



India's Leading Textile Manufacturer

Arisudana Bets Big On **Renewable Energy**

Case Study on Fourth Partner Energy's **2.09 MWp Bifacial Rooftop Solar** Solution for Arisudana's Punjab manufacturing facility

Arisudana's Commitment To Sustainability & Energy Transition

Arisudana Group is India's leader in yarn spinning and manufacturing of high-quality polyesters. With a current manufacturing capacity of ~32,000 tons annually, Arisudana is the largest producer and only regular supplier of Airjet spun yarn in the world.

With two state-of-the-art facilities located in Ludhiana, Punjab – the company has established itself as a key player in the textile industry. As part of its commitment to sustainability and reducing carbon emissions, Arisudana has sought to integrate renewable energy into its manufacturing processes.

FPEL's 2.09 MWp Rooftop Solar Solution for Arisudana's Punjab Factory

In 2023, Arisudana engaged FPEL for a discussion on furthering its energy transition plans as part of the firm's long-term Sustainability goals. After an initial site survey, FPEL undertook the exercise of designing, supplying, installing, testing, and commissioning a 2090.62 kWp Solar Photovoltaic grid-connected system for Arisudana. Completed in under 75 days, the speedy execution and commissioning of this plant highlights the successful collaboration between the two companies.

One unique aspect of this project was Arisudana's interest in deploying Bifacial Solar panels in the installation – panels that are capable of capturing sunlight from both sides of its surface. Arisudana's preference was to maximise clean energy production within the space available; FPEL proposed bifacial technology not only increases electricity yield but also enhances performance in low-light conditions, making it a suitable choice for Arisudana's energy needs. This project involved the installation of 3,052 bifacial solar panels across two roof sheds at its factory.



Key Highlights

of the 2.09 MWp Bifacial Rooftop Solar System



Project Capacity
2.09 MWp



Project Location
Ludhiana, Punjab



Type of System
Rooftop Solar System



Annual Generation
~30.5 Mn Units



CoD
11th March 2024



Type of Roof
Tin Shed



Cost Savings
₹85 lk Annually



Percentage of RE in
Energy Mix: ~35%

Annual

Environment Impact



2915 Tons/year
of reduced Carbon Offset



1,377 Kgs
of reduction in Coal



67.5 Lakh Litres
of Water Conserved



Equivalent to
Planting 1,31,892 Trees





Client Speak

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We would like to express our sincere admiration for the exceptional efforts made by FPEL's team in our workplace. Your dedication and hard work, especially under challenging circumstances, have been commendable. We congratulate you on the timely completion of the **2.09 MWp** Solar PV Power Generation Project and look forward to a long-term association with your firm.

NM Sharma
Chief Engineer



Client Feedback

Services



Exceptional service,
very satisfied

Tools & Equipment



Good quality tools

Team Coordination



Excellent coordination
and communication
among the team

Deadlines



Always on time, reliable
schedule adherence

Quality



Outstanding performance,
exceeding expectations

FPEL's Experience

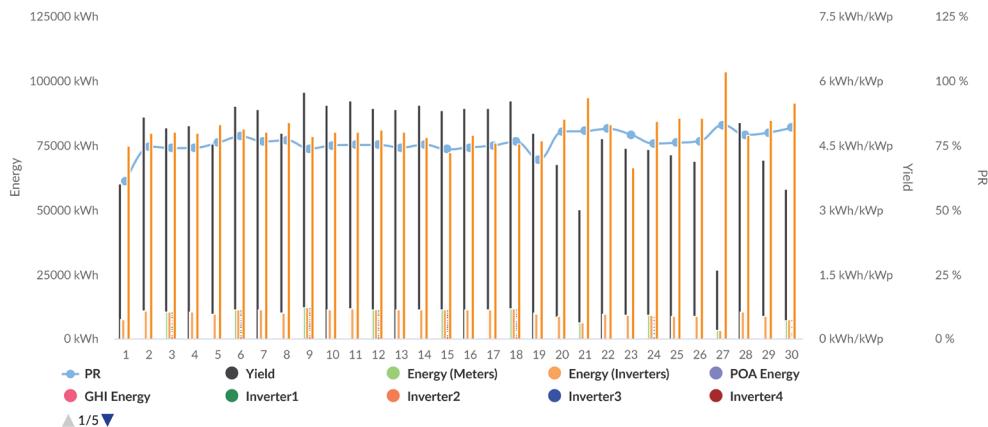
This project is the first-of-its-kind at FPEL, as we have used 685 Wp N-Type, Bifacial modules for the Client - this helped us maximise capacity alongside generation for Arisudana. We are thankful to their team for giving us this opportunity to showcase our best-in-industry execution capabilities, while embracing the latest technology. We look forward to solarising many such corporate clients, while continuing to prioritise quality and safety.



Alok Singh
Head - North & East (DBU)

Arisudana's Solar Power Generation

June 2024



Key Challenges

During Project Execution And How FPEL Addressed It

- **Logistics and Manpower:** Due to the long lead time of solar modules and the fixed timelines of the project, it was necessary to expedite execution. FPEL selected two vendors for module supply, thereby increasing manpower. This strategic decision allowed the teams to work concurrently on separate roofs, significantly accelerating the installation process.

The Approved List of Models and Manufacturers (ALMM) also played a role, as we were using imported modules. As a result, the installation was completed within an impressive timeframe of 40 days. Despite the initial glitches, the overall execution time for the project was maintained within 74 days – demonstrating effective project management and coordination between the vendors and FPEL.

- **Specialized Installation Techniques:** Bifacial panels require specific mounting and installation techniques to maximize their efficiency. To address this, FPEL provided specialized training for the installation teams and developed detailed guidelines and best practices for installing bifacial panels. Software tools were used for precise site analysis and design optimization.

- **Shading Mitigation:** Shading from nearby objects can reduce the effectiveness which could impact energy generation for Arisudana. To overcome this, we have performed detailed shading analysis and site planning to minimize shading from structures, vegetation, and other potential obstructions, ensuring bifacial panels were used in areas with minimal shading.

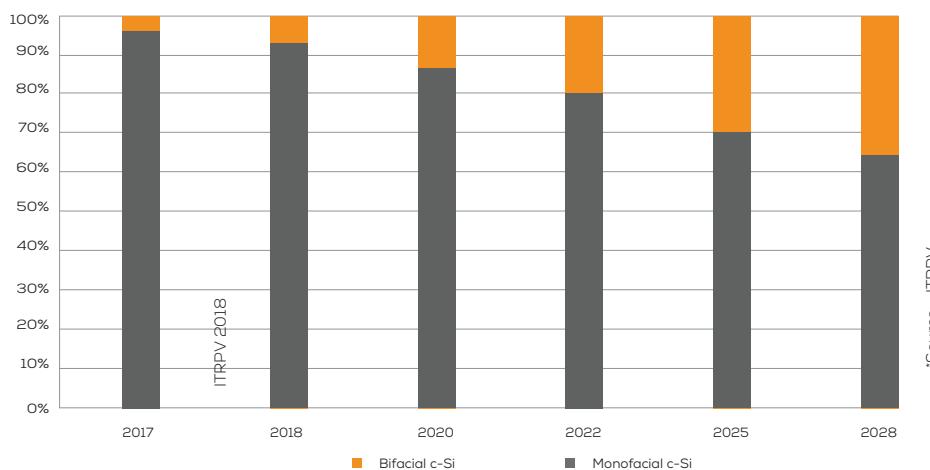
How do Bifacial Solar Panels work?

Bifacial solar panels represent a cutting-edge photovoltaic technology capable of capturing sunlight from both the front and back of the panel, resulting in several significant benefits.

- 1 **Increased Electricity Yield:** Bifacial panels can boost electricity production by up to 30%.
- 2 **Space Efficiency:** These panels generate more power within a smaller footprint, reducing balance of system (BOS) costs.
- 3 **Enhanced Low-Light Performance:** Improved performance even in low-light conditions, extending operational hours.
- 4 **Durable Design:** The glass-on-glass design minimizes potential induced degradation, ensuring stable performance over the panel's lifetime.
- 5 **Effective Light Capture:** Excels in capturing diffused and reflected light, enhancing performance in less sunny conditions.
- 6 **Economic Benefits:** Higher energy yield contributes to better long-term economics, often offsetting the higher initial investment over time.

Bifacial cell Technology

World market share (%)





Are Bifacial Modules the right choice for **India's Corporate Consumers?**

In India – the adoption of Bifacial panels has been low since inception, mainly because of lack of awareness, availability and higher costs. However, with increased global adoption, corporate consumers in India are increasingly waking up to the benefits of Bifacial modules. Realisation is dawning that the increased output and associated monetary benefits outweigh the requirement of customisation of mounting systems and a higher Albedo factor. The fact that Bifacial modules are increasingly becoming cost-competitive with their Mono counterparts, is also driving their adoption mainstream.

Contact Us



1800 1203 41345



www.fourthpartner.co



marketing@fourthpartner.co

