



MA-PV[®]

Mirror-Array PV

Commercial Photovoltaic Power Station

Innovative Technology for Compound Efficient Utilization of Solar Energy

世界首创

CREATED BY CHINA



Mirror-Array PV (MA-PV®)

The innovative technology for compound efficient utilization of solar energy. <http://www.nca-china.com>

Mirror-Array photovoltaic commercial power station, originated from the innovative technology of compound and efficient utilization of solar energy created by the team at New Concept Aircraft (Zhuhai) Co. Ltd. and LYON (Zhuhai) Aviation Technology Co. Ltd., is a new clean energy industry system with original intellectual property.

Most of the existing traditional photovoltaic industry reduces the cost of solar power generation by “increasing the conversion efficiency of photovoltaic cells” and “reducing the price of photovoltaic cells”. However, all kinds of traditional PV power stations with a history of nearly 70 years still rely on subsidies to have net profit up to now. It is difficult to substantially improve the conversion efficiency of existing photovoltaic cells, and it is also hard to break through the bottleneck to continuously reduce the price of photovoltaic modules and peripheral equipment by industrial methods.

The innovative technology of Mirror-Array PV is different from others. It reduces the cost

of photovoltaic power generation from “improving the collection and conversion of solar irradiance per unit area of the earth’s surface” and “tapping the potential power generation of existing cells, so that photovoltaic cells that can’t be further improved at present can generate more electricity”. This is the basic difference between Mirror-Array photovoltaic technology and traditional photovoltaic technology.

Obtaining light energy is the precondition of all photovoltaic cells to generate electricity. According to the distribution law of light energy field revealed by the Light Group Field Effect, Mirror-Array PV uses a unique optical method to conduct synchronous directional acquisition and projection of mobile sunlight with changing height angle and azimuth angle at any time, so that the photovoltaic module can generate more electricity due to the significant increase of the light energy obtained, and maintain the normal operating temperature at the same time, which is applicable to direct light or diffuse light, strong light or weak light environment. Moreover, there is no need for single-axis or dual-axis solar trackers or any heat dissipation devices.

Compared with the traditional photovoltaic power station, the new Mirror-Array photovoltaic power station is high efficiency and low cost, mainly benefit from the new discovery about the law of sunlight movement and the compound and efficient utilization of sunlight by Mirror-Array PV, which is not directly related to the conversion efficiency of various existing photovoltaic modules. It is also different from the existing high-power or low-power concentrated PV station's gain methods and temperature control principles.

In 2015, the company completed the basic scientific research and sample preparation for Mirror-Array PV system. Since 2017, Mirror-Array PV technology has gained a number of domestic and international patents. In June 2018, the design and construction of the Mirror-Array PV miniaturized commercial power station was completed in Zhuhai, China, and the National Institution of Testing and Inspection on Solar Photovoltaic Products has conducted the continuous test and inspection of the power station. The result shows that the power station has achieved the expected technical and commercial effect.

The data of grid-connected electricity shows that the PR value of the Mirror-Array power station in Nanning is over 122%, and the cumulative electricity is more than 1.65 times that of the conventional fixed-bracket flat-panel

photovoltaic power station, and the KWH cost was greatly lower than the on-grid price of coal-fired electricity. In this way, it will realize the grid parity of photovoltaic electricity, and achieve the independent and sustainable development of photovoltaic industry by the net profit generated by photovoltaic electricity.

In addition, compared with the traditional fixed-bracket flat-panel photovoltaic power station, the Mirror-Array PV power station can significantly reduce land use and improve environmental protection when the power generation is the same. Nanning is located in an area with poor photovoltaic solar resource. If the new technology of Mirror-Array PV is promoted in areas with abundant solar resources, it will create more economic benefits.

The Mirror-Array PV new industry is complementary to the traditional PV industry. The Mirror-Array PV power station can be built by adopting the cell modules, inverters and peripheral electrical equipments and management system of the existing traditional PV. The installed cost, site and construction method of the station are roughly the same as those of the traditional fixed-bracket flat-panel station. It is suitable for various application scenarios, such as the ground, water surface, roof, etc. It can be widely used in all kinds of centralized or distributed high-efficiency and low-cost photovoltaic power station.



Unit Array of Mirror-Array PV



Mirror-Array unit in double-gain mode



Mirror-Array unit in double-gain mode



Comparison between the solar acquisition



Mirror-Array PV power station in Nanning



A new era of compound utilization of solar energy