



# AFROSOLAR

Turnkey Solar Power  
Technologies

# SmartCity

MADE-TO-MEASURE SOLAR-INTEGRATED SOLUTIONS



## Residential Solutions

Save on your electricity bills, reduce your carbon footprint and increase the value of your home.



## Utility-Scale Solutions

Own a solar power plant, procure solar contracts or offer solar directly to your customers with a solid business partner.



## Commercial Solutions

Make the smart investment and choose solar for your business. Lock in energy rates, demonstrate corporate social responsibility and achieve energy independence.



AFRO SOLAR



# Accelerate clean energy access for millions globally

We are an EPC (Energy Procurement Construction) company that finances, designs, installs, and commissions PV (Photovoltaic) solar power plants. Our dream is the blanketing of Africa's golden deserts and Asian plateaus with solar panels and unlocking its massive energy potential to help our partners meet the United Nations ambitious goal of net-zero carbon emissions commitments.

We thrive towards a greener world through capitalizing on resources and protecting the environment. Opting for a solar energy solution promotes and positions your company as an environmentally responsible and forward-thinking brand that invests intelligently and operates sustainably. **AFRO Solar is part of the AFRP Group.**



**ZERO**

Permits,  
installation,  
operation or  
maintenance costs.

Up to **95%**

Electricity consumed from clean solar energy with AFRO Solar.

**\$0**

Upfront investment in the solar station through our financial partners.



United  
Nations



AFRO SOLAR //

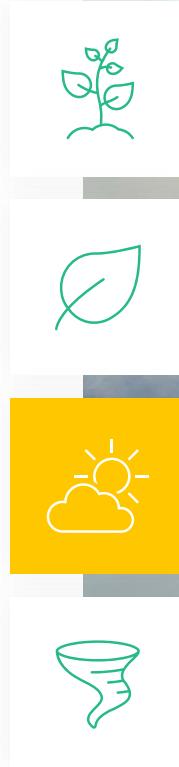
## The Better Energy Choice for the Planet

The Paris Agreement is a legally binding international treaty on climate change that mandates National and city governments, foundations and businesses to make commitments and partnerships for clean electricity access and cooking solutions.

Actions defined in an Energy Compact can also contribute to Nationally Determined Contributions under the Paris Agreement on climate change and achievement of the broader 2030 Agenda and the Sustainable Development Goals.



SUSTAINABLE  
DEVELOPMENT GOALS



[Click to Watch  
Documentary](#)

# OUR VALUES



## Safety

Safety is core value over which no business objective can have a higher priority.



## Care

Care for Stakeholders, our Environment, Customers and Stakeholders- Both existing and potential, our community and our people (our employees and partners).



## Agility

Speed, Responsiveness and being Proactive, achieved through Collaboration and Empowering Employees.



## Ethics

Achieve the most admired standards of Ethics, through Integrity and Mutual Trust.



## Learning

Building future ready skill sets through learning & training.

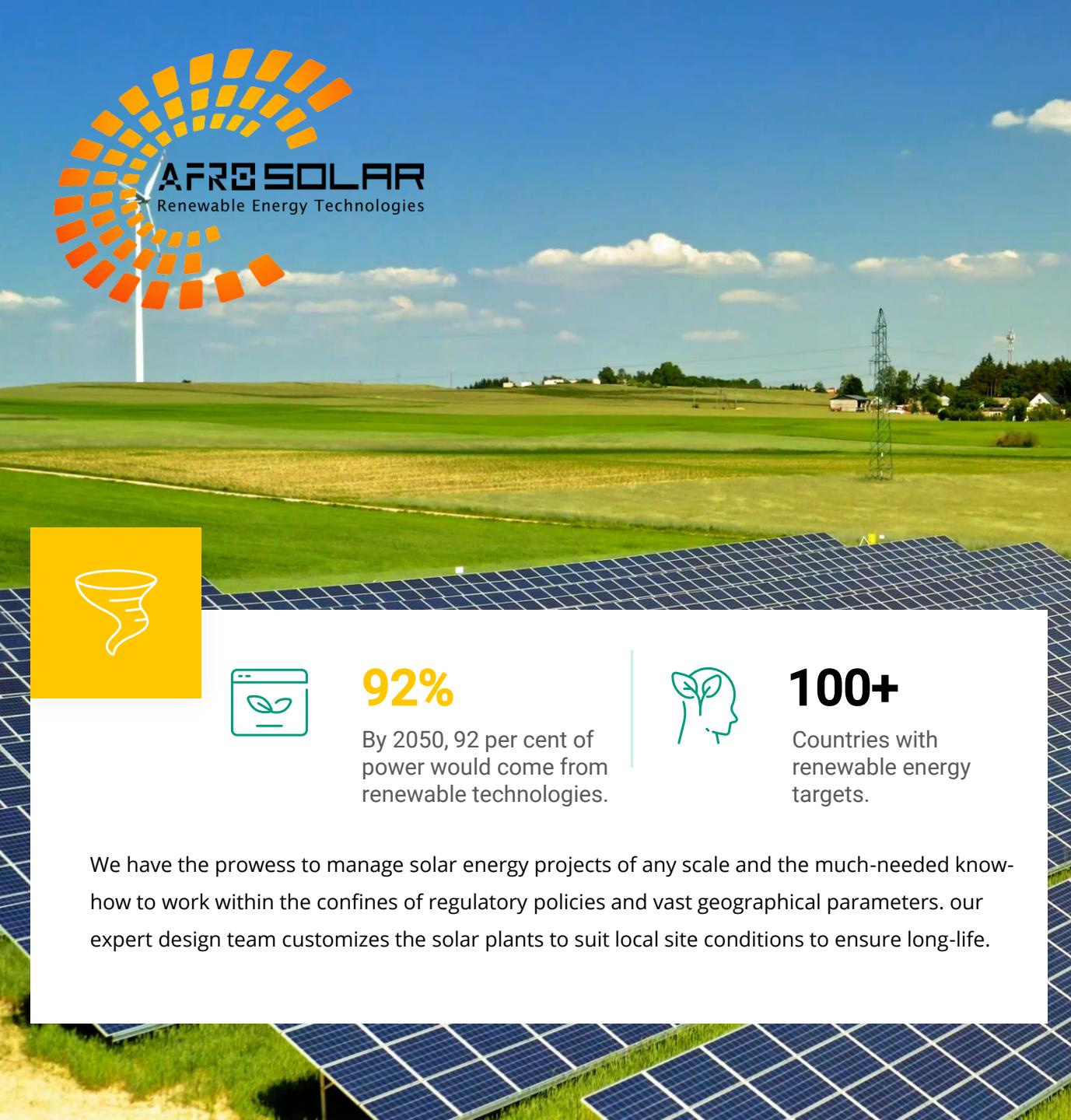
## Vision

Empower a billion lives through sustainable, affordable & innovative energy solutions.

## Mission

- Keeping the customer at the center of all we do
- Operating assets and executing projects at benchmark level through technology & innovations
- Sustainable growth with a focus on profitability and market leadership
- Creating an empowered workforce driven by passion & purpose
- Leadership with Care: for all stakeholders





**92%**

By 2050, 92 per cent of power would come from renewable technologies.



**100+**

Countries with renewable energy targets.

We have the prowess to manage solar energy projects of any scale and the much-needed know-how to work within the confines of regulatory policies and vast geographical parameters. Our expert design team customizes the solar plants to suit local site conditions to ensure long-life.

# Mega Projects

AFRO Solar can design a fully integrated and customized solar power plant project for private and public corporations. We have developed and improved on our operational expertise with each successive project combined with our quality and safety principles, this systematic and integrated approach, enables AFRO Solar to execute utility scale solar power projects in Middle-East & Africa as per planned schedule.

AFRO Solar through its consortium of partners, possesses extensive experience and expertise in setting up utility-scale land based solar power plants for government bodies, power utilities, large corporates and industrial establishments. In-house design and engineering team, efficient construction teams and deep industry and technology know-how are our forte in the utility scale solar project segment.

Our customers also enjoy the benefits of the advisory services that help them understand and gain clarity on aspects of financing, policies, land, fiscal benefits, and regulatory approvals to successfully install utility scale solar projects.

**1**

### **Reduced Utility Expenditure**

Reduced utility bills with locked-in rates that will always be cheaper than the grid.

**2**

### **Reduced Carbon Footprint**

Every megawatt installed lowers your carbon footprint by 25,000 tons.

**3**

### **Increased Renewable Energy**

Generation of clean, green energy that can contribute to improved levels of air quality.

**4**

### **No upfront costs,**

no financial burden; we take over from A-Z. We design, secure funds, install and maintain system.

**5**

### **Make a difference**

Support sustainability strategy and renewable energy development for your organization.

**6**

### **Develop Energy Business**

Simply pay for the power you consume, at a locked-in rate that will always be cheaper than the grid.



**1**

### **Locked-in Electricity Rates**

Hedge against future electricity price increases & volatility generating annual energy savings.

**2**

### **Improved CSR**

Exceed the expectations of stakeholders and add sustainability to your CSR efforts.

**3**

### **Increased Brand Equity**

Promoting your sustainability values and shine in the market.

**4**

### **Build a competitive advantage**

By leveraging one of the most natural sources for all or part of your operations.

**5**

### **Improve company Cashflow**

Simply pay for the power you consume, at a locked-in rate always cheaper than grid.

**6**

### **Turn-key solutions**

We design, fund, install and maintain your solar system.





## Solutions for **REAL ESTATE** Development



1

### **Increased Property Value**

Enjoy up to a 40% increase in property value and raise your ask price at no additional cost.

2

### **Increased Energy Savings**

Improved energy savings for an entire community due to reduced utility bills.

3

### **Reduced Carbon Footprint**

Every megawatt installed lowers your carbon footprint by 25,000 tons.

4

### **No capital Investments,**

Offer your clients a better value proposition at no additional cost.

5

### **Value driven community**

Promoting a healthier ecosystem that nurtures a positive sense of belonging and community.

6

### **Healthier Ecosystem**

Create healthier, cleaner purpose driven communities and demonstrate civic leadership.



# SOLAR PUMP

## Transforming the Rural Landscape

By switching to Afro Solar Water Pumps, farmers can have access to a highly-efficient power supply that can be used throughout the day to provide a consistent water supply.

Afro invites National & Local Governments to sponsor & fund flagship Government program to farmers in their countries.



AFRO SOLAR

## Water Pumps in both Surface & Submersible categories.

The agriculture sector in Africa are heavily dependent on rain for natural irrigation. Pumps are used as an artificial means to provide water for irrigation. Farmers rely on grid electricity or diesel gen-sets to run the pump, which leads to huge delays and economic stress. Hence, for our farmers, an effective irrigation system such as the Solar Water Pump is a great advantage. It increases their crop yield by ensuring a reliable and perennial supply of water to their fields.

A solar water pump is an application of photovoltaic technology which converts solar energy into electricity to run the pumping system thereby, replacing erratic grid supply and pollution-causing diesel-powered versions. solar water pump powered by solar modules helps draw surface or ground water out for irrigation.

# AGRI-SOLAR

## Pumping Systems

Water your fields with the power from the sun. With the cost of diesel and electricity rising constantly, solar powered water pumps are the perfect alternative for rural regions as these have a low maintenance cost and ensure a long product life.

### Surface Water Pumps

Surface pumps range from AFRO Solar supports varied applications like field irrigation or supplying potable water to your communities, while drawing water from nearby water sources like lakes, ponds, canals or rivers.

### Submersible Water Pumps

Submersible pumps range from AFRO Solar supports varied applications like field irrigation or supplying potable water for your communities, while drawing water from underground water sources like bore-wells or sumps.



### How do solar water pumps help rural regions?

People from rural regions have to work additionally hard for water, especially due to the unpredictable nature of rain in the country.

Our solar powered water pumps are a low cost solution enabling residents in these areas to spend more time increasing their income by growing crops etc., rather than ferrying water from far off distances.



### Smart Controller for Dawn to Dusk Operation

### Consistent Water Output Year on Year

### P54 Water Ingress Protection for Electronics

# POWER SOLUTIONS

We provide all solutions that suit your business.

## Off-Grid Systems

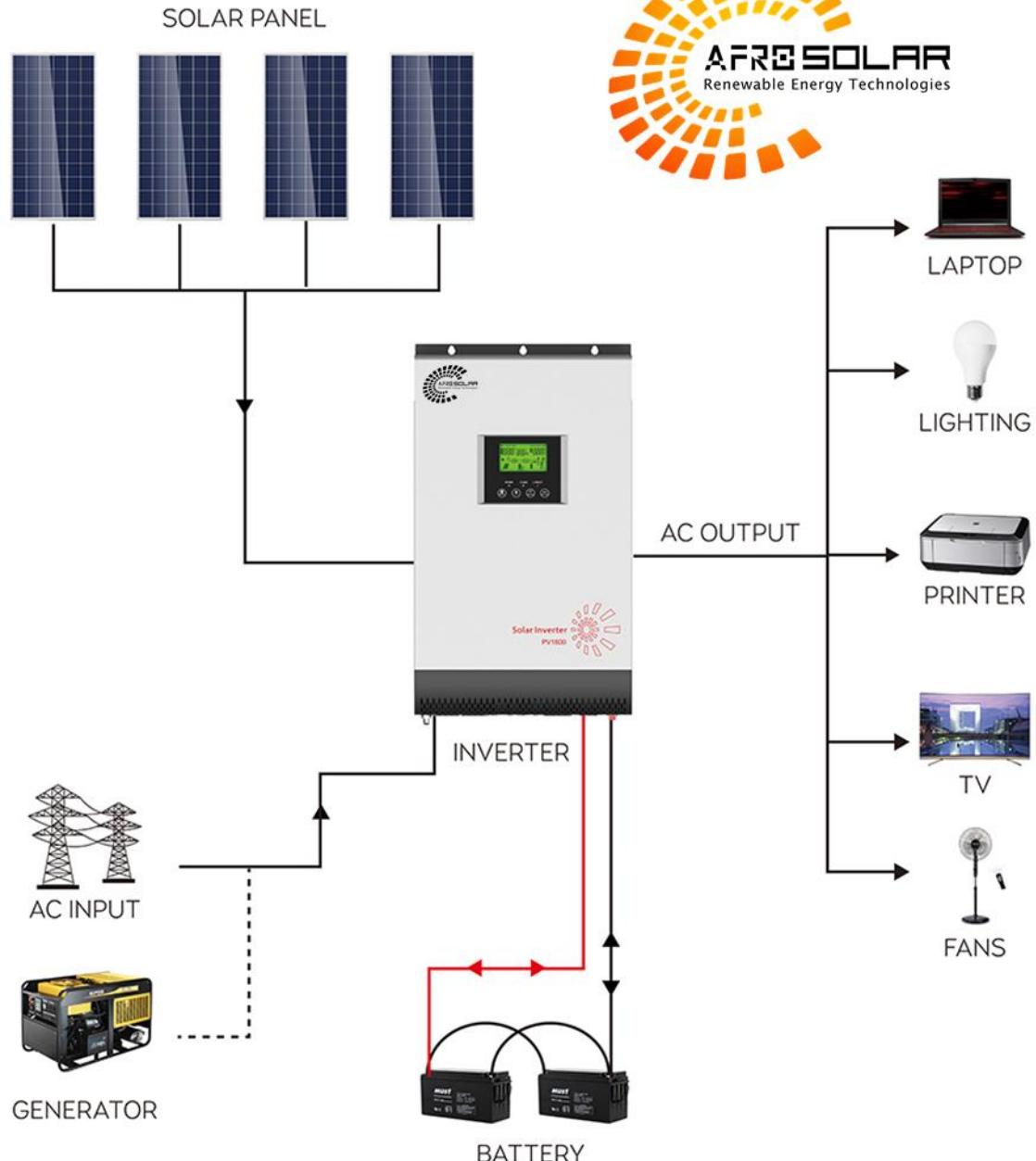
Solar radiation from the sun is captured by solar panels, which produce DC electricity. Then a charge controller convert this unregulated DC power into regulated DC power to store batteries. The batteries are connected to an inverter which converts the DC electricity into AC electricity which can be used directly to power AC loads and appliances.

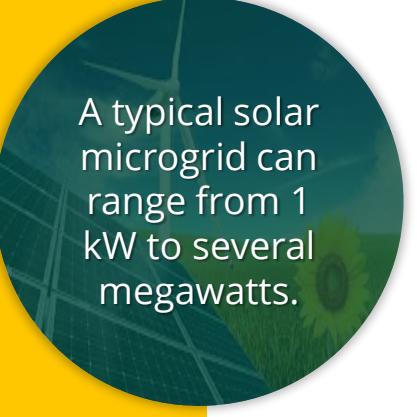
## ON-Grid Systems

Is a solar power generation system which feeds the generated power into the grid, through a special on-grid inverter. Grid connected systems vary in size from residential (2-10kWp) to solar power stations (up to 10s of MWp). In the case of residential or building mounted grid connected PV systems, the electricity demand of the building is met by the PV system. Only the excess is fed into the public grid.

## Hybrid solution (PV + Diesel)

Hybrid means seamlessly blending solar power with grid or generator power sources. Dynamic combination of power sources, so that the pumping system operates at its full load utilizing the solar power and minimizing the dependence on non-renewable power sources.





A typical solar microgrid can range from 1 kW to several megawatts.



For a village of 100 homes, a 4 kW microgrid is sufficient.



A 4 kW plant generate electricity worth Rs.33,000 per year.

# SOLAR MICROGRIDS

Powering remote locations for a happier tomorrow

Custom Solutions //

AFRO Solar provides custom solutions to power remote regions that might be cut off from regular electric grids. Installing microgrids in such areas ensures access to green power.

AFRO Solar takes pride in working with the Government. We welcome range of benchmark projects for organizations to design and deploy solar power solutions for specific needs. AFRO Solar aims through Government & NGO initiatives for Thousands of villages to have power for at least 6 hours a day.



# SOLAR MICROGRID

The microgrid and battery bank are connected to a computer for local power usage monitoring. With the addition of a modem, this information can be accessed from a remote location, eliminating the need for local manpower to monitor the system.

Microgrids can help deploy more zero-emissions energy sources, make use of waste heat, reduce energy lost through transmission lines, help manage power supply and demand, and improve grid resilience to extreme weather.

Microgrids represents a paradigm shift from toward more localized, distributed generation—especially in cities, communities & campuses. The power to isolate from the larger grid makes microgrids resilient, & the ability to conduct flexible, parallel operations permits delivery of services that make the grid more competitive.



1

All solar PV panels connected in the array generate electricity by converting solar radiation into electrical energy.

2

The electricity generated from the array of panels is transmitted to a central controller called the Power Conditioning Unit (PCU).

3

The PCU controls, regulates and directs the electrical energy transmitted from the array, and supplies electricity directly to homes, shops, offices, street lights etc.

4

During the day, if the power generated is not used or surplus power is generated, the PCU directs this to the battery bank which stores power. This power can then be used at night (after the sun sets).



# OPERATIONS & MAINTENANCE

Optimal plant performance in the expert hands of AFRO Solar. The fast growing utility-scale PV industry demands well managed operation & maintenance (O&M) services to keep plant performance at par with the needed expectations as well as applicable regulations. As utilities embrace and rely on solar PV grid-connected plants for both commercial and industrial applications, AFRO Solar has the capabilities as well as experience in all aspects of solar plant O&M to help deliver optimal power.

AFRO Solar and its sub-contractors has unmatched experience in operating and maintaining large utility scale projects and solar rooftops for the last fifteen (15) years. We also offer monitoring of hardware and services, based on the solar-log data logger platform from Germany.

## Preventive Maintenance Packages

- Regular cleaning of solar panels
- Frequent maintenance of thermal-based components
- Yearly service of HT side equipment
- Diagnostic testing for low power production
- Circuit testing
- IV curve tracing
- Thermal imaging
- Earth value measurement
- Retro commissioning
- Data acquisition system check
- Warranty management

## Uptime Management

- Automatic string level visual alarms
- Real time data collection
- Monitoring energy production (daily basis)
- Effective data interpretation
- Solar Resource Management and Prediction
- PV system monitoring systems
- Trending and Analytics for continuous improvement
- Critical and non-critical reactive repairs
- Spare parts and inventory management





## OPEX Financing

- Zero or minimal upfront payment
- Savings from Day 1 - Monthly outflow
- Much less than regular electricity bills
- Tenure – 5 - 25 years
- Asset can be in own name or financer's name
- No hassles of plant maintenance or insurance



## CAPEX Financing

- CAPEX through PSUs and NBFCs
- Key features – 5 - 15 years tenure, 25 - 30% down payment, RoI – 7.5 - 14%
- Usually, collateral required from 25 - 50%
- Collateral-free option also available under an exclusive scheme for Tata Power Solar Customers



\*\*\*Subject to terms & conditions by funding partners



# REMOTE MONITORING

Afro Solar can design, develop and deliver state-of-the-art NOC (Network Operating System) centers across the world.

- ✓ The system enables remote monitoring and management of solar rooftop systems
- ✓ Highly configurable performance monitoring
- ✓ Live data tracking and analysis
- ✓ An opportunity for proactive maintenance and support, ensuring maximum plant uptime
- ✓ User get real-time access to their plant performance
- ✓ Notification and Service Intervention Alarms

The center gives an edge in monitoring operations & managing maintenance of all connected sites, providing instant insights and real-time proactive action – ensuring maximum generation & uptime.





An aerial photograph of a solar farm. The panels are arranged in approximately 15 parallel rows, each consisting of about 15 rectangular solar modules. The rows are angled diagonally across the frame. The ground between the panels is covered in sparse green grass and patches of brown dirt. In the center of the image, there is a large, semi-transparent black hexagonal overlay containing the text "INDUSTRY BENCHMARKS".

# INDUSTRY BENCHMARKS



Top Brands  
work with  
solar projects  
for a better  
tomorrow

\*\*\*These projects are for illustration purposes only and does not represent any offers or proposals.



BRITISH AIRWAYS





# ON-GRID SOLAR PPA Project examples:

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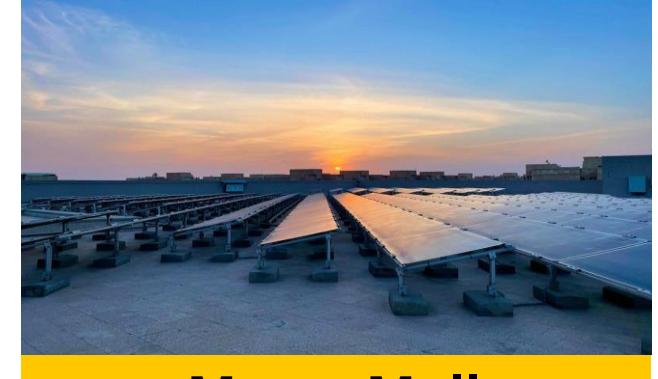
**Arkan Rooftop**



**Orion Factory**



**El-Minya**



**Mazar Mall**



**Wadi Natrun**



**Sahl El - Haseesh**



# Examples of International Projects:



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# Examples of Large Projects:

A collage of five images arranged in a grid-like pattern, each illustrating a different solar power project. The images are framed by a light gray border and a yellow header bar containing the project details.

- 100MW - Andhra Pradesh**: An aerial view of a massive solar farm spread across a wide, flat landscape under a clear blue sky. The panels are arranged in long, parallel rows.
- 17MW - Mithapur Plant**: A close-up, low-angle shot looking up at a large array of solar panels mounted on a metal frame, set against a bright blue sky with scattered white clouds.
- 10MW - Jindal Plant**: An aerial view of a solar farm situated on a hillside, with the panels sloping upwards. The surrounding terrain is green and hilly, with some buildings visible in the background.
- 3MW - Jharkhand**: An aerial view of a solar farm located in a valley or depression, surrounded by dense green trees and hills. The panels are arranged in a grid pattern across the available land area.

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AFRO



Afro Solar. Part of the Afro Group of Companies  
Head Office. Giza – 6th of October City, EGYPT  
Tel : (+20) 2 38367340/9  
[sales@afro-egypt.com](mailto:sales@afro-egypt.com) | [info@afro-egypt.com](mailto:info@afro-egypt.com)

