

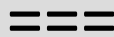


J&S

ENERGY DEVELOPMENT



We manage PV business turnkey!



Executive Summary of 55 MWp project on the territory of
Khmelnitsky region, Ukraine.

www.solar-js.com



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We advise our investors to enter the project at an early stage for the following reasons:

1. Prior to matching of project`s feasibility study with Oblenergo and Ukrenergo, it is possible to influence the technical conditions for grid connection and to lay in them technical requirements favorable for the investor.

For example, internal voltage in Ukraine is 10 kV, while abroad the industry standard is 20 kV. Therefore, after receiving technical conditions for grid connection, their correction delays the project for several months and is not always possible.

2. Total capacity of project may depend on investor. Thus, for land plot of 150 hectares we can construct from 75 to 90 MWp, depending on the fastening system.

However, technical conditions can be obtained only for one option. Thus, timely incoming of investor in project will allow to optimize of using land plot, which means:

a) Either ability to build more MW`s and get a technical conditions for grid connection only one time for more MW`s.

b) Either reduce the area of land plots (if capacity is already identified) and reduce the rent payments.

We ask you to note that in the calculation, we used slightly inflated prices for equipment and services that we usually use on our projects:

- after the tender these prices will probably be reduced;
- we also can work with any other equipment that the investor prefer;
- we are flexible in all aspects of cooperation and are ready to consider many options for cooperation,
- we can also perform only part of the work in a project, and not entire turnkey project - if you wish.

Summary

CRITERIA	INDEX
Industry	Energetics
Subdivision	Energy Renewable
Type	Solar (Alternative)
Number of sites	4
Rated power (MWp)	55
Land (ha.)	100
The total amount of the project (EUR)	50 223 800
General contractor	"J&S Energy Development"
Number of stages	1 = 55MWp.
Number of administrative-territorial units	1
The main consumer	SE "ENERGY MARKET"
Ecological impact	Positive
The relevance of the project	High
<u>10 years</u> Net present value (NPV) (Euro)	27 583 220
<u>10 years</u> Internal rate of return (IRR,%)	10,13%

We ask you to note, that for creation PV plant the investor must first get a shovel-ready project.

In Ukraine, a fully shovel-ready project usually includes:

- SPV (special purpose vehicle) - a new legal entity;
- Land lease agreement and all related documents;
- Technical conditions for grid connection and all related documents;
- Town-planning conditions and restrictions;

To obtain a fully shovel-ready project, we propose two options:

1) Purchase already fully shovel-ready project.

In this case, our company is ready to make development to shovel-ready stage for our own money, and then sell it to the investor. We do not require prepayment or other payments, it is only need investor`s agreement to buy this project, when it will be at fully shovel-ready stage.

In this case - the price is EUR 50 000 per 1MWp (including all taxes).

2) A cheaper option - is to finance the development of the project to a shovel-ready stage.

In this case - the investor provides funds for the development of the project throughout the development process of the project to shovel-ready stage.

In this case - the price is EUR 25 000 for 1MWp (including all taxes).

So, the only difference is who will finance the project development process to shovel-ready stage: if the investor - it is cheaper option, if our company - it is more expensive option.

Why solar energy?

Solar energy is the type of business with minimum risks and high profits. Within infrastructural long-term profits solar energy provides the fastest return of investments – 6 years.

Minimum risks and high profitability of solar energy are provided due for the following key factors:

- 1) «Green» (Feed-in-tariff - FIT) for electricity, produced by the solar power plants. This FIT provides:
 - obligation of State Company «Energymarket» (SCE) to buy all electricity produced by the solar power plant;
 - fixed price in Euro (0,15 Euro for 1 kWh of electricity) until year 2030 that protects solar business from the inflation.
- 2) Natural and economic conditions in Ukraine:
 - high insolation;
 - absence of natural disasters, that can ruin the power plant;
 - warm and dry climate on the South and South-East of the Ukraine.

// Feed-in-tariff

The tariff is provided according to the article 17¹ of Act of Ukraine «About electricity». FIT is appointed to every Company on individual basis by the National energy regulating commission (NERC).

FIT depends on the year of input of the power plant to operation. It is appointed once by the NERC. After that the amount of FIT in national currency is corrected by the NERC according to the official currency course to Euro every 3 months.

For solar power plants, that will be put to the operation in the period from January 1st 2017 until December 31st 2019 FIT will be appointed on the level of 15 Euro cents for 1 kWh.

FIT will be in force until January 1st 2030. After that the Company will be allowed to sell electricity in the market price.

Moreover, mentioned above Article obligates the SCE to buy all produced electricity, independently of the needs of SCE.

So, FIT not only provides high profitability of the solar business, but also protects it from two main risks: inflation and provides guaranteed buyer until 2030.

// All of the conditions, discussed above, lead to the conclusion, that legal conditions in Ukraine are perfect for solar business.

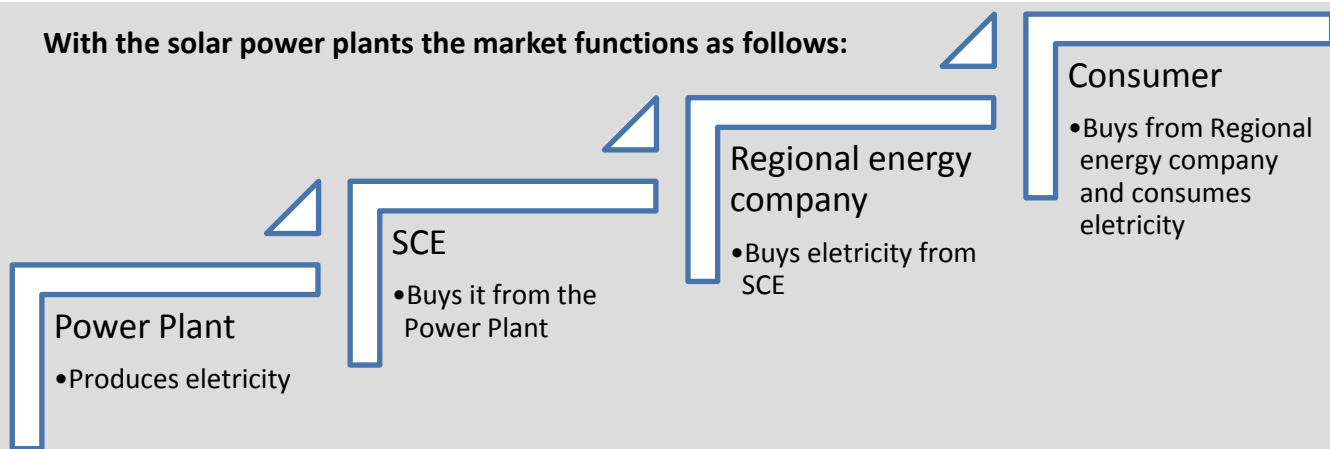
To clarify the understanding of the solar business in Ukraine it is important to show how the energy system of Ukraine works. There are few key roles in the energy market and the way they counteracts with each over crates the model of the energy system on Ukraine.

Key roles in the energy market are:

- 1) generation of electricity – different power plants, including renewable;
- 2) operator of the energy market – SCE;
- 3) operator of the national grid – National Energy Company «Ukrenergo»;
- 4) operator of the regional grid and supplier to the consumers – Region energy companies;
- 5) consumers.

Why solar energy?

With the solar power plants the market functions as follows:



Power Plant sells and SCE buys and SCE sells and Regional energy company buys electricity in the accounting point, that can be situated:

- On the Power plant;
- On the place of the grid connection to the regional energy company.

It is optimal for the power plant to sell electricity on its territory, so the loss of power in the cable will be paid by the Regional energy company.

As for the procedure of getting the FiT, Company has to:

- Construct and put to the operation a Solar Power Plant;
- Get technical conditions for the grid connection;
- Provide NERC with all documents for the license and FiT.

If all required documents were provided, NERC in the month term shall appoint FiT and license.

After that the Company has to agree with the SCE and Regional energy Company the supply point and sign Power Purchase Agreement (PPA). For the last step Automatic System of commercial accounting of electricity has to be installed and put to the operation.

// Why in Ukraine we first need to build a PV plant and then sign PPA.

Due to the paragraph 4 of the Article 71 of the new law of Ukraine "About electricity market" there is the possibility to sign the PPA before constructing the Power Plant after the project is shovel-ready.

But that legal norm will come in force on the July 1st, 2019 due to the Part XVII of the law mentioned above.

By the date different order is in force.

Firstly, Power Plant has to be constructed, after that the license should be received and only after that Power Purchase Agreement can be concluded.

The law of Ukraine "About alternative energy sources" (No. 555-IV) (<http://zakon3.rada.gov.ua/laws/show/555-15>) provides in Article 9¹ that the State Company "Energomarket", that operates electricity system of Ukraine, has an obligation to buy all of the electricity, produced by the Companies, that are working under "green" tariff.

This article is the basis for the obligation of the SC "Energomarket" to sign the PPA disrespectfully of its wish. The text of the PPA isn't variable for different Power Plants. It is established by the Act of the National Energy Regulating Commission No1314 dated October 11th, 2012.

Green (Feed-in) tariff and the license for the produce of electricity are appointed by the National Energy Regulating Commission (NERC).

NERC has established procedures for obtaining of the license and green tariff in Ukraine.

VAT refunds

For the license procedure is established by the Act of the Commission No.309 dated March 22nd, 2017.

As to the paragraph 2.4 of this Act only those Companies, that has in lease or own Power Plant and are going to sell electricity on the General electricity market of Ukraine can get a license.

According to the Act of NERC No. 1421 dated November 2nd, 2012 “green” tariff has to be given to the companies, that has got the license or has given documents to get one and that are producing electricity from the alternative sources of energy.

That is why to get a license and the “green” tariff a company should at first have a document, that proves ownership of a Power Plant.

That document is the extract from the register of the property rights, and can be obtained after the construction of the Power Plant.

So, there is no discretion of the NERC and Grid on whether to appoint feed-in-tariff or no and there is no discretion on whether to sign PPA or no.

It is very important to say, that energy sector of Ukraine isn't strictly regulated, and that building of the Power Plant doesn't requires project examination by the states entities.

// Ukrainian legislation also provides for VAT refunds for equipment and services for the construction of PV plant.

VAT is the huge amount of costs in the project (up to 10 %) That is why we think it's crucial to make its repayment from the State possible and to organize business in the way, that allows You to get back by the 1 st day of the Power Plant exploitation all VAT repaid.

We pay VAT while importing PV modules and Inverters in Ukraine (before they pass custom service) and after that we will get VAT credit for the amount of that paid

Fiscal service will check our VAT credit if it was obtained legally and send it's conclusion to the States treasury, that will pay our back VAT in 5 days

After that equipment, that we have imported, has to be used in Power Plant's construction, it shouldn't be resold

While Power Plant is constructed we should prepare documents and call Fiscal Service to repay VAT to Us

/ Procedure of VAT repayment:

- = Filling of Declaration with request for VAT repayment.
- = VAT legality check by fiscal service (in 3 inner Fiscal Services registers) – up to 30 calendar days.
- = Fiscal service gives it's conclusion to the States Treasury for repayment – up to 5 calendar days.
- = VAT sum is transferred to the Solar Project company's account – up to 5 operational days.

/ most important to get VAT repaid:

- = Correctly documented import operation
- = Working with partners in Ukraine, who are working 100% legally
- = Professional accountant in the Company

We will lead us through all documentary work in the supply process

Our Accountant will supervise the Company

We will check all local partners for been totally “clean” from the tax perspective

We will take care of all Communication with the fiscal service of Ukraine

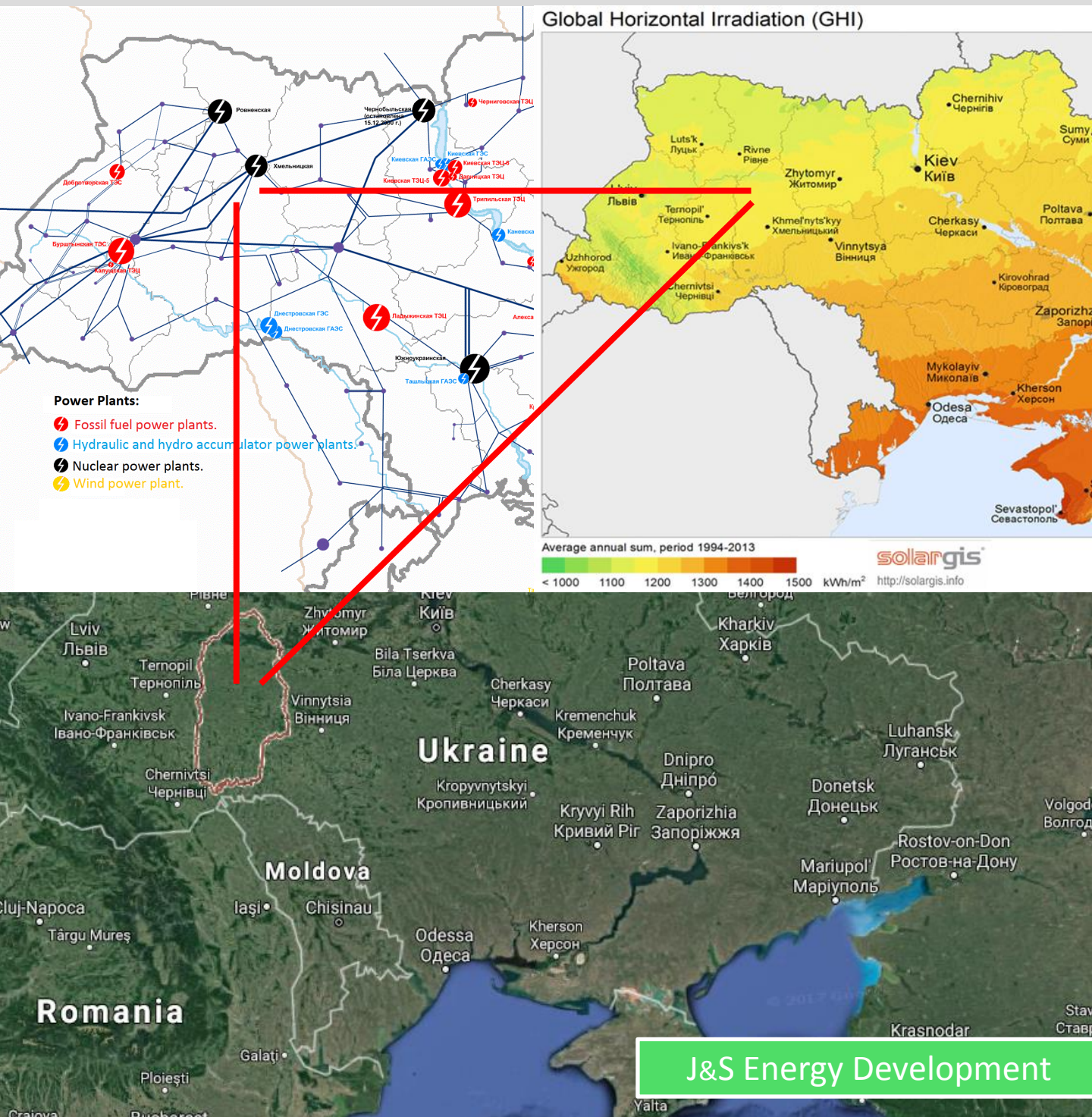
Why Khmel`nitsky?

// Natural and Energy conditions at Ukraine, also in Khmel`nitsky region.

Due to optimal geographical conditions of Ukraine (in hot climate and on flat land) and almost free of mountains relief, climate conditions in Ukraine are perfect for Solar business.

For example, if You look at the insolation map of Ukraine, You'll see, that average level of insolation is higher than in Germany.

Moreover, Ukraine (except Crimea and West regions) is situated on the flat land, that provides huge amounts of space, that can be used for construction of the Solar Power Plants. It is also worth mentioning, that in Khmel`nitsky region there are almost no rains and snowfalls, or any natural disasters, that allows power plant to generate electricity sustainably. In Khmel`nitsky region have the leak of Power and have to supply electricity from the Nuclear Power Plants for the need of industry. But Nuclear Power Plants can't solve the importance of the electricity supply to the small states and villages.



// Introduction to the essence of the project and proposal.

Our company has a 5MWp fully shovel-ready project (Ready to Build = RTB), which we would like to compose with our 50MWp pre-RTB project, with a view to creating a **55MWp** project.

In this case, we propose the following action model:

- 1) Investor buys our 5MWp RTB project for EUR 25 000 for 1MWp - total EUR 125 0000.
- 2) This purchase will be a prepayment for development of remaining 50MWp phase to RTB stage.
- 3) After that, our company makes the development of remaining 50MWp project to a RTB stage with phased financing from investor - price is EUR 25 000 for 1MWp (including taxes).
- 4) In 4 months from the beginning of work investor will have a 55MWp RTB project.

The main advantage of this model is the fact that the advance for 50MWp project will be the purchase of our 5MWp project, and it will be fair to say that this advance is not paid only for the promise to make a shovel-ready project, but in exchange for an independent asset, which can also be a separate PV plant, since this 5MWp project is already in a fully shovel-ready stage.

Thus, at the first stage of cooperation we propose to consider purchase of our 5MWp project (characteristics of which are described below), which will become an advance payment for start of development of 50MWp pre-RTB project (main characteristics are described on the next page).

Please note that we recommend in process of developing the 50MWp project, allow us to organize for investor the agreement on a grid connection for 55MWp (and not use the existing agreement for a grid connection for 5MW project) - because it will reduce cost of grid connection.

/ Land plots and grid substations for 5MWp shovel-ready project.

5MWp project:

- Owner of the project – special purpose vehicle (SPV)
 - Legal entity's identificational code – 41049423 ([DOJ](#))
 - Ready for corporate rights ownership transmission.
 - Project price – 25 000 Euro per 1MWp,
- Total of 125 000 Euro (taxes will be paid by current owner).

Land plot:

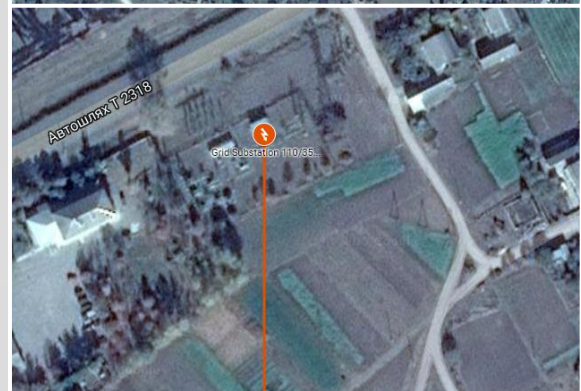
- Location – Khmelnytsky: [Details in Google Maps.](#)
- Area – 10 hectares.
- Number – 6824455100:01:016:0220 ([State Cadastre Serv.](#))
- Land lease – Signed a land lease agreement for 25 years. (Will be over signed for 49 years - if it's necessary).
- Entrance to the site – excellent.

Grid connection:

- Location: – Khmelnytsky: [Details in Google Maps.](#)
- Distance from the land plot to connection point – 1,5 km.
- Connection point – substation 110/35/10 kV.
- PV plant will be connected to the grid via a 10kV line.
- Estimated connection cost — no more EUR 130 000.

Other comments:

- On the territory of the village.
- Site – black earth (1.5 m)/concrete pouring / clay.
- Water on the site – no.
- Buildings on the site – a little there.
- Nearby areas – fields/roads.



55MWp

/ Land plot and grid substation for 50MWp.

The site s for construction of 50MWp stage:

- Location - Khmelnytsky region.
- Area – 90 hectares.
- Land lease – it is possible for term up to 49 years.
- Entrance to the site – excellent.

Grid connection:

- Location: Khmelnytskyi region.
- Distance from land plot to connection point – 1,5 km.
- Connection point – substation 110/35/10 kV.
- PV plant will be connected to the grid via 110kV line.
- Estimated connection cost – no more EUR 4 500 000

(For all 55MWp project).

Other comments:

- On the territory of the village.
- Site – black earth (1.5 m) / clay.
- Water on the site – no.
- Buildings on the site – no.
- Restrictions – alignment with a bulldozer is required.
- Nearby areas – road/fields.

Local authorities:

- Ready to place PV plant in the village.
- Ready to provide land on lease for 49 years.

All this makes the site promising to host the solar power plant.



// Schedules of 55MWp project.

Stage	Items of work	#Months	2017						2018															
			7	8	9	10	11	12	1	2	4	5	6	7	8	9	10							
Develop. to RtB stage	Obtaining of permit to prepare land documentation		■																					
	Land documentation and passing state expertise			■	■	■																		
	Land lease signing and registration						■																	
	Feasibility study			■	■	■	■																	
	Obtaining of grid connection technical conditions							■	■															
Project preparat.	Engineering of the grid connection and power plant									■	■													
	EPC and Grid connection contracts signing												■	■										
	Supply agreements signing										■													
	Power Plant Construction													■	■	■								
	Grid connection construction														■	■	■							
	Commissioning																		■	■				
	License, Fit and PPA obtaining																				■	■		
	Generation of electricity																						■	

// The structure of the project (under construction).

Technically PV Plant project contains two main parts: PV plant construction and grid connection. Usually the EPC (engineering, procurement and construction) company is responsible for the Power plant itself, and the owner is responsible for the grid connection, also about paper work.

But this model creates high risk of the technical decisions of the owner in the grid connection and the EPC Company on the power plant that won't fit each other or will make it impossible to understand who is responsible for Automatically system of accounting of electrical power (ASAEP).

So we think it is correct to bring in the project roles that:

- will provide full control of different parties on one another;
- will guarantee that the project is coordinated by someone with both technical and business knowledge.
- will provide, that all technical decisions fit each other;
- will protect the project from possible troubles with the Regional energy company.

We propose to use following roles and responsibilities in the project:

Role	Responsibility	Company
Lender	Financing of PV plant and grid connection construction.	Investor
Project management Company	Full project management: 1) grid connection 2) License, FIT, PPA. 3) technical coordination 4) supply organization 5) control of the EPC Company	LLC "J&S Energy Development"
Engineering Company	Key technical decisions for: - power plant; - grid connection;	Will be selected by tender.
EPC Company	Power Plant Construction	Will be selected by tender.
Construction company for the grid connection	Grid connection construction	Will be selected by tender.

// Description of the equipment used for calculation and the reasons for his choice.

The key parts of the solar power plant are:

- PV modules (photovoltaic modules);
- inverters;
- transformers (technical decision is standard, so produced in Ukraine transformers are usually used).

The choice of the Solar Panels and Invertors is made by the following criteria:

- it should be Tier-1 equipment (worldwide best equipment);
- TUV certification has to be passed;
- ability of the Solar Panels to work with the specific invertors;
- minimum price of Tier 1 list;
- different possibilities of the connection of the solar panels to the invertors.

The key to the successful solar business is the amount of generated electricity, so one of the key criteria's of the panels choice is the possibility to connect them to the invertors in few different ways depending on the specific conditions of the Power Plant.

Due to mentioned above factors the optimal choose are invertors Huawei sun 2000-42KTL, that are easy to operate and maintain (low O&M costs) and provide a huge variety of technical possibilities for solar panels connection.

Choice of invertors is in the best work with the solar panels JaSolar 265 or 290 Watt.

This specification of the equipment is by the moment the optimal decision for power plants because of the low O&M costs and high electricity produce.

// Cost and financial data.

Project summary			
Project of PV plant (total capacity)	=	55MWp	
Current stage.		RTB+preRTB	
Cost of the project (TEUR)	=	€ 50 223,75	
Start paperwork		July 1/2017	
Start el. Generation		September 15/2018	
Gener. MWh/MWp per year.	=	1130	

The calculation is made for two scenarios regarding the price of electricity after end of FiT:

1) Our company's assumptions - 0,1 EUR/kWh.

2) The price at which the Regional Power System was ready to buy electricity a few months ago - 0.04 EUR/kWh = This price is understated, because it is below the market price.

General info				
VAT refund	TEUR	=	4 635,00	
Tax credit for VAT	TEUR	=	3280,00	
Equity IRR	Scenario:		#1	#2
10 years	=	10,13%	10,13%	
25 years	=	14,44%	12,69%	
Project IRR				
10 years	=	10,13%	10,13%	
25 years	=	14,44%	12,69%	
Project NPV	25 years	=	€ 92 087	€ 54 700
10 yr average debt coverage ratio		=	0,00	

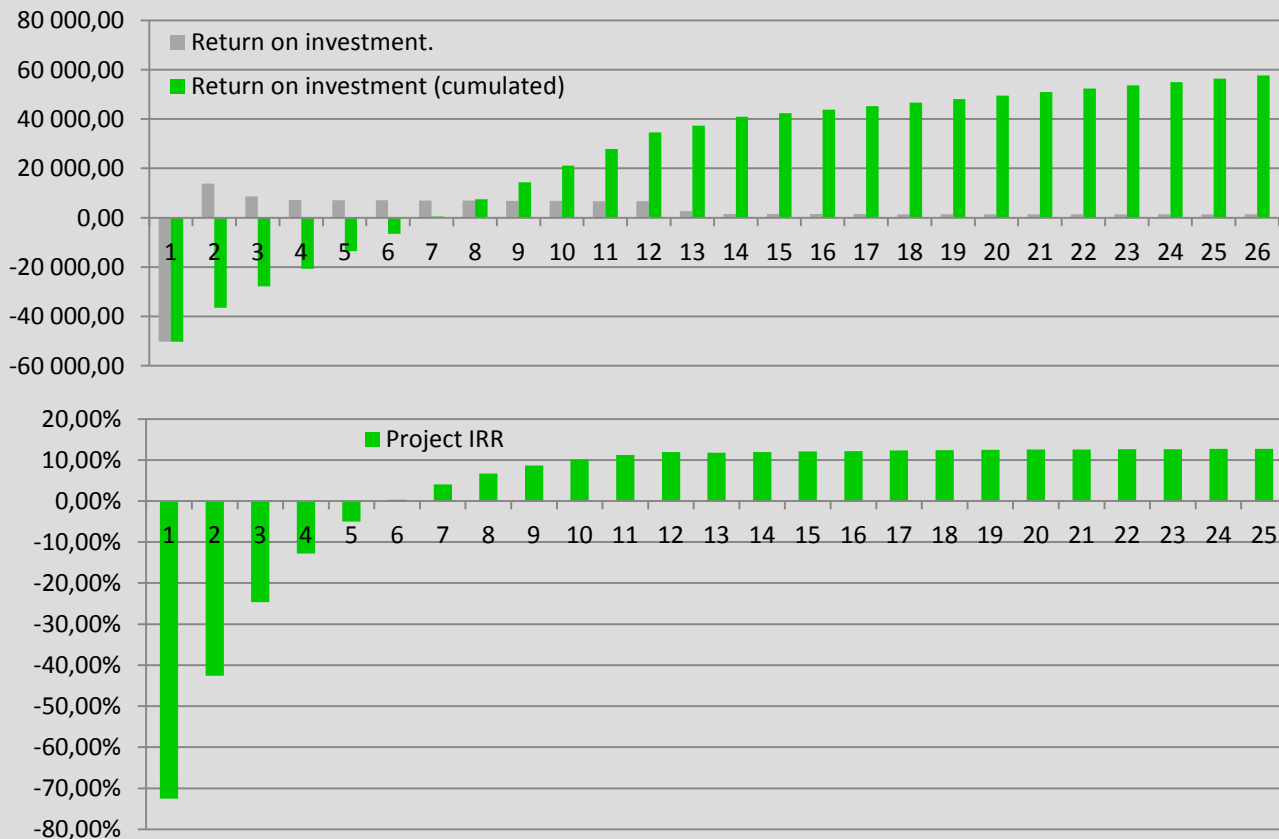
CAPEX TEUR			
Part of project	Cost	VAT	Duty
Ready-to-build project	€ 1 375,0	€ 0,0	€ 0,0
EPC (not incl. panels&inverter)	€ 12 650,0	€ 2 530,0	€ 0,0
PV panels	€ 18 150,0	€ 3 630,0	€ 907,5
Inverters	€ 3 025,0	€ 605,0	€ 151,3
Grid connection	€ 3 750,0	€ 750,0	€ 0,0
J&S Service	€ 2 000,0	€ 400,0	€ 0,0
Other operational costs	€ 300,0	€ 0,0	€ 0,0
Total CAPEX	€ 0,91316 €/kWp	=	€ 50 223,8

All detailed calculations and a table of cash flows can be found in the attached document - Excel file.

Scenario # 1 after FiT abolition.



Scenario # 2 after FiT abolition.



OPEX

For entire 55MWp project.

	TUAH	TEUR
Production services	19 854,72	€ 661,82
Electrical testing equipment of high voltage (CTAG 34.20.302-2002 "Norms Electrical test")	240,00	€ 8,00
Transportation costs associated with the delivery of material resources and personnel vehicles to solar power	300,00	€ 10,00
O&M Services	11 000,00	€ 366,67
Land lease	3 597,00	€ 119,90
fire control	24,00	€ 0,80
Internet and communication	7,20	€ 0,24
Electric power for own needs 1615,8*55*12 kWh*4,3946/100/1000	4 686,52	€ 156,22
Raw and auxiliary materials	160,00	€ 5,33
Transformer oil for transformers	160,00	€ 5,33
Fuel	0,00	€ 0,00
Auxiliary and other materials	162,00	€ 5,40
spare parts	162,00	€ 5,40
salary expenses	816,00	€ 27,20
Chief Energy	144,00	€ 4,80
Electrician	672,00	€ 22,40
The only fee for obligatory state social insurance	179,52	€ 5,98
		€ 0,00
Depreciation	0,00	€ 0,00
103, Buildings		€ 0,00
104, Machinery and equipment		€ 0,00
109, Other fixed assets		€ 0,00
Other expense	69,60	€ 2,32
PPE	57,60	€ 1,92
household goods (soap, brooms)	12,00	€ 0,40
Administrative expenses	3 083,80	€ 102,79
Material costs	15,96	€ 0,53
Stationery	4,80	€ 0,16
The cost of maintaining fixed assets, other fixed assets general economic purpose	11,16	€ 0,37
salary expenses	372,00	€ 12,40
director	228,00	€ 7,60
Chief Accountant	144,00	€ 4,80
The only fee for obligatory state social insurance	81,84	€ 2,73
Depreciation	0,00	€ 0,00
Computers and office office furniture		€ 0,00
Other expenses	2 614,00	€ 87,13
Legal Services	15,00	€ 0,50
auditing services	12,00	€ 0,40
voluntary insurance	2 200,00	€ 73,33
car rental	20,00	€ 0,67
rent office	300,00	€ 10,00
travel expenses	52,00	€ 1,73
Clearing cash servicing bank	15,00	€ 0,50
Other operating expenses	60,00	€ 2,00
charity	60,00	€ 2,00
Total cost	24 385,64	€ 812,85

// Team Members of J&S E.D. took part and directed creation of three PV plant in Khmel`nitsky region.

PV plant Nova Ushitsa



Total capacity – 4,99 MW

Location – [Google maps](#)

Our team were performed following works:

- choose of the plot of land for PV plant;
- site management, control over EPC;
- commissioning of the Power Plant;
- organizing of the grid connection;
- property rights registration;
- PPA signing and putting power plant to the operation;
- eliminating of the force-majeures on the commissioning stage.

PV plant Dunaevcy



Total capacity – 4,95 MW

Location – [Google maps](#)

Our team were performed following works:

- choose of the plot of land for PV plant;
- correcting of the land lease agreement to make it 100% legal;
- EPC tender, site management, control over EPC;
- total development of the project;
- supply organization;
- green tariff and license obtaining;
- new tape of the mounting system applied.

PV plant Derazhnya



Total capacity – 5,6 MW

Location – [Google maps](#)

Our team were performed following works:

- choose of the plot of land for PV plant;
- development of the project (land lease and Grid connection technical conditions obtaining);
- EPC tender, site management, control over EPC;
- supply organization;
- green tariff and license obtaining;
- new tape of the mounting system applied.

We always reply immediately



- Investment Director of J&S – **Serhii Zghurovskiy**
- We will provide You with any information about the projects and will be glad to give answers to all Your questions!

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