - 155 MW);
- at the Serednyodniprovska HPP (SPP - 19 MW and electric batteries - 148 MW);
- at the Dniester HPP (SPP - 15 MW and electric batteries - 222 MW).

Financial indicators:

NPV: 257,2 mln (USA)

IRR: 28,1%

Investment volume: \$200 mln (USA)

Project status

- ✓ Project idea, Pre -PFS.

Socioeconomic effect

- ✓ increasing the efficiency of PJSC "Ukrhydroenergo" in terms of joining the Ukrainian energy system to ENTSO-E;
- ✓ increasing the level of equipment output, as well as improving the company's ability to provide a rapid reserve of frequency support (4 s – 5 min) as well as a frequency control reserve (10 min – 105 min);
- ✓ providing support to autonomous work and activities with ENTSO-E, as well as the process of integration of renewable sources into the Ukrainian energy system

Renewable Energy and Energy Efficiency

Creating a data center on nuclear facilities of SE “NNEGC “Energoatom”



Key facts

Coordinator: Ministry of Energy of Ukraine

Ownership: SE “NNEGC “Energoatom”

Location :

city Varash near the Rivne NPP

city Energodar near the Zaporozhye NPP

Installed capacity:

Data center power consumption
up from 50 MW

Investment volume UAH 800 mln

Project status

✓ Project initiation

Socioeconomic effect

- ✓ State NPPs - will be able to sell surplus electricity;
- ✓ Consumers of data center services - quality services;
- ✓ Satellite cities - additional jobs, infrastructure development;
- ✓ Equalization of the load schedule, which facilitates dispatching by the Ukrainian power system

Novokostiantynivska mine. Development of production facilities



Key indicators:

Coordinator: Minenergo

Owner: SE "Eastern Mining and Processing Plant"

Location: Kirovohrad region. Novokostiantynivske uranium deposit

Installed performance:

Increase in production to 500 thousand tons of uranium ore per year

Financial indicators

NPV: 2950,3 mln (UAH)

DPP: 3,6 years

PI: 1,17

Investment volume 2 585,5 mln (UAH)

Project status

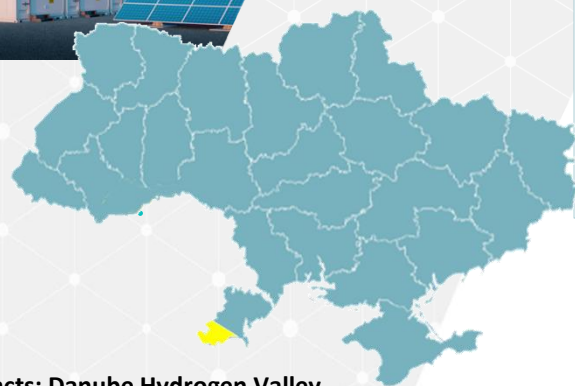
- ✓ Partial implementation of the project in the amount of 344 mln (UAH)

Socioeconomic effect

- ✓ reducing the dependence of domestic nuclear energy on foreign suppliers of uranium products;
- ✓ creating conditions for sustainable socio-economic development of the Kirovohrad region;
- ✓ creation of new jobs in the amount of 186 full-time units;
- ✓ stabilization of the ecological and radiation condition around the radiation-hazardous object (Novokostyantynivske deposit) and provision of a full-fledged living environment for the population of the territories adjacent to the object

Renewable Energy and Energy Efficiency

Building of the factory for production of renewable hydrogen



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Key information:

Coordinator: Minenergo

Owner: Danube Hydrogen Valley

Location: Odessa region, banks of river Danube, seashore of Black Sea

Capacity: 5000 MW
(3000 MW wind power station
2000 MW sun power station)
3000 MW capacity of electrolizer.
First stage – 500 MW

Investment - 14 000 millions euro

Stage of the project:

- ✓ I stage 500 MW ready to build - WD (Working documentation)
- ✓ 4500 MW – visibility study

Socioeconomic effect

- ✓ building of a new energy cluster with connection to ENTSO-E and exporting renewable electricity to EU, realization of European program New Green Deal;
- ✓ creating more than 1000 new working places;
- ✓ in the project there is a reconstruction of part of the national gas system to use it for transporting renewable hydrogen to EU countries;
- ✓ developing the potential of river Danube, use it for export renewable hydrogen to EU;
- ✓ building a wide infrastructure for hydrogen, increasing part of renewable energy in energy balance of the country, decarbonization of Ukrainian economy.

Wind Power Plant Kamyanska 56 MW



Estimated Financial Details

- **Estimated project costs, EURO:** 60 mln
- **Equity IRR, %:** 15,3%
- **Project Payback Period:** 4,3 years
- **Maximum auction tariff:** 0,9 Euro/KWh (no VAT)

Land information

- **Land lease agreement:** Land leases for 17 turbine installations (13 planned by the project + 4 reserve)
- **Purpose of the land plot:** For the placement, construction, operation and maintenance of buildings and structures of facilities of energy-generating enterprises, institutions and organizations

Project Status

- **Certified wind measurement** carried out for 14 month by the German company "Deutsche Wind Guard Consulting GmbH" according to industry best standards
- **A working project for the construction of a wind power plant** has been developed
- **Permission for construction works** was obtained
- **A grid connection agreement in place** with approval from Ukrenergo

Project Status

- Obtained urban planning conditions and restrictions for design
- Detailed plan of the territory (DPT) for the construction of a power plant has been developed and approved
- The feasibility study for connection to grids was developed and agreed
- Land plot lease agreement signed
- Signed pre-PPA
- Received TC (technical conditions)
- Preliminary financial model prepared

General Feasibility

- **Wind speed:** 8,2 m/s
- **Grid connection Studies** - available
- **Environmental Study** – available
- **Public hearings on environmental impact assessment** - conducted
- **Environmental Impact Assessment Conclusion** - ready
- **Topographical Survey** - available
- **Geophysical studies** were carried out
- **The procedure for extraction of forest land for energy objects** has been started

Interconnection

- An interconnection agreement been negotiated and signed
- Grid substation already available
- **Grid connection voltage level:** 150 kVt
- **Any Interconnection or COD deadline?** - Three years from the date of signing the pre-PPA
- **Ownership of grid connection point:** ISC "Zaporizhoblenergo"

Total estimated investment
EUR 60 mln

Corporate and Project Information

- **Project Name:** WPP Kamyanska
- **Location:** Kamyanske village, Vasylivskyi District, Zaporizhzhia region, Ukraine
- **Capacity:** 56 MW
- **Current Owner(s) and Ownership Percentages:** Ukrainian Wind Group

Focal point:

Yulia Rybak, Advisor to the Acting Minister of Energy of Ukraine

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Bioethanol production plant in Western Ukraine



Project description

- The main goal of the investment project is to build a plant for the bioethanol production. It is also planned additional commercialization of by-products from bioethanol production, such as DDGS, liquefied CO2 and corn oil.
- Produced bioethanol will have 80% of CO2 neutrality and have all necessary environmental certificates. Plant energy demand will be met by energy utilization of waste wood.
- All produced bioethanol will be sold to EU, where demand has raised due to new Directives for all Member states.

Financial indicators

- **Project cost, EUR, VAT incl.:** 28,8 mln
- **Loan, 70%, EUR:** 20,2 mln
- **Equity, 30%, EUR:** 8,6 mln
- **Project IRR:** 22,3%
- **Payback period:** 3,54 years
- **Equity IRR:** 36,3%
- **Equity payback period:** 1,9 years

- We are also interested in finding partners and clients to sell 33300 m3 of bioethanol annually in European market

Corporate and project information

- **Name of project:** Bioethanol production plant
- **Location:** West of Ukraine
- **Output, per 1 year:**
 - Bioethanol - 33 300 m3
 - DDGS - 24 975 t
 - CO2 - 16 650 t
 - Corn Oil - 833 t
- **Corn consumption, per 1 year:**
 - 80 000 t
- **Planned start of production:** 2022 year

Focal point:

Advisor to the Acting Minister of Energy of Ukraine
Yulia Rybak

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**Total estimated
investment 28,8 mln
EUR**

Wind Power Plant Perehinska 50,4 MW



Corporate and Project Information

- **Project Name:** WPP Perehinska
- **Location:** Perehinske and Lypovytsya, Rozhnyativ district, Ivano-Frankivsk region, Ukraine
- **GPS Coordinates:** 48.7735, 24.0774
- **Capacity:** 50,4 MW
- **Current Owner(s) and Ownership Percentages:** Clear Energy Group

Estimated Financial Details

- **Estimated project costs, EURO:** 57 mln
- **Project IRR:** 15,3%
- **Project Payback Period:** 5,4 years
- **Maximum auction tariff:** 0,9 Euro/KWh (no VAT)

Land information

- **Land lease agreement:** available, signed for 25 years
- **Purpose of the land plot:** For the placement, construction, operation and maintenance of buildings and structures of facilities of energy-generating enterprises, institutions and organizations
- **Cost of land lease:** 6% of regulatory monetary value (300 000 UAH, approximately 9990 EURO, data and exchange rate for 12.03.2020)

Project Status

- **15 months** wind measurement research available - Geo Net
- **A working project for the construction of a wind power plant has been developed**
- **Permission for construction works was obtained**
- **Started design work of technical re-equipment of 110/35/10 kV "Perehinskoe" substation**

Total estimated investment EUR 57 mln

Project Status

- Obtained urban planning conditions and restrictions for design
- Detailed plan of the territory (DPT) for the construction of a power plant has been developed and approved
- The feasibility study for connection to grids was developed and agreed
- Land plot lease agreement signed
- Signed PPA
- Received TC (technical conditions)
- Preliminary financial model prepared

General Feasibility

- **Wind speed:** 5.8 m/s
- **Grid connection Studies - available**
- **Environmental Study – available**
- **Public hearings on environmental impact assessment - conducted**
- **Environmental Impact Assessment Conclusion - ready**
- **Topographical Survey - available**
- **Geophysical studies were carried out**
- **The procedure for extraction of forest land for energy objects has been started**

Interconnection

- An interconnection agreement been negotiated and signed
- **KM distance from WPP to grid connection point:** 13 km, overhead
- Grid substation already available
- **Grid connection voltage level:** 110 kVt
- **Any Interconnection or COD deadline? - Three years from the date of signing the pre-PPA**
- **Ownership of grid connection point:** JSC "Prykarpattyaoblenergo"

Focal point:

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Wind Power Plant Prykarpatya 25,2 MW



**Total estimated
investment EUR
33 mln**

Focal point:
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Corporate and Project Information

- **Project Name:** WPP Prykarpatya
- **Location:** Tsineva, Rozhnyativ district, Ivano-Frankivsk region, Ukraine
- **GPS Coordinates:** 48.871690, 24.166422
- **Capacity:** 25,2 MW
- **Current Owner(s) and Ownership Percentages:** Clear Energy Group

Estimated Financial Details

- **Estimated project costs, EURO:** 33 mln
- **Project IRR:** 13,4 %
- **Project Payback Period:** 5,85 years
- **Maximum auction tariff:** 0,9 Euro/KWh (no VAT)

Project Status

- Obtained urban planning conditions and restrictions for design
- Detailed plan of the territory (DPT) for the construction of a power plant has been developed and approved
- The feasibility study for connection to grids was developed and agreed
- Land plot lease agreement signed
- A preliminary financial model has been prepared

Project Status

- **Wind measurement research carried out - DVN GL (report available in April/May 2020)**
- WPP project was developed, and construction permit was received

Land information

- **Total land size:** 11 plots of land. 10 of them have an area of 1 ha, one - 1.2 ha
- **Land lease agreement:** available, signed for 25 years
- **Purpose of the land plot:** For the placement, construction, operation and maintenance of buildings and structures of facilities of energy-generating enterprises, institutions and organizations
- **Cost of land lease:** 6% of regulatory monetary value

General Information

- **Wind speed:** Wind measurement studies are ongoing
- **Grid connection Studies - available**
- **Environmental Study – available**
- **Environmental Impact Assessment Conclusion - ready**
- **Topographical Survey - available**
- **Geological studies were carried out**
- **Public hearings on the “green tariff” were held**

Interconnection

- An interconnection agreement been negotiated and signed
- **KM distance from WPP to grid connection point:** 6 km, overhead
- Grid substation already available
- **Grid connection voltage level:** 110 kVt
- **Any Interconnection or COD deadline? - Three years from the date of signing the pre-PPA**
- **Ownership of grid connection point:** JSC “Prykarpattyaoblenergo”

Solar Power Plant Tsineva 35 MW



**Total estimated
investment
EUR 20 mln**

Focal point:
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Corporate and Project Information

- **Project Name:** SPP Tsineva
- **Location:** Tsineva, Rozhniativsky district, Ivano-Frankivsk region, Ukraine
- **GPS Coordinates:** N 48.886, E 24.189
- **Capacity:** 35 MW
- **Current Owner(s) and Ownership**
Percentages: Clear Energy Group

Project Status

- Land plot lease agreement signed
- Permission for construction work has been obtained
- A preliminary financial model has been prepared
- There is a construction project and expert examination of the project

Interconnection

- An interconnection agreement been negotiated and signed
- **KM distance from SPP to grid connection point:** 5 km, overhead
- **Ownership of grid connection point:** JSC "Prykarpattiaoblenergo"

Land information

- **Total land size:** 77,5 ha
- **Land lease agreement:** available, signed for 25 years
- **Purpose of the land plot:** For the placement, construction, operation and maintenance of buildings and structures of facilities of energy-generating enterprises, institutions and organizations
- **Cost of land lease:** 6% of regulatory monetary value

Estimated Financial Details

- **Estimated project costs, EURO:** 20 mln
- **Project IRR:** 14,6 %
- **Project Payback Period:** 5,32 years
- **Maximum auction tariff:** 0,9 Euro/KWh (no VAT)

General Feasibility

- **Yearly in-plane irradiation:** 1414 kWh/m² per year
- **Feasibility study** - available
- **Topographical Survey** - available
- **Geological and geodesic Surveys** - available

Solar Power Plant Kremenchuk 75 MW



**Total estimated
investment in project
EUR 60 mln**

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e-mail: yuliribak@gmail.com

Corporate and Project

Information

- **Project Name:** SPP Kremenchuk
- **Location:** Kremenchug, Northern Industrial District, Poltava region, Ukraine
- **GPS Coordinates:** N 49°08.703' E 33°27.151'
- **Capacity:** 75 MW
- **Current Owner(s) and Ownership Percentages:** Clear Energy Group (New Heating LLC)

Project Status

- Land plot lease agreement signed
- Signed pre-PPA
- Permission for construction work has been obtained
- A preliminary financial model has been prepared
- There is a construction project and expert examination of the project

General Feasibility

- **Yearly in-plane irradiation:** GTI 1460 kWh /m2 per year
- **Feasibility study** - available
- **Topographical Survey** - available
- **Geological and geodesic surveys** - available

Land information

- **Total land size:** 150 ha
- **Land lease agreement:** available, signed for 49 years
- **Purpose of the land plot:** construction of energy infrastructure facilities (alternative energy facilities) that generate electricity from alternative energy sources
- **Cost of land lease:** 616 005,00 UAH (approximately 20 575 Euro as of 04/15/2020)

Estimated Financial Details

- **Estimated project costs, EURO:** 60 mln
- **Project IRR:** 14,5 %
- **Project Payback Period:** 5,34 years
- **Maximum auction tariff:** 0,9 Euro/KWh (no VAT)

Interconnection

- An interconnection agreement been negotiated and signed - 86,250,000 UAH official payment should be done
- **KM distance from SPP to grid connection point:** 0,8km, overhead
- The distance from the site to the existing substation 150kV is about 3km
- **Ownership of grid connection point:** Poltavaoblenergo

Koriukivka - 2 Thermal Power Plant 6 MW



**Total estimated
investment EUR
9,1 mln**

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Corporate and Project Information

- **Project Name:** Koriukivka TPP
- **Location:** Koriukivka town, Chernihiv region
- **Capacity:** 6 MW
- **Current Owner(s) and Ownership Percentages:** Clear Energy Group

Estimated Financial Details

- **Estimated project costs, EURO:** 9,1 mln
- **Project IRR:** 25,5 %
- **Project Payback Period:** 3,4 years

- The main objective of the investment project is to build a reliable biomass power plant, put it into operation and generate electricity by burning biomass (wood chips) and sell it to the grid at a feed-in tariff.
- As for now, we have a proposal to purchase a new 6 MW thermal power plant (TPP) on wood chips from Chinese manufacturer (Shandong Qingneng Power Co., Ltd.).
- It is planned to install new power plant on the land plot next to the existing TPP (Koriukivska TPP 4 MW), which is owned by Clear Energy LLC.

Chernihiv co-generation Power plant



**Total estimated
investment EUR
6.03 mln**

Corporate and Project Information

- **Project Name:** Chernihiv CHP
- **Location:** Chernihiv
- **Capacity:** 2 MW electric and 3.2 MW biomass heat + 14 MW heat from natural gas
- **Current Owner(s) and Ownership Percentages:** Clear Energy Group

Estimated Financial Details

- **Estimated project costs, EURO:** 6,03 mln
- **Project IRR:** 28 %
- **Project Payback Period:** 3 years

- The main purpose of the investment project – is to expand the existing capacity of biomass CHP from 0.5 MW to 2.5 MW electric capacity and from 0.8 MW to 4 MW heat with usage of biomass gasification (wood chips) technology, as well as to install modern boilers with efficiency over 95% in Chernihiv.
- It is planned to build a block - modular boiler-house with two boilers and heat capacity of 14 MW
- Electricity will be supplied to the grid at a “feed-in” tariff till 2030, and heat to the district heating system, which will be by 25% lower than the existing tariffs in Chernihiv.

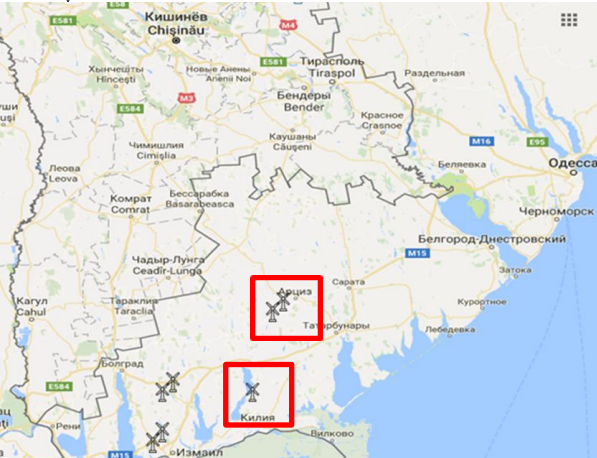
Focal point:

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DANUBE DELTA WIND HOLDING



**Total estimated
investment EUR
66 mln**

Corporate and Project Information

- **Project Name:** Danube WPP (Artsyz WPP – 1, Artsyz WPP – 2, Kiliya WPP)
- **Location:** Odessa region (near Artsyz and Kiliya)
- **Capacity:** 49,5 MW

Land information

- **Land lease agreement:** available, signed for 49 years
- **Purpose of the land plot:** For the placement, construction, operation and maintenance of buildings and structures of facilities of energy-generating enterprises, institutions and organizations

Estimated Financial Details

- **Estimated project costs, EURO:** 66 mln
- **Project IRR:** 23 %
- **Project Payback Period:** 5 years
- **Maximum auction tariff:** 0,9 Euro/KWh (no VAT)

Project Status

- Wind measurement campaign on a "turnkey" basis conducted, as well as manufacturing, transportation and installation of masts, purchase of equipment, collection of wind data and mast maintenance, obtaining a report by an independent expert organization;
- The detailed plan of the territory for WPP construction has been developed and approved;
- The Environment Impact Assessment was conducted;
- The Feasibility Study of WPP power delivery schemes was developed and approved by JSC "Odessaoblenergo" and NPC "Ukrenergo";
- The land easements were executed and land lease agreements were concluded;
- The agreements on WPP accession were concluded and Technical Conditions were obtained;
- The projects on power supply for the Working Design stage were developed and approved by NPC "Ukrenergo";
- The projects construction of "FS" and "D" stages have been developed;
- The expertise of the projects was passed;
- The construction permits obtained in the State Architectural and Constructional Inspection of Ukraine;
- Pre-PPA have been concluded.

Focal point:

**Advisor to the Acting Minister of Energy of Ukraine
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Cluster of SPP projects in Odessa region



**Total estimated
investment EUR
176 mln**

Corporate and Project Information

- **Project Name:** Solar Power Plant projects
- **Location:** Odessa region
- **Quantity:** 16 SPP development projects (Port-Solar, Hudzovka-Solar-1-2, Artsyz-Solar and others)
- **Capacity:** total 252 MW

Land information

- **Land lease agreement:** partly owned, partly leased
- **Purpose of the land plot:** For the placement, construction, operation and maintenance of buildings and structures of facilities of energy-generating enterprises, institutions and organizations

Estimated Financial Details

- **Estimated project costs, EURO:** 176 mln
- **Project IRR:** more 15%
- **Project Payback Period:** 6 years
- **Maximum auction tariff:** 0,9 Euro/KWh (no VAT)

Projects Status

- The detailed plan of the territory for SPP construction has been developed and approved.
- The Feasibility Study of WPP power delivery schemes was developed and approved by JSC "Odessaoblenergo" and NPC "Ukrenergo".
- The land easements were executed and land lease agreements were concluded;
- The agreements on SPP accession were concluded and Technical Conditions were obtained.
- The projects on power supply for the Working Design stage were developed and approved by NPC "Ukrenergo".
- The construction projects of "D" stage have been developed.
- The expertise of the projects were passed, when required.
- The construction permits obtained in the State Architectural and Constructional Inspection of Ukraine.
- Pre-PPA have been concluded.

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