

# Gansu Jinta Photovoltaic Power Project



## Project Introduction

Jinta County, Jiuquan, Gansu province, was once a barren desert, yet an area with abundant solar energy. An average 3,321 hours of sunshine is received every year in the region. Jinta County has been focusing on solar power exploitation as a key development policy in recent years. Now the desert has become a solar power city. The Gansu Jinta Photovoltaic Power Project is the pilot project, which involves the installation and operation of a grid connected power plant that generates electricity using photovoltaic solar technology. The total installed capacity of the project is 10MW. The annual electricity generation is 15,710 MWh and annual electricity exported to the grid is 15,475 MWh. Kyland has successfully taken part in this power generation pilot project, which started operation in November 2010 by the National Energy Administration.

Company: Goldwind  
Location: Gansu Province, China

## System Requirements

- The photovoltaic power project monitoring system needs to oversee the metering and analysis of sunlight data, power generation data, and controlled grid-connection, specifically data metering, equipment control, and power conversion to the grid. Maximum uptime is a must, so there can be no single point of failure interrupting the communication during maintenance, control and regulation of the solar plant. Redundant Ethernet network and high-quality industrial graded products have to be deployed in order to achieve maximum productivity. The devices should be able to endure wide variations in temperature since the solar farm is located in the desert. The system also requires a method for convenient network management and easy network expansion for future solar cell arrays.

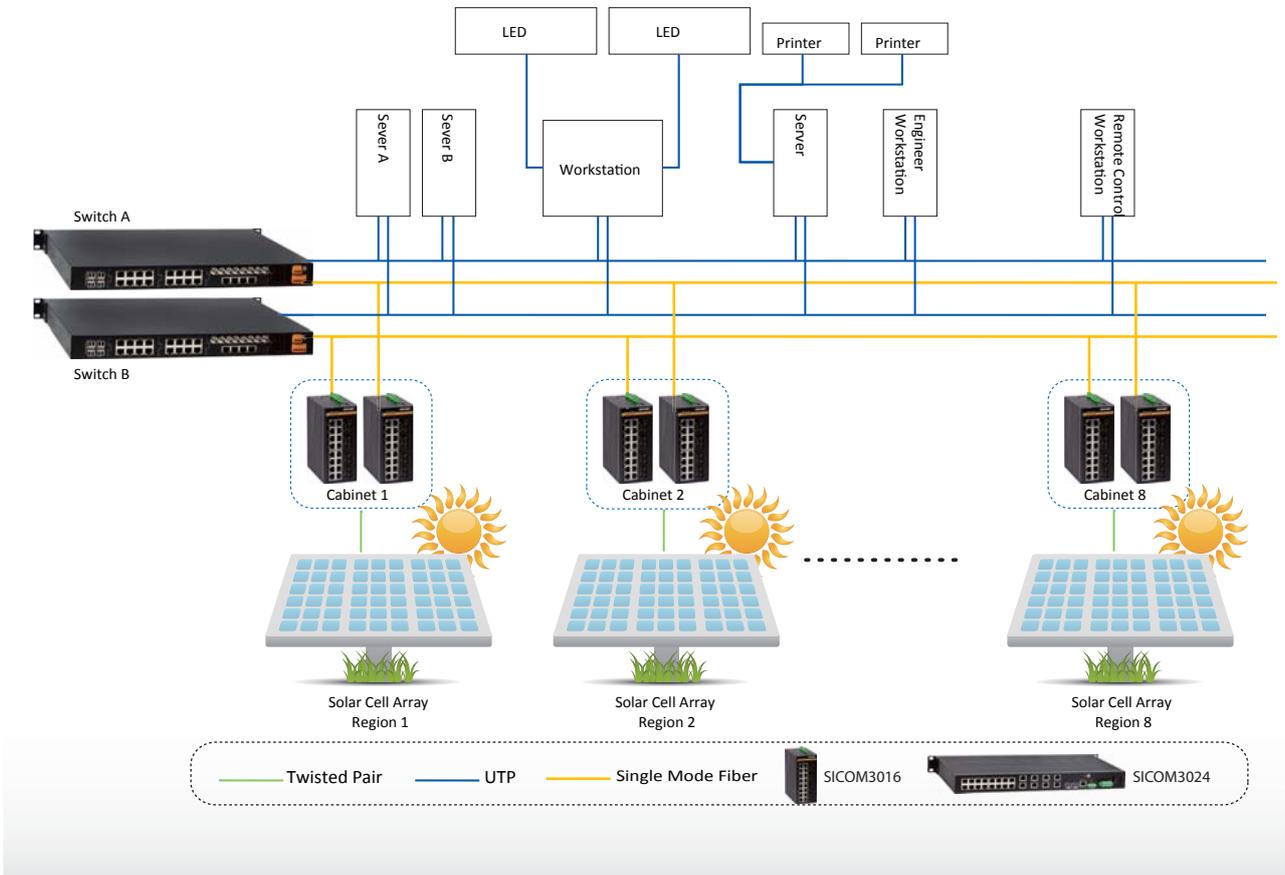
## Kyland Solution

Kyland industrial Ethernet switches are installed in the monitoring system of photovoltaic power generation for the real time monitoring and control of solar cell arrays, combiner box, inverter, AC/DC distribution cabinet, sun-tracking controller and other equipment in the photovoltaic power plant, realizing the management of the plant operation conditions and ensuring the highly reliable and stable operation of the photovoltaic power generation system.

All the data from the inverters, meters and PLC of each solar panel are collected in the communication cabinets spread across each region, and there are two Kyland SICOM3016 managed industrial Ethernet switches installed inside each cabinet where one is the backup of the other. Each cabinet is connected with the control center through two redundant single mode fiber cables, and two Kyland SICOM3024 core rack mounted industrial Ethernet switches form the backbone of the entire communication network. The dual redundant network ensures the high reliability of the entire monitoring system and any fault in any node won't affect the normal communication.

With rugged design especially for critical applications, Kyland SICOM3016 industrial Ethernet switches can operate in wide temperature range -40 to 85°C (-40 to 185°F) with MTBF of more than 38 years. With 16 10/100Base-TX copper ports, it ensures the easy expansion of the solar cell arrays in the future. The advanced network management function simplified the routine maintenance. If port or power failure, illegal access or any other abnormal situation occurs, the network administrators will be informed by email, SNMP Trap, system log and other

## System Diagram



## Why Kyland?

16 10/100Base-TX copper ports for easy expansion of the network

Rugged design for industrial applications with long MTBF

Wide operating temperature range -40 to 85°C (-40 to 185°F)

EMC performance meets IEC61000 level 4

Support high voltage 220VAC power input

Easy network management



## SICOM3016

- 4 100Base-FX SM/MM ports, 16 10/100Base-TX ports
- Supports DT-Ring protocols, RSTP/STP, MSTP
- SNMPv3, HTTPS, SSH security features
- EMC performance meets IEC61000 level 4
- Supports 110VDC, 220VAC/DC power input

## SICOM3024

- Supports 4 Gigabit SFP slots, 16 10/100Base-TX ports and 8 Fast Ethernet fiber/RJ45 optional ports
- Exceeds IEC61850-3 and IEEE1613
- Multicast Protocol: supports IGMP Snooping, GMRP and static multicast
- Service Quality: supports QoS
- Network Management and Monitoring: supports CLI, Telnet, WEB management methods, Kyvision centralized management, SNMPv1/v2/v3, RMON, LLDP, SNTP, and DHCP

► Please refer to [www.kyland.com](http://www.kyland.com) for more details