

SOLAR ROOFTOP PANELS

The United Arab Emirates (UAE) is one of the leading countries in the Middle East that has set ambitious targets for renewable energy sources. Solar rooftops are a promising option for the UAE, which has abundant solar resources and a growing demand for electricity. The UAE has set a target of achieving 75% clean energy by 2050, and solar rooftops can play a significant role in achieving this goal. According to a study by the International Renewable Energy Agency (IRENA), the UAE has a potential of installing 24 GW of solar rooftops by 2030, which could generate 38 TWh of electricity per year and save 22 million tons of CO₂ emissions annually.

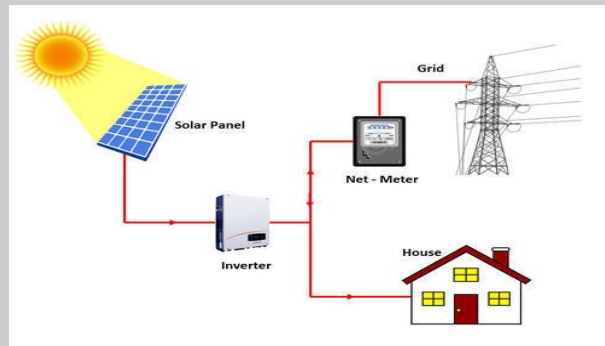


The UAE has also invested in research and development, innovation, and capacity building in the field of rooftop solar PV technology and has established partnerships with international organizations and institutions.

The rooftop solar photovoltaic (PV) market in the UAE is expected to grow significantly in the coming years, as the country aims to reduce its dependence on fossil fuels mix.

How are solar PV panels operated?

Solar energy, which derives from the sun's electromagnetic radiation, is renewable. It aids in the environmentally friendly production of heat and power.



An assemblage of photovoltaic solar cells mounted on a frame that collects solar energy and converts it into sustainable energy is referred to as a solar panel. Each solar cell is built on a semiconductor material, often silicon. It is photovoltaic effect-sensitive and produces energy when exposed to sunlight as a result of this natural occurrence.

Source & Photo Courtesy:
How Efficient are Solar Panels? Top Brands in 2023 - Solar Reviews.
<https://www.solarreviews.com/blog/what-are-the-most-efficient-solar-panels> Accessed 10/04/2023.

Solar Rooftops:

Rooftop solar PV systems are installed on residential, commercial, industrial, and public buildings, and can provide electricity for self-consumption or feed-in to the grid. Rooftop solar PV systems .

Benefits :

Rooftops Solar PV systems have several benefits, such as reducing greenhouse gas emissions, lowering electricity bills, enhancing energy security, creating jobs, and supporting local industries.

Challenges associated :

- a) Installing solar panels can be a costly investment for individual customers, especially if they have to bear the upfront costs.
- b) Fires and explosion resulting from electrical faults such as mismatched module-to-module connectors, improper installation of connectors, poor wire management , batteries.



- c) Water intrusion in the inverters can cause short circuit resulting in fire damage.
- d) Improper installation techniques, improper commissioning of a new system, inadequate system maintenance and equipment malfunction
- e) Cracks on the solar panels due to heavy rain, lightening, hail storm etc.



- f) Efficiency of panel decreases by approximately one percent due to module degradation by each year.
- g) Recycling and disposal: Lack of clear regulations and standards for solar panel waste management. Used solar panels are going straight into landfill for the disposal which poses threat to soil and water quality

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Solutions required :

- a) Adopting a leasing model that allows customers to pay a monthly fee for using the solar panels instead of bearing the high upfront cost of installation. This can encourage more customers to switch to solar energy and reduce their dependence on fossil fuels. The UAE has launched several initiatives and policies to promote rooftop solar PV installation, such as Shams Dubai, which allows customers to connect their rooftop solar PV systems to the grid and receive credits for any excess electricity they export.
- b) Regular inspection of each solar panel installation by the solar leasing company.
- c) Appointing in-house solar experts overseeing the construction, operations, and maintenance of solar systems within the facility.
- d) Addressing the technical and environmental issues like review of the scale of recycling and disposal capabilities of solar panels, batteries, and other components of renewable energy systems in the long term prospect.

How Solar Leasing Companies Operate in UAE ?

The majority of the installations are handled by solar leasing firms. Businesses and homes in the UAE

can install solar panels without incurring up-front fees or taking ownership of the system thanks to solar leasing firms. The consumer pays a set monthly cost to use the power produced by the solar system during the leasing time; the solar leasing firm owns and maintains the solar system. While the solar leasing company recovers its investment and makes a profit over time, the customer benefits from lower electricity bills and a greener energy source. As power prices climb and the government supports renewable energy initiatives, solar leasing is growing in popularity in the UAE.



Sources & Photo Courtesy:

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