

PV Insights

Plant Performance Guaranteed

Business Benefits

- ☑ *Single View of Operations* - Aggregate Data from sources
- ☑ *Generate 360 Insights* - Extract value by identifying asset losses & performance degradations
- ☑ *Minimize NPT* - Streamline operational processes to increase availability and reduce maintenance costs
- ☑ *Maximize Profitability* - Real-time sharing insights with stakeholders & third-party service providers

Key Features

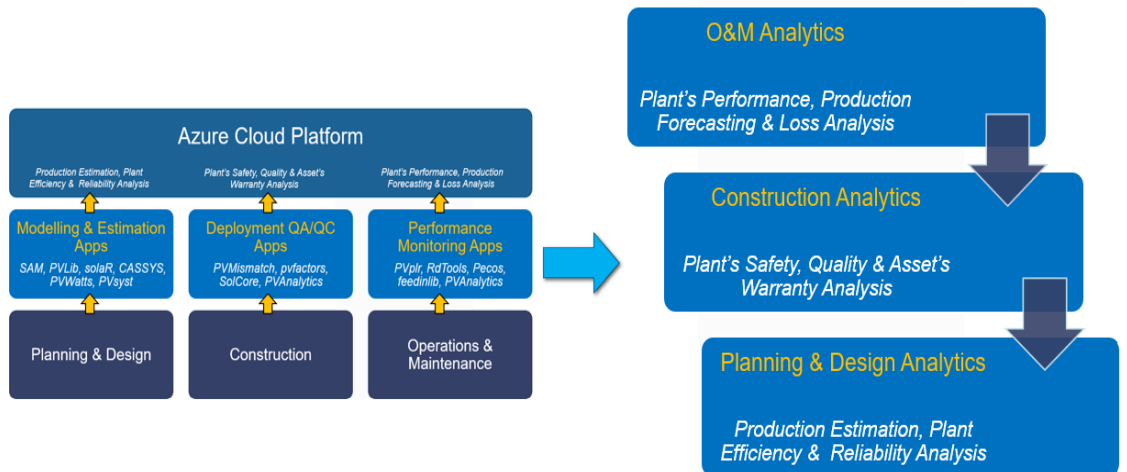
- ☑ *Performance* - Inverter Ranking, Inverter Profiling, Anomaly Insights
- ☑ *Forecasting* - Daily Yield, DC Power, What-If Models
- ☑ *Weather* - Temperature, Irradiance, Wind, Cloud
- ☑ *Losses* – DC to AC Power Loss, Clipping, Outlier Models on Power

PV Insights is a cloud-based, plug & play solar PV plant analytics solution that drives plant performance and targets to reduce O&M costs by using prediction & anomaly detection through its AI and ML models. PV Insights helps to drive digital transformation in the O&M phase for solar PV plants. The SaaS platform derives value by identifying asset losses & performance degradations using customized analytics workbench. Key outcomes from this platform are to -

- *Monitor and predict performance insights from plant assets*
- *Forecast daily yield, total yield, weather & power*
- *Estimate annual energy production (AEP) from long-term gross energy & expected future losses*

PV Insights API based modules support in continuous performance monitoring, trend analysis, forecasting, and predictive analytics to ensure maximum plant performance and reduce plant downtime. The platform has the capability to monitor patterns and trends in data to better predict and potentially optimize future maintenance and performance activities. O&M managers can augment their solar PV plant's maintenance in the areas of preventative, corrective, and condition-based maintenance.

<i>Preventative maintenance (PM)</i>	<i>Corrective maintenance (CM)</i>	<i>Condition-based maintenance (CBM)</i>
The predictive models support in preventative maintenance, to avoid the plant assets from malfunctioning, which can cause unnecessary losses in production	The root cause analysis (RCA) and asset profiling models helps in corrective maintenance required to be taken after plant's equipment has already experienced a breakdown	Our asset performance insights modules support in condition-based maintenance when plant assets and equipment's are monitored using real-time data



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Platform Availability

- ☑ Sharepoint Portal - Access to Daily Reports, QR Codes, O&M Insights, and Outlier Reports
- ☑ Power BI App - Run App as a Service from anywhere and Access to Power BI service for viewing the dashboards and reports
- ☑ Custom Website - Access to Daily Reports, QR Codes, O&M Insights, and Outlier Reports

PV Insights is part of a product portfolio of Renewable Insights

Sales & Marketing

US - Houston

Services & Solutions Delivery

US - Houston

India – Bhubaneswar | Bangalore

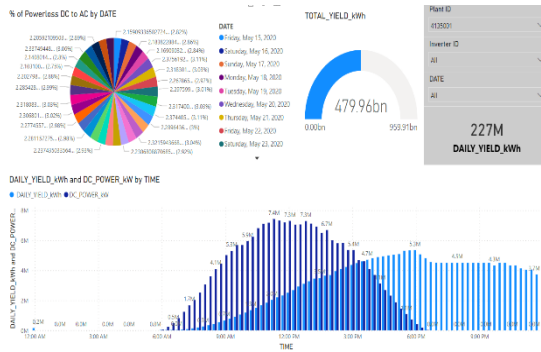
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Performance Analysis

PV Insights helps to monitor and predict performance insights from plant assets (e.g., Inverters, Combiner Boxes, MFM/Power Meters)

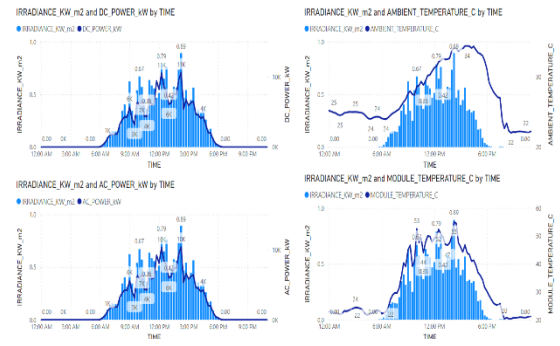
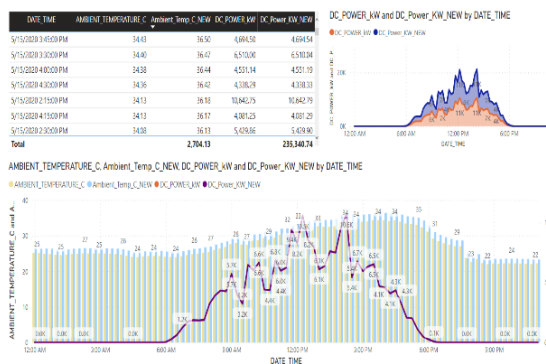
- ☑ Real-time dashboard shows performance predictions and allows confidence bound on the prediction
- ☑ Performance analytics reports on known threshold values for condition indicators that detects failure histories of similar assets
- ☑ Supports performance rankings, probability distributions and anomaly insights



Forecasting Models

PV Insights helps to forecast daily yield, total yield, weather, & power leveraging AI/ML models

- ☑ Supports models such as physical (Numerical Weather Predictions), statistical (Integrated Moving Averages), machine learning (Random Forest), & deep learning (Neural Networks)
- ☑ PV power and yield forecasts based on what-if models running on Weather parameters



What-If Scenarios

PV Insights helps to forecast AEP from long-term gross energy and expected future losses

- ☑ Processing of the revenue meter energy, loss estimates, & long-term resource data
- ☑ Regression relationship of energy resource to the long-term resource to calculate long-term gross energy
- ☑ Supports real-time KPI dashboards and energy production related visualizations