DAULAT SOLARCARE

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SOLAR PLANT EFFICIENCY & PERFORMANCE REPORT

Performance Assessment | Loss Analysis | Optimization | Training & Recommendations

Client Name
Abc Solar Pvt Ltd

Plant Name
Abc Solar Plant

Location
Rajasthan, India

Capacity
50MWp

Roport Date
25 june 2026

Roport No.
DS/25-05/50MW/01

1. EXECUTIVE SUMMARY

Daulat Solarcare has conducted a detailed performance assessment of the 50 Mwp Solar Plant through on-site inspection, thermography, data analysis and operational review.

PLANT CAPACITY
50 MWp

PERFORMANCE RATIO (PR)
78.4%

SPECIFIC YIELD
1,425 kWh/kWp/year

AVAILABILITY
99.1%

SOILING LOSS
3.2%

ESTIMATED ANNUAL ENERGY LOSS
2.40 GWh

REVENUE LOSS (ANNUAL)
₹ 1.45 Crore

POTENTIAL ENERGY RECOVERY (ANNUAL)
2.02 GWh ₹ 1.22 Crore

PERFORMANCE SUMMARY

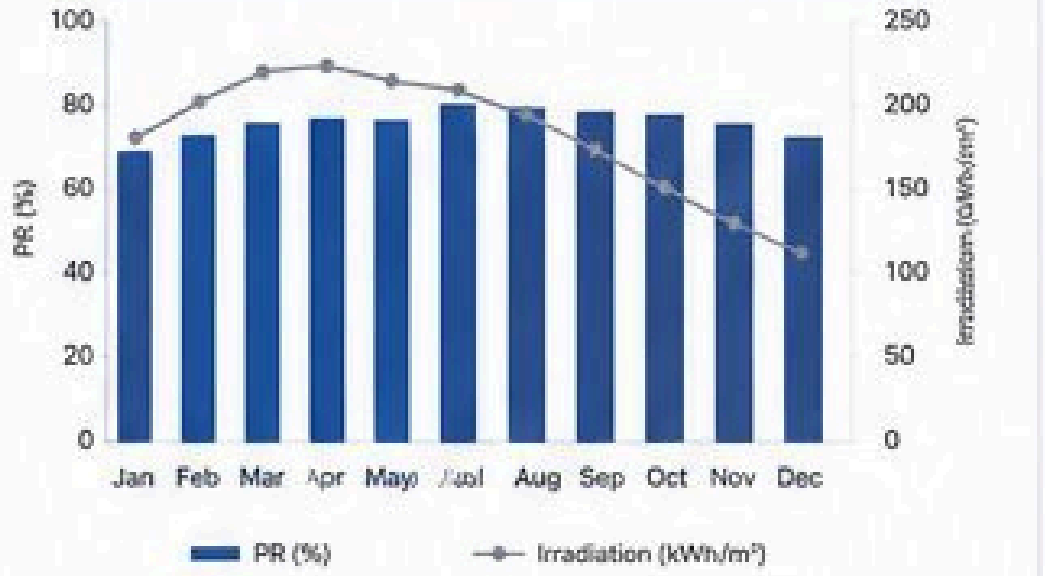
Parameter	Actual	Benchmark	Status
Performance Ratio (PR)	78.4%	⩾ 84%	Needs Improvement
Specific Yield	1,425 kWh/kWp	1,550 kWh/kWp	Needs Improvement
Availability	99.1%	⩾ 99%	Good
Capacity Utilization Factor (CUF)	23.1%	⩾ 24%	Moderate
Soiling Loss	3.2%	⩽ 1.5%	High
Inverter Efficiency	97.6%	⩾ 98%	Moderate

KEY TAKEAWAY

The plant is operating below the benchmark primarily due to higher soiling losses and identified hotspots resulting in energy generation and revenue impact. Implementation of our recommended cleaning strategy, O&M improvements and team training can significantly improve performance.

2. PLANT PERFORMANCE OVERVIEW

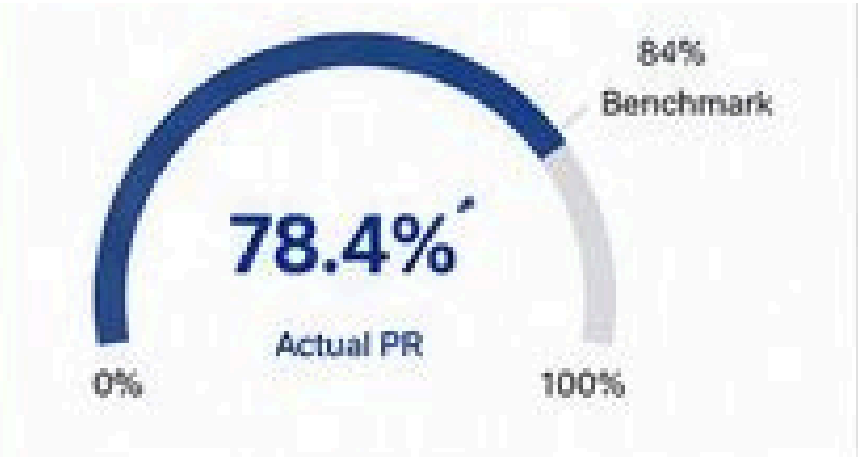
MONTHLY PERFORMANCE RATIO (PR) TREND



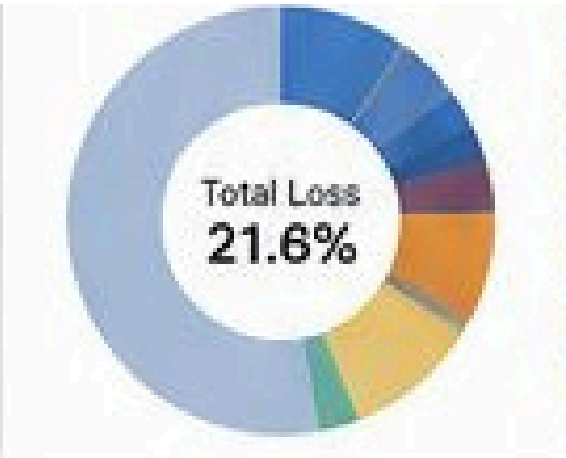
YEAR TO DATE (YTD)

YTD Energy Generation	71.25 GWh
YTD Specific Yield	1,425 kWh/kWp
YTD PR	78.4%
Benchmark PR	84.0%
YTD Energy Loss	9.62 GWh
YTD Revenue Loss	₹ 1.45 Crore

PERFORMANCE RATIO % COMPARISON



LOSS BREAKDOWN (YTD)



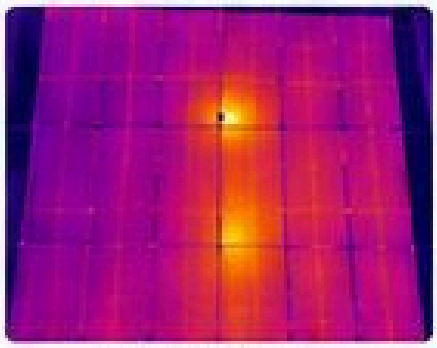
Soiling Loss	3.2%
Thermal Loss	2.1%
Mismatch Loss	1.6%
Wiring Loss	1.2%
Inverter Loss	1.9%
Clipping Loss	0.8%
Others	10.8%

3. INSPECTION FINDINGS

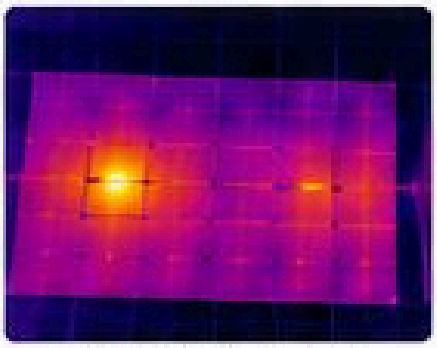
THERMOGRAPHY ANALYSIS

✓ Total Modules Scanned	**18,450**
✓ Hotspots Detected	**356**
✓ Hotspot Rate	**1.93%**
✓ Critical Hotspots	**42**
✓ Bypass Diode Issues	**128**
✓ Potential Power Loss	**184KWp**

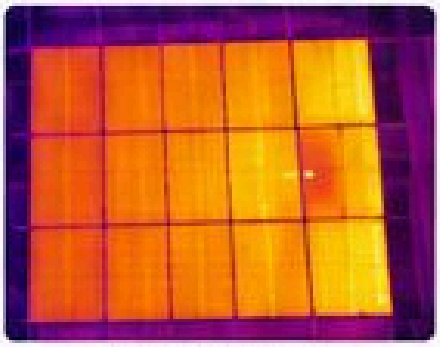
THERMAL IMAGES (SIMPLE)



Hotspot in module



Bypass Diode Activated

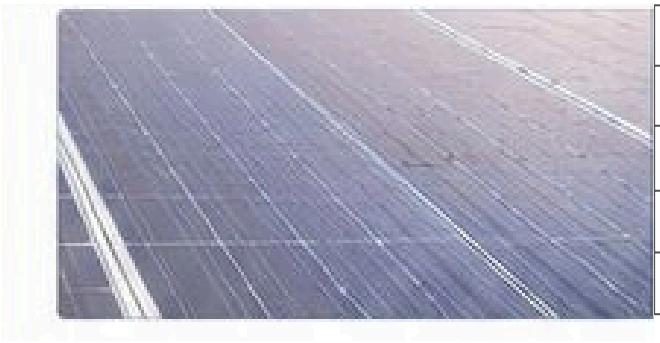


Cell-Level Hotspot

OBSERVATIONS

- Multiple hotspots observed in modules and strings.
- Bypass diode activation found in several modules.
- Junction box loose connections in few strings.
- Hotspots concentrated in high iradiation zone.

4. SOILING ASSESSMENT



SOILING SUMMARY	
Average Soiling loss	3.2%
Soiling Category	High
Dust Type	Fine Dust (High Adhesion)
Recommended Cleaning Frequency	Once in 10-15 Days

5. CLEANING OPTIMIZATION & RECOMMENDATIOS

RECOMMENDED CLEANING SOLUTION

AUTONOMOUS SOLAR CLEANING ROBOT

- Water Efficient
- Higher Cleaning Efficiency
- Safe for Modules
- Reduced Manpower
- Consistent Performance

CLEANING CHEMICAL (RECOMMENDED)

Eco-Friendly Cleaning Solution

- Module Manufacturers Approved
- Biodegradable
- Non-Corrosive
- Safe for Modules
- Better Soiling Removal

CLEANING BEST PRACTIES (SOP HIGHLIGHTS)

- Use Soft Brushes
- Use De-mi Water
- Do Not Clean in High Iradiation
- Follow Dilution Ratio
- Rinse Properly
- Regular Reboot Maintenance

6. FINANCIAL IMPACT ANALYSIS

ANNUAL ENERGY LOSS	ANNUAL REVENUE LOSS	POTENTIAL ENERGY GAIN	POTENTIAL REVENUE GAIN
↓ 240 GWh	₹ 1.45 Crore	↑ 2.02 GWh	₹ 1.22 Crore

7. TRAINING DELIVERED

- Module Cleaning SOP
- Thermography Awareness.
- OSM Best Practices
- PR Monitoring & Analysis
- Safety & Handling
- KPI Dashboard Training

8. ACTION PLAN

IMMEDIATE (0-30 DAYS)

- Start regular cleaning as per
- recommended frequency
- Rectify critical hotspots
- Tighten loose connections
- Monitor daily PR

MEDIUM TERM (1-3 MONTHS)

- Implement cleaning robots
- Optimize inverter settings
- Improve cable management
- Reduce soiling sources

LONG TERM (6-12 MONTHS)

- Performance re-assessment
- Continuous training
- Advanced predictive maintenance

PREPARED BY
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