

# **Saudi Arabia Photovoltaics Market Assessment, By Type [Monocrystalline Silicon, Polycrystalline Silicon, Thin Film Cells and Organic Photovoltaics], By Grid Type (On grid, Off grid and Hybrid), By Installation [Ground Mounted, Roof Mounted, Building-integrated Photovoltaics (BIPV) and Floating Photovoltaics], By Application [Solar Farms, Electronic Devices, Healthcare Facilities, Public Infrastructure, Aerospace, Construction, Military and Defence, Transportation and Others], By End-user [Residential, Commercial & Industrial and Utility], and By Region, Opportunities, and Forecast, 2016-2030F**

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## **Abstracts**

The photovoltaic (PV) market in Saudi Arabia is experiencing significant growth and offers promising prospects as it is seeking to diversify its energy sources and reduce its dependence on fossil fuels which has led to a strong focus on renewable energy, including solar power. The Saudi Arabia Photovoltaics market is projected to reach USD 17.16 billion by 2030 from USD 3.01 billion in 2022, growing at a CAGR of 24.31% for the forecast period between 2023 and 2030.

Furthermore, the Saudi government has set ambitious targets for solar energy generation. By 2032, they are planning to install around 58.7 GW of solar capacity, which would account for a significant portion of the country's electricity needs. The government has also introduced favourable policies and incentives to attract local and

international investments in the PV sector, thereby expediting the market growth. Saudi Arabia has one of the highest solar irradiation levels in the world, with ample sunlight throughout the year. This makes it highly favorable for solar energy generation and encourages the development of large-scale solar projects.

For example, the Sakaka Solar Power Plant is one of the largest photovoltaic power plants in the world and is situated in Sakaka City, Al Jouf Province, Saudi Arabia. It is a photovoltaic (PV) solar venture with a capacity of 300MW. It was commissioned in April 2021 by ACWA Power (70%) and AlGihaz Renewable Energy Company, a subsidiary of AlGihaz (30%). The power plant is interconnected with the national electricity grid and has the capability to provide clean energy to over 75,000 households in Saudi Arabia. By doing so, it will prevent the emission of over 430,000 tons of carbon dioxide (CO<sub>2</sub>) annually. Throughout its lifespan, the project is projected to offset roughly 10.5 million tons of CO<sub>2</sub> and avoid the consumption of more than 50 million barrels of diesel.

#### Rise in the adoption rate of Bifacial Solar Panels

Bifacial solar panels have the advantage of generating electricity from both sides, allowing them to capture additional sunlight reflected from the ground or other surfaces. This results in increased energy production compared to traditional mono-facial panels particularly in areas where sunlight reflection is significant, such as desert regions like Saudi Arabia.

The Sudair PV solar power plant is currently under development in the Sudair industrial city, located about 150km from Riyadh, the capital of Saudi Arabia. The project is set to occupy a site spanning 30.2 square kilometres. The solar power plant will utilize bi-facial PV solar panels mounted on pile-driven structures. These solar panels will feature tracking technology to optimize their exposure to sunlight, and an automatic robotic cleaning system will be employed to maintain their efficiency. The solar power plant will utilize bi-facial PV solar panels mounted on pile-driven structures. These solar panels will feature tracking technology to optimize their exposure to sunlight, and an automatic robotic cleaning system will be employed to maintain their efficiency. Thus, the rise in the adoption rate of Bifacial Solar Panels is augmenting the market growth.

#### Increase in the Number of Rooftop Solar PV Installations

Rooftop solar PV installations in Saudi Arabia are gaining traction as part of the country's efforts to promote renewable energy and diversify its energy sources. The vast arid regions in Saudi Arabia are considered a great hub for solar energy generation

as they are rich in sunlight which allows for the diversification of the domestic power supply in Saudi Arabia. Moreover, the construction and architecture of houses in Saudi Arabia are such that they get good rooftop spaces which are largely suitable to install solar power systems.

The Saudi Arabian government has implemented various initiatives and incentives to promote the adoption of rooftop solar PV systems. These include net metering programs, feed-in tariffs, and favorable regulations that facilitate the connection of rooftop solar systems to the grid. These incentives have encouraged building owners to invest in solar PV installations.

### Government Regulations

The Saudi government has set ambitious targets for solar energy generation and has implemented substantial measures to tackle obstacles and promote the growth of renewable energy initiatives. By 2032, they plan to install around 58.7 GW of solar capacity, which would account for a significant portion of the country's electricity needs. The government has also introduced favourable policies and incentives to attract local and international investments in the PV sector. The Saudi Arabian government created the Saudi Renewable Energy Project Development Office, which is responsible for supervising the advancement of renewable energy projects in the country.

The launch of Solar Energy Plan aims to deploy 27.5 GW of solar power capacity by 2030. Moreover, Saudi Arabia has set its sights on establishing a greenhouse gas certificates market in 2023, as part of its commitment to decreasing carbon emissions . Anticipated growth in the renewable energy sector of the Kingdom includes the addition of 10 GW of renewable capacity between 2022 and 2027, primarily led by solar photovoltaic (PV) projects. This expansion will be facilitated through four procurement mechanisms: competitive auctions, unsolicited bilateral utility contracts, corporate power purchase agreements (PPAs), and state-owned initiatives.

### Impact of COVID-19

The COVID-19 pandemic has had an impact on various sectors worldwide, including the photovoltaic (PV) industry in Saudi Arabia. Economic uncertainties resulting from the pandemic affected financing options for PV projects In Saudi Arabia. Investors and financial institutions may have become more cautious, leading to potential challenges in securing funding for new solar initiatives. The pandemic may have caused delays in the construction and commissioning of PV projects due to labour shortages, restrictions on

movement, and the implementation of social distancing measures on worksites. These delays could have impacted the deployment of new solar installations.

### Key Players Landscape and Outlook

The Saudi Arabian photovoltaic market is witnessing substantial expansion, leading international companies to prioritize the retention of their market share and global expansion efforts by offering high-quality products and enhancing brand positioning. These companies are making increased investments in research and development, marketing initiatives, and the expansion of distribution networks. Manufacturers are actively studying consumer behaviour to gain valuable insights into their preferences. This enables them to introduce innovative products that align with customer demands and address the evolving needs of the market.

In August 2021, as the world's largest energy company, Saudi Aramco ventured into the renewables sector by joining forces with the country's sovereign wealth fund and ACWA Power, based in Riyadh, to invest in Saudi Arabia's largest solar project. This project boasts a capacity of 1.5 GW and signifies Saudi Aramco's foray into the renewable energy domain including solar energy.

## Contents

### **1. RESEARCH METHODOLOGY**

### **2. PROJECT SCOPE & DEFINITIONS**

### **3. IMPACT OF COVID-19**

### **4. EXECUTIVE SUMMARY**

### **5. VOICE OF CONSUMER**

#### 5.1. Product and Market Intelligence

#### 5.2. Sources of Information

#### 5.3. Factors Considered in Purchase Decisions

##### 5.3.1. Overall Expenses

##### 5.3.2. Facility Requirement

##### 5.3.3. Operational Manpower Expertise

##### 5.3.4. Number of Installation Units

##### 5.3.5. Experience in the Industry

##### 5.3.6. Efficiency

##### 5.3.7. After-Sales Support

#### 5.4. Purpose of Installation

#### 5.5. Demand and Supply Mechanism

#### 5.6. Consideration and Understanding of Safety Regulations

#### 5.7. Application of Legal Compliances

#### 5.8. Existing User or Intended Purchaser

### **6. SAUDI ARABIA PHOTOVOLTAICS MARKET OUTLOOK, 2016-2030F**

#### 6.1. Market Size & Forecast

##### 6.1.1. By Value

##### 6.1.2. By Volume

#### 6.2. By Type

##### 6.2.1. Monocrystalline Silicon

##### 6.2.2. Polycrystalline Silicon

##### 6.2.3. Thin Film Cells

###### 6.2.3.1. Amorphous silicon

###### 6.2.3.2. Copper Indium Gallium Selenide (CIGS)

- 6.2.3.3. Cadmium Telluride (CDTE)
- 6.2.3.4. Perovskite Solar Cells
- 6.2.4. Organic PV
- 6.3. By Grid Type
  - 6.3.1.1. On Grid
  - 6.3.1.2. Off Grid
  - 6.3.1.3. Hybrid
- 6.4. By Installation
  - 6.4.1. Ground Mounted
    - 6.4.1.1. Foundation mount
    - 6.4.1.2. Ballasted footing mount
    - 6.4.1.3. Pole mount
    - 6.4.1.4. Multi-pole mount
    - 6.4.1.5. Smart Flower
  - 6.4.2. Roof Mounted
    - 6.4.2.1. Railed Mounting
    - 6.4.2.2. Rail-less Mounting
    - 6.4.2.3. Shared Rail Mounting
    - 6.4.2.4. Flat Roof Ballasted Racking System
  - 6.4.3. Building-integrated Photovoltaics (BIPV)
  - 6.4.4. Floating Photovoltaics
- 6.5. By Application
  - 6.5.1. Solar Farms
  - 6.5.2. Electronic Devices
  - 6.5.3. Healthcare Facilities
  - 6.5.4. Public Infrastructure
  - 6.5.5. Aerospace
  - 6.5.6. Construction
  - 6.5.7. Military and Defence
  - 6.5.8. Transportation
  - 6.5.9. Others
- 6.6. By End-user
  - 6.6.1. Residential
  - 6.6.2. Commercial
  - 6.6.3. Utility
- 6.7. By Region
  - 6.7.1. Makkah
  - 6.7.2. Riyadh
  - 6.7.3. Eastern Province

#### 6.7.4. Rest of Saudi Arabia

## **7. SAUDI ARABIA PHOTOVOLTAICS MARKET MAPPING, 2022**

### 8.1 By Type

### 8.2 By Grid Type

### 8.3 By Installation

### 8.4 By Application

### 8.5 By End-user

### 8.6 By Region

## **8. MACRO ENVIRONMENT AND INDUSTRY STRUCTURE**

### 8.1. Value Chain Analysis

### 8.2. Import and Export Analysis

### 8.3. Demand and Supply Analysis

### 8.4. Porter's Five Force Industry Analysis

#### 8.4.1. Threat of New Entrants

#### 8.4.2. Threat of Substitutes

#### 8.4.3. Competitive Rivalry

#### 8.4.4. Bargaining Power of Suppliers

#### 8.4.5. Bargaining Power of Buyers

## **9. MARKET DYNAMICS**

### 9.1. Growth Drivers

### 9.2. Growth Inhibitors (Challenges, Restraints)

## **10. KEY PLAYERS LANDSCAPE**

### 10.1. SWOT Analysis of Key Five Market Players

### 10.2. Competition Matrix of Key Five Market Leaders

### 10.3. Market Revenue Analysis of Key Five Market Leaders (in %, 2022)

### 10.4. Mergers & Acquisitions/ Joint Ventures (If Applicable)

### 10.5. Patent Analysis (If Applicable)

## **11. PRICING ANALYSIS**

## **12. CASE STUDIES**

## **13. KEY PLAYERS OUTLOOK**

### **13.1. Saudi Aramco Power Company (Saudi Aramco)**

#### **13.1.1. Company Details**

#### **13.1.2. Key Management Personnel**

#### **13.1.3. Products & Services**

#### **13.1.4. Key Market Focus & Geographical Presence**

#### **13.1.5. Financials (As Reported)**

#### **13.1.6. Recent Developments**

### **13.2. Masdar Solar**

### **13.3. AndaSolar**

### **13.4. Saudi American Glass Company (SAGCO)**

### **13.5. Al Salem Johnson Controls (ASJC)**

### **13.6. Advanced Electronics Company (AEC)**

### **13.7. The Saudi Factory for Solar Energy Panels (SFSEP)**

### **13.8. Abdul Latif Jameel Energy**

### **13.9. Desert Technologies**

### **13.10. Riyadh Cables Group of Companies**

\*Companies mentioned above DO NOT hold any order as per market share and can be changed during course of work

## **14. STRATEGIC RECOMMENDATIONS**

## **15. ABOUT US & DISCLAIMER**



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