

2025

# ALNORAS INTEGRATED SOLUTIONS CO.LTD

SOLAR ENERGY COMPANY PROFILE



[www.alorasgroup.com](http://www.alorasgroup.com)

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# 1. About Us

## 1.1 Introduction

Founded in August 2010, Alnoras Integrated Solutions CO. LTD is a Sudanese investment and contracting company with operations in Port Sudan and Khartoum. Today, alongside electrical contracting, car rental and maintenance, construction, non-food trading, conference organization, transportation, and workshop services, we deliver innovative solar energy solutions to government, commercial, and international clients. Our mission is to accelerate Sudan's renewable energy transition through reliable, cost-effective solar technologies.



## 2. Mission & Vision

### 2.1 MISSION

- Leadership position in Sudan's renewable energy sector
- Focus on innovation and nationwide impact
- Commitment to sustainable development

### 2.2 VISION

- Reliability and affordability of solutions
- Technology-driven approach
- Customer-focused service model
- Dual focus on energy access and environmental benefits



### 3. Solar Energy Solutions & Services

- Core Offerings:
  - Supply & installation of solar panels (monocrystalline, polycrystalline, thin-film).
  - Solar inverters, batteries, and hybrid systems.
  - Solar water pumps for agricultural/industrial use.
  - Customized solutions for homes, businesses, and large-scale projects.
- End-to-End Services:
  - Site assessment, design, installation, and maintenance.
  - Energy efficiency consulting.



## **4. Technical Specifications Ranges for Solar Components Solar Energy Solutions & Services**



## 4.1 Solar Panels

- Power Output:
  - Standard PV panels: 300W–700W per panel (e.g., Dualsun SPRING hybrid PVT panel: 425Wp PV power)
  - Hybrid PVT panels: Generate 6–8× more energy than standard PV panels by combining electricity (e.g., 425Wp) and thermal output (e.g., 940W max thermal power)
- Efficiency:
  - TOPCon technology panels: Up to 22–24% cell efficiency
- Lifespan:
  - 25–30 years with performance warranties (e.g., Dualsun offers a 30-year warranty)
- Temperature Range:
  - Operating: -20°C to +50°C for most panels



## 4.2 Batteries

- Chemistry:
  - Lithium-ion (LiFePO4): Dominant for solar storage due to high energy density (e.g., 350–450 Wh/kg for NMC/LMFP cathodes) and long cycle life 612.
  - Lead-acid: Fading use due to lower depth of discharge (DoD) and lifespan 12.
- Capacity & Voltage:
  - Residential: 2.56 kWh–5.12 kWh (e.g., AL-S series LFP batteries at 12.8V–51.2V) 8.
  - Industrial: Up to 232.9 kWh (e.g., GSL Energy's container systems) 15.
- Charging/Discharging:
  - Fast-charging solid-state batteries: Up to 3C rate (70% in <20 mins) 6.
  - DoD: 95% for lithium-ion vs. ~50% for lead-acid 12.
- Lifespan:
  - LiFePO4: 5,000–10,000 cycles (10+ years)



## 4.3 Inverters

- Types:
  - Hybrid Inverters: Combine grid-tied and battery management (e.g., 6–15.4 kW power range) 15.
  - Microinverters: Module-level control (0.5–2.8 kW, 96.5–97.5% efficiency) 15.
- Efficiency:
  - High-end models: 97–99% (e.g., AL-S5000 inverter at 99%) 815.
- Input/Output:
  - DC Input: 18–150V MPPT range (varies by model) 8.
  - AC Output: 110V/220V, 50/60Hz 815.
- Grid Interaction:
  - Hybrid inverters support bidirectional flow for net metering 312.
- Temperature Range:
  - Operating: -20°C to +50°C (common for most inverters)



# 5. Services

## 1- Design & Consultation

Energy audits, customized system design, and feasibility studies

## 2- Supply & Installation

Premium components + professional turnkey installation

## 3-Maintenance & Support

Preventive checks, 24/7 troubleshooting, and warranty management

## 4- Solar Water Pumps

Reliable irrigation and water supply solutions

## 5- Energy Storage

Battery backups and hybrid energy management

## 6- Commercial/Industrial Solutions

Rooftop/ground-mounted systems with net metering support

## 7- Training Programs

User workshops and technician skill development

# Partners





# Alnoras Integrated Solutions CO.LTD



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