



Optimizing solar  
asset performance

---



Soiling causes the greatest avoidable performance loss in PV systems. Without proper mitigation, an array can reach over 40% loss of its production output.

The cost of washing a photovoltaic system can be between a third and a half of the total operating budget. With our toolset, your team can confidently manage soiling loss with real actionable data, telling you exactly when to clean.



*ARES standalone Soiling Measurement Station with Wash Extension hardware*

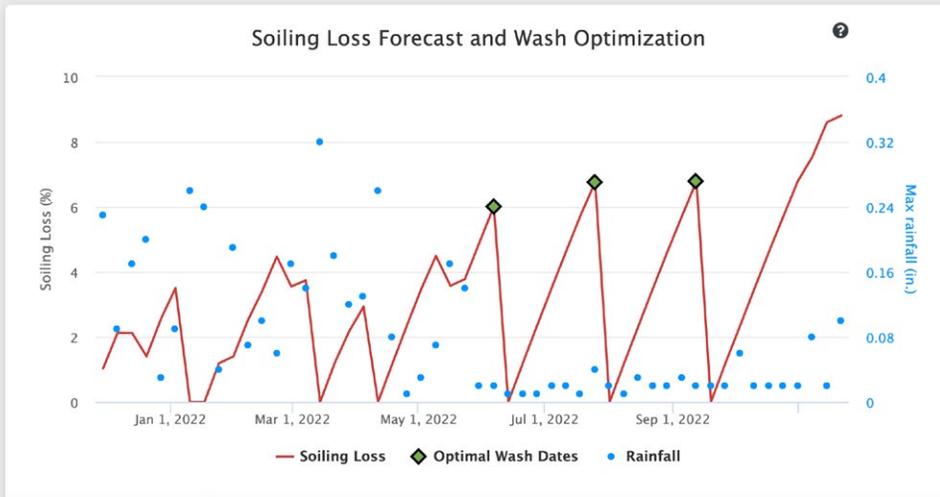
# ARES

## INTELLIGENT SOILING LOSS MONITORING STATION

- On-site soiling loss values
- Clean irradiance measurement
- PV spectral response
- Automated self-cleaning
- Self-powered and standalone
- Easily deploy multiple stations
- Universal mounting
- 30-minute install / commission
- Mobile connectivity and secure data
- Fracsun web portal
- API integration
- Weather forecasting
- Wash date optimization

# WEB PORTAL

Fracsun's custom software enables your team to access device data, view charts, and visualize optimal cleaning schedules.



### Optimized Case

 # of Annual Cleanings <b>3</b>	 Max Annual Income <b>\$5,213,682</b>
 Optimal Wash Dates <b>06 Jun, 2022</b> <b>25 Jul, 2022</b> <b>12 Sep, 2022</b>	 Max Annual Savings <b>\$299,392</b>



## MEASUREMENT

ARES generates a daily soiling loss value by comparing irradiance measurements of clean and soiled large-area reference cells. The Wash Extension hardware automatically washes the clean reference cell on a daily basis, eliminating the need for manual cleaning and measurement.



## ANALYSIS

View and analyze ARES soiling station data through the web portal. Check charts, monitor device health, or download raw data for custom analysis. Easily import data into your own monitoring platform using Fracsun's RESTful API.



## WASH FORECASTING

The Wash Analysis tool utilizes ARES-measured soiling rates, annual production, value of solar, cost to wash, and historical weather data to generate an optimized wash schedule. Clean your PV plant with the utmost confidence.



## SOLUTIONS FOR ALL STAGES OF THE SOLAR LIFECYCLE

### INTELLIGENT SOILING MANAGEMENT

Soiling loss measurement and categorization can begin at any stage of a project's lifecycle — at the early stages of development to improve bankability, or the sunset years of a PPA agreement to meet production guarantees. If you want to determine a new project's viability, Fracsun can provide the country's largest real-world soiling dataset.

### STAKEHOLDER BENEFITS

- ▶ **Developers, Builders, and EPC Firms** — Using local measurement data, improve confidence in production estimates, and forecast project performance with certainty.
- ▶ **Asset Owners** — Optimize plant performance using Fracsun's financial modeling tools to increase ROI, and decrease Levelized Cost of Energy.
- ▶ **Asset Managers and O&M Contract Holders** — Monitor the effectiveness of your cleaning program to ensure KPIs are being met.

[FRACSUN.COM](https://www.fracsun.com)

[info@fracsun.com](mailto:info@fracsun.com)

(805) 242-3722