

# Production of photovoltaic modules in Kazakhstan and financial support instruments for customers



July 2017 г.

# Information about Astana Solar company



**Astana Solar LLP is a subsidiary of JCS Kazatomprom company implementing a project on production of photovoltaic modules.**

**Date of putting into operation: December 25, 2012**

**Production capacity - 50 MW/year.**

**Estimated increase is up to 100 MW/year.**

## Mission

**Development of solar energy in order to increase the role of renewable energy sources in Kazakhstan's energy balance**

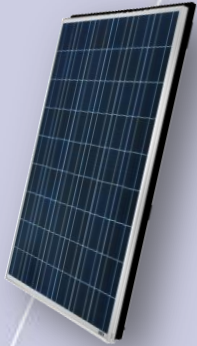
## Vision

**We consider ourselves as a highly-efficient and competitive world-class company working in the field of production of photovoltaic products complying with the best business practices**



# Technical specifications of products

## Photovoltaic module type KZ PV M60



### Module characteristics

**Rated voltage** - 24 V

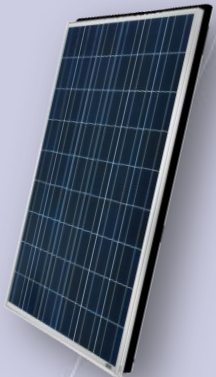
**Installed capacity** - 250-255-260-265 -270 W

**Cell type** - polycrystalline 6" (156x156 mm),

**Configuration of the module** - 6 columns x 10 rows

**Dimensions** – 1,649x992x40 mm, **weight** - 19.5 kg

## Photovoltaic module type KZ PV M72



### Module characteristics

**Rated voltage** - 30 V

**Installed capacity** - 295-300-305-310 -315 W

**Cell type** - polycrystalline 6" (156x156 mm),

**Configuration of the module** - 6 columns x 12 rows

**Dimensions** – 1,967x992x40 mm, **weight** - 28 kg

**Manufacturer's workshop warranty - 10 years.**

**25 years of Performance Warranty**

**Positive Power Tolerance 0 ~ + 5 %**

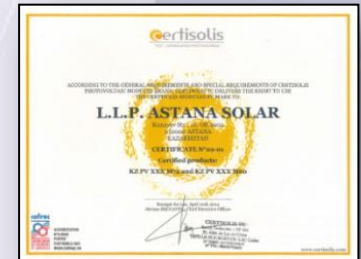
# Quality of Product



Photovoltaic modules comply with international standards in the field of photovoltaic products :

- IEC 61215**      **Ground photovoltaic modules.**  
**Design evaluation and type approval.**
- IEC 61730 – 1** **Photovoltaic modules. Safety evaluation.**  
**Design requirements.**
- IEC 61730 – 2** **Photovoltaic modules. Safety evaluation.**  
**Test requirements.**

Available photovoltaic modules are certified by Certisolis (France) according to IEC 61215, IEC 61730 (1,2)



Certificate of origin of goods of ST-KZ form

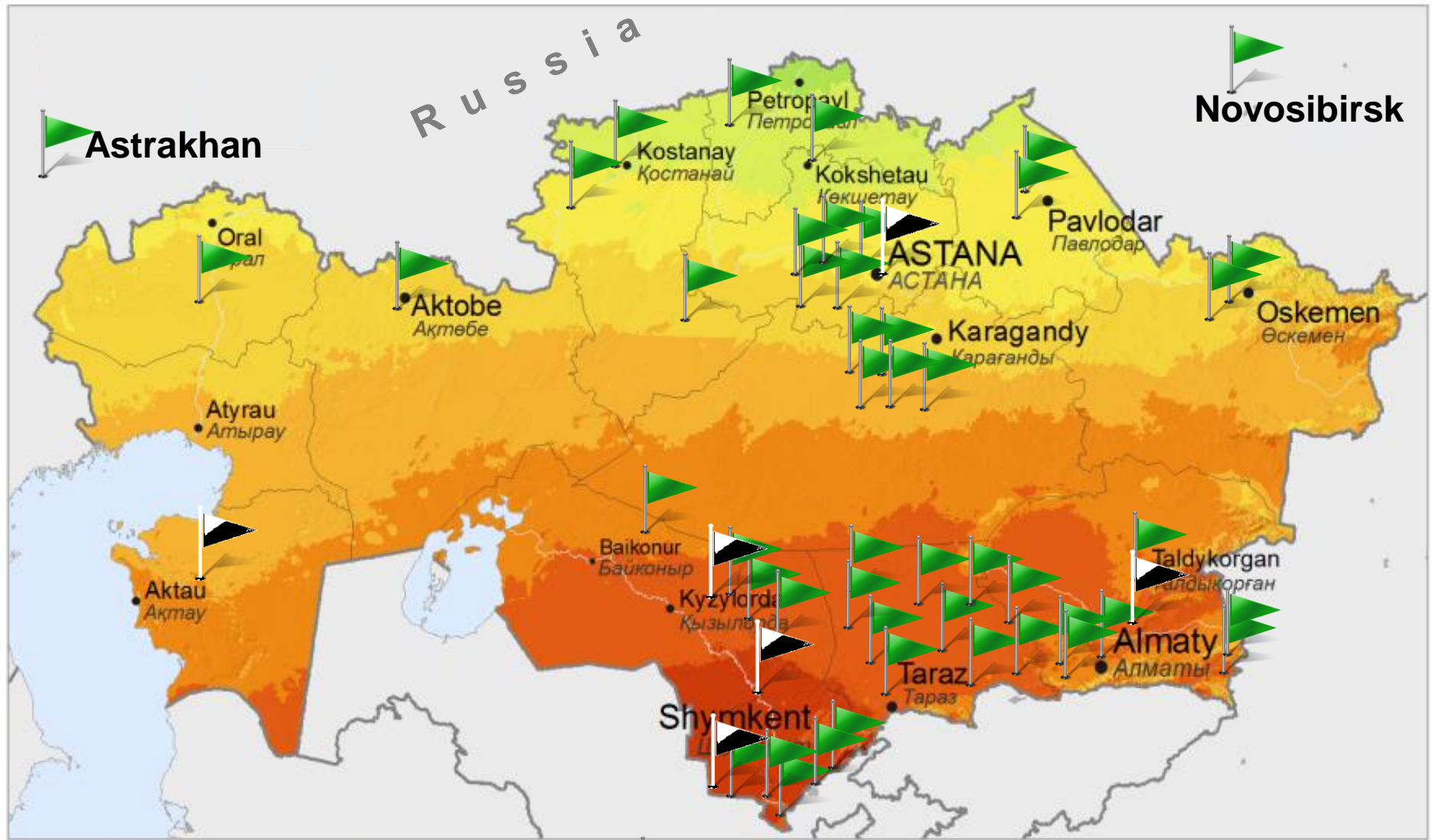


In 2014 an integrated system of management of quality, environment and occupational health and safety was introduced and certified according to the following standards :

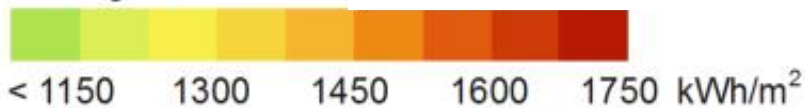
- ST RK ISO 9001: 2008
- ST RK ISO 14001: 2004
- ST RK OHSAS 18001: 2007

- Quality management systems
- Environmental management system
- Occupational health and safety management system

# Location of solar power stations from Astana Solar modules



Average annual sum



Green flag - Реализованные проекты

Black flag - Планируемые проекты

0 250 500 km

# Ongoing Solar stations from Astana Solar modules in 2017



**20 MW Solar Power station,  
South Kazakhstan region**



**12 MW Solar Power station,  
South Kazakhstan region**



**2 MW Solar Power station,  
Mangistau region**



**2 MW Solar Power station,  
Qyzylorda region**

# Solar power stations

**1 MW solar power station «DP Ortalyk» in South Kazakhstan Region**



**200 kW solar power station in EXPO Astana 2017**



**418 kW solar power station commissioned in 2013 in Zhanakorgan village, Kyzylorda Region**



**301.5 kW solar power station «Baiken-U» in Kyzylorda Region**



# Solar power station in Narimanov city, Astrakhan region, Russian Federation



**Datasheet of the photovoltaic power station:**  
**Installed power: 250 kW**  
**Purpose:** provision of electricity to communal infrastructure of Narimanov city





# Solar power plants in agro-industrial complex

**Grain reception center, North Kazakhstan  
Region, 2 kW**



**Hydrotechnical structures of pasture watering,  
Zhambyl region, 10 kW**



**Warehouse, Astana city, 5 kW**



**Rice processing plant, Qyzylorda region, 30 kW**



# Solar power plants in the infrastructure of human settlements

**Recreation center in Shymkent,  
South Kazakhstan region, 10 kW**



**Private house, Akmola region, 5 kW**



**Street lighting system for sports grounds, Astana city,  
2,4 kW**



**Petrol stations, Astana city, 9,5 kW**



# Solar power plants at social and cultural facilities

**Ambulance station, Astana city, 8 kW**



**«Vyacheslavskaya» school, Akmola region, 5 kW**



**Buhar-Zhyrau Mausoleum, Karaganda region, 1kW**



# Mobile solar power stations

**Mobile solar installation for hunters, fishermen, beekeepers, 0.8 kW**



**Mobile solar charger, 1.5 kW**



**Mobile solar station 0.9 kW**



**Shepherd House, 1 kW**



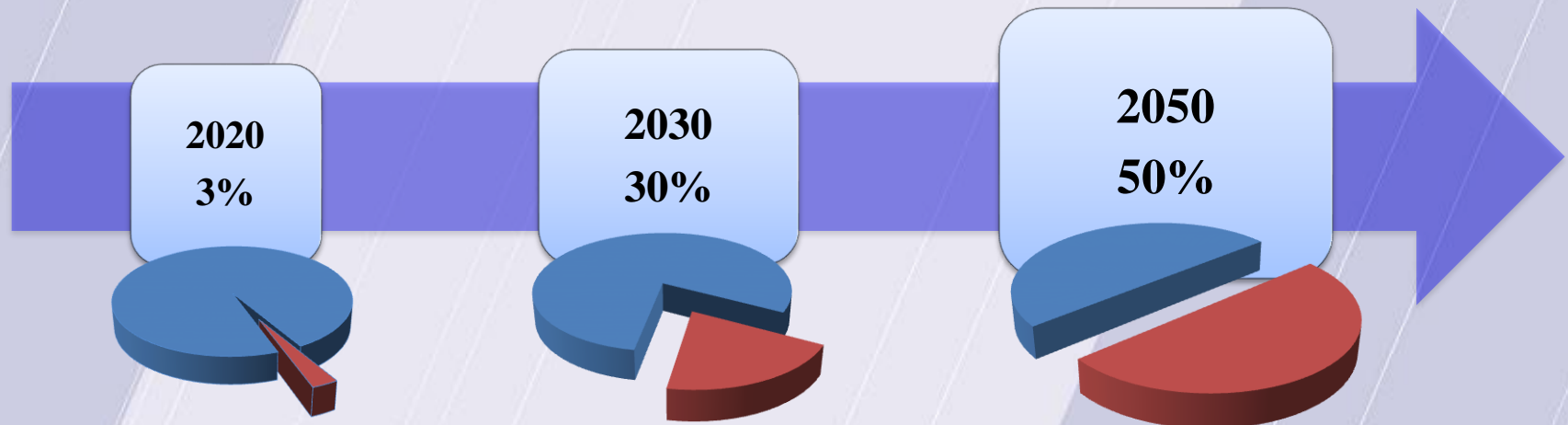
# Government programs and target indicators

## Strategy "Kazakhstan-2050": a new policy of the established state

«Being a major player in the oil market, we need to develop alternative forms of energy production, actively implement the technologies that use energy from the sun and wind. Already by 2050, their use will generate up to 50% of total energy use»

Decree of the President of the Republic of Kazakhstan dated on May 30, 2013 № 577  
«On the Concept of transition of the Republic of Kazakhstan to the «green economy»

- 3% share of wind farm and SES in total energy production by 2020;
- 30% share of wind farm and SES in total energy production by 2030;
- The transition to full-scale implementation of renewable energy after they have reached an acceptable level of competitiveness with conventional sources is expected between 2020 and 2030;
- 50% share of alternative and renewable energy sources in total energy production.



# Existing ways to support RES development



- Targeted assistance to individual consumers-citizens of the Republic of Kazakhstan living in non-electrified areas or settlements is established, up to 50% of the cost of the solar station on the basis of Kazakhstan-made photoelectric modules refunded from the state budget.
- Individual or legal entity (net consumer) possibility of installing 100kw solar power station which covers its own full or partial electric power consumption, as well as selling its (power) excess amount within rate set by supplying organization is defined.

# Necessary financial instruments for consumers support

**In order to involve citizens in the development of renewable energy sources in Kazakhstan, it is necessary to create working financial support instruments**

## **Financial instruments to support solar energy:**

- **Banks granting “Green” credit lines with a favorable interest rate for the implementation of projects of solar power plants**  
*In 2013, the JSC "Fund for Financial Support of Agriculture" with the funds of the "Murabaha" crediting program (attracted by the Islamic Development Bank) provided loans to peasant and private farms for the acquisition and installation of domestic renewable energy equipment worth up to 25,000 \$ US for 48 months period and 9.5% opportunity rate. Movable and immovable property, purchased equipment or cattle was taken as a pledge.*
- **Leasing (micro leasing) arrangements for individuals, small businesses, cultural objects, farms for the implementation of solar power projects with a capacity of 1 to 10 kW are available**
- **Franchise market development in solar energy sphere. Provision of ready engineering solutions of solar power plants with "turnkey" bank financing for consumers**

# Practical promotion of RES in Kazakhstan



- Creation of regional basic educational and methodological centers (further – BEC RES) for the development and promotion of renewable energy sources in regional centers and cities of national importance (Astana, Almaty), in small towns of Kazakhstan (59 small towns) and rural areas (160 rural areas).
- Providing electricians with additional degree “Technician for the installation and operation of photovoltaic power plants (PVPP)” with the creation of a training laboratory on the basis of BEC RES.
- Attraction of leading world manufacturers of accessories (inverters, batteries, controllers, cables, etc.) to the Kazakhstani market with further localization of production.



# Ideology of promotion of renewable energy sources

**«Astana Solar» LLP is a demonstration area of renewable energy sources.**

- Excursions for schoolchildren and students
- It participated in 105 exhibitions, forums and seminars, including 12 events held at the site of «Astana Solar» LLP
- More than 200 official foreign and domestic delegations
- Approximately 5,000 visitors



**Students of Gymnasium School №6 in Astana**



**Students of orphanage in Bayanaul village,  
Pavlodar region**



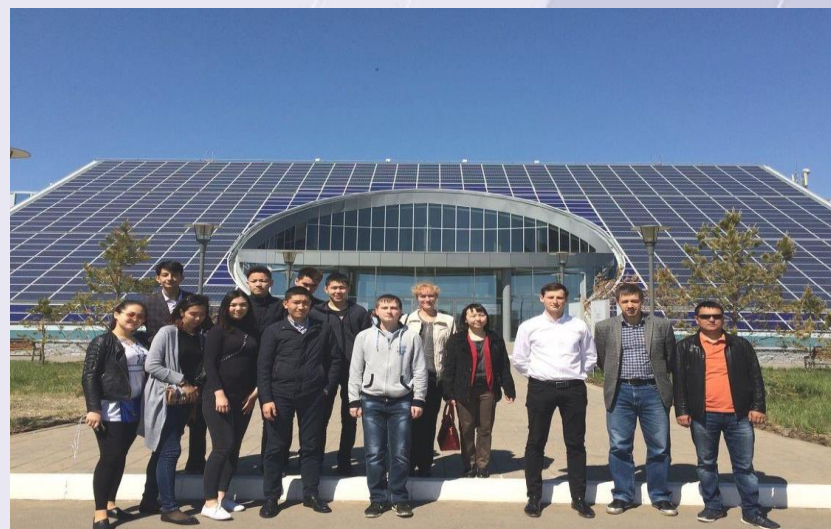
**Students of L.N.Gumilyov Eurasian National University, Astana**



**Students of Viacheslavskoye high school Arshaly District of Akmola region**



**Students of the secondary school №64 in Astana**



**Students of S.Seifullin Kazakh AgroTechnical university, Astana**



**We provide the following services:**

- **Production and sale of photovoltaic modules**
- **Production of “turnkey” solar power stations of various capacities**
- **Design, installation and installation of equipment**
- **Development of new products based on solar systems**
- **Consulting, service and guarantee services**

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**THANK YOU FOR YOUR  
ATTENTION!**