

## JinkoSolar Provides PV+DG+ESS Complete Solution to Nigeria

JinkoSolar has delivered solar panels with Lithium Ion Battery storage off-grid site in Abuja Nigeria.

The project is located in a resort with no grid power supply but needs a year-round reliable and cost-effective off-grid system that can run in tandem with diesel generators. The site management was looking for a reliable and flexible solution where most of its power requirements can be met using solar power and reduce its dependency on diesel generators.



Figure 1: Project Photos

### Solar

The solar panels are from JinkoSolar's Tiger Neo with n-type TOPCon technology.

### Energy storage

The system is provided with a 1.2 MWh energy storage system, consisting of Li-Ion batteries.

### Diesel Generators

The system works in tandem with a diesel generator. A solar PV DG and ESS controller have been designed to control the system.

The system consisting of JinkoSolar's 1 MWp N-type solar hybrid diesel generator with JinkoSolar's 1.2MWh li-Ion battery ESS, is fully integrated and controlled solar PV+ESS+DG integration. CAN Multi protocol has been used for the communication module ?

Solar panels generate electricity right from the morning and feed electricity to the resort loads directly. If the resort has low energy demand, the power is fed to the battery for charging the batteries. When the solar PV generation is low or at night the loads are powered through the batteries. If the batteries are drained out the diesel generators automatically start and feed the power to the loads. The surplus power of the diesel generators is also used to charge the batteries. This way the diesel generator running hours are reduced significantly and about 70% of diesel savings are realized.

Thanks to the scalable and flexibility of the system, once the resort loads have increased, additional panels and battery capacities could be added to make the system fully independent of the diesel generators. There are a lot of areas in Nigeria that continuously run on diesel generators. This case study is an example of how these remote facilities can migrate towards green solutions.

"For this kind of Solar hybrid ESS project which is highly complex and depends on multiple technologies, working with JinkoSolar can save customers trouble to be exposed to larger supply chain risk. When issues occur with product performance and safety, sometimes the end customers don't have clarity on who is directly responsible, the panel or ESS suppliers," said Dany Qian, VP of JinkoSolar, "customers have greater confidence in JinkoSolar's manufacturer performance guarantees and warranties, as it has the best understanding of technology with strong R&D teams."

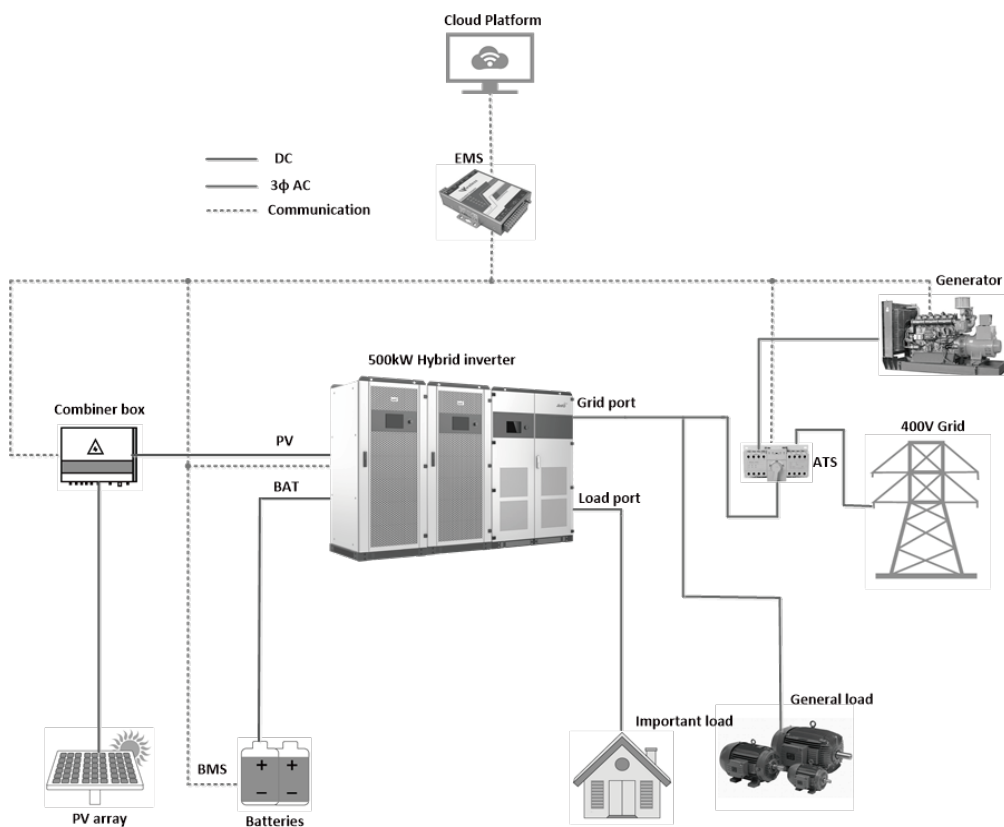
# JKS540~1620K-500H



## Key Features

- Highly integrated system with various working modes
- LFP battery ensures longer battery life and higher safety
- Pre-populated transportation enables faster in-site installation
- Integrated and optimized fire protection design, higher security

## System Topology



# SYSTEM TECHNICAL SPECIFICATIONS

DC Data	JKS540K-500H	JKS1080K-500H	JKS1620K-500H
Battery Chemistry	Lithium Iron Phosphate (LFP)		
Cell Life Cycle	5,000 Cycles 1C@25°C 90%DOD	5,000 Cycles 0.5C@25°C 90%DOD	
Cell Specification	3.2V/96Ah		
Battery System Configuration	4P11S	8P11S	12P11S
DC Rated Energy Capacity	540kWh	1080kWh	1620kWh
Rated Voltage	704V		
Voltage Range	616V~792V		
BMS Communication Interface	RS485, Ethernet, GPRS		
BMS Communication Protocol	Modbus RTU , Modbus TCP		
Max.PV Input Voltage	1000V		
Standard/Max PV Power	600/720kW		
MPPT voltage range	250-850V		
MPPT voltage range@full load	450-850V		
<b>AC Data</b>			
Rated AC Power	500kW		
Maximum AC Power	550kW		
Rated Voltage	400V		
AC Rate of Current	722A		
THDi	≤3%		
Power Factor	1(leading) ~1(lagging)		
Rated Frequency (Hz)	50/60Hz		
AC Connection	3W+N+PE		
STS Power	500kW		
STS Switching Time	≤20ms		
<b>General Data</b>			
Dimension (W*D*H)	6,058*2,438*2,591mm	12,192*2,438*2,591mm	
Weight	<20T	<30T	<40T
Degree of Protection	IP54		
Operating Temperature Range	-20~40°C		
Relative Humidity	0~95% (non-condensing)		
Max. Working Altitude	3,000m		
Cooling Concept of DC hatch	HVAC		
Communication Interfaces	RS485, Ethernet, GPRS		
Certifications	UL9540A, IEC62619, CE, UN38.3		

CAUTION: READ SAFETY AND INSTALLATION INSTRUCTIONS BEFORE USING THE PRODUCT.

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