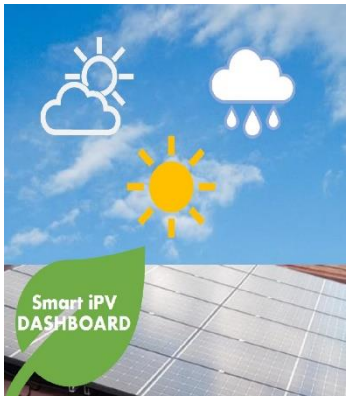


Smart iPV DASHBOARD

MONITOR & FORECAST SOLUTION FOR INDUSTRIAL PV POWER PLANTS

WEB APPLICATION

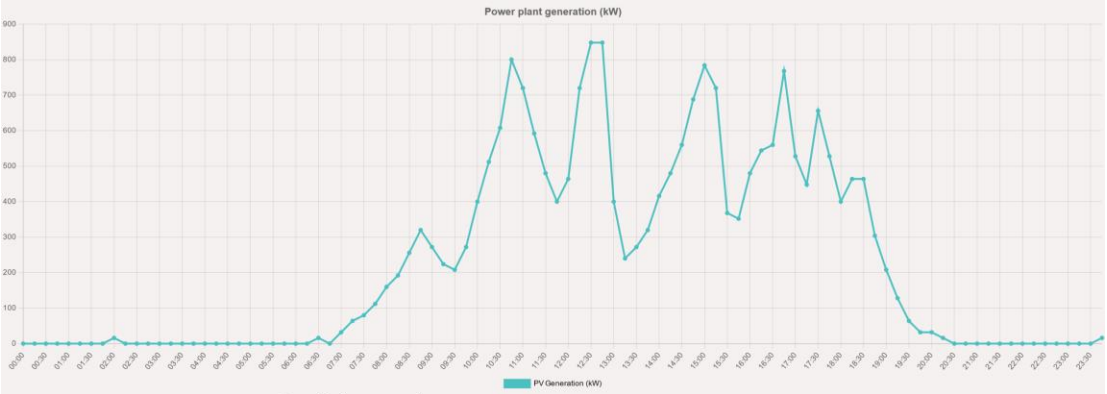
- Integrates data from inverters, smart meters, IBD, weather sources (local stations or sensors and web providers).
- Provides decision support tools for monitoring, forecast and analytics.
- Forecast PV power for 7 days at 15-minute.
- Fully customized web application.

ALL WE NEED FROM YOU TO CUSTOMIZE THE APP:

- PV power plant info: location (latitude, longitude), rated power
- Power plant generation (IBD data) for the last 2-3 months
- For more advanced monitoring and analysis: data from inverters or smart meters

POWER PLANT MONITORING

- Collect and process data from smart meters, inverters and IBD.
- Monitor PV generation to detect possible power loss, inverter and grid connection issues.
- KPI analytics: *yield*, *Energy Performance Index (EPI)*, *Power Performance Index (PPI)*, *Performance Ratio (PR)*, *Partial Power Loss Indicator (PPLI)*, *Partial Energy Loss Indicator (PELI)*



Detailed power plant output

Search | Hide pagination | Refresh | Toggle | Fullscreen | Columns | Export data

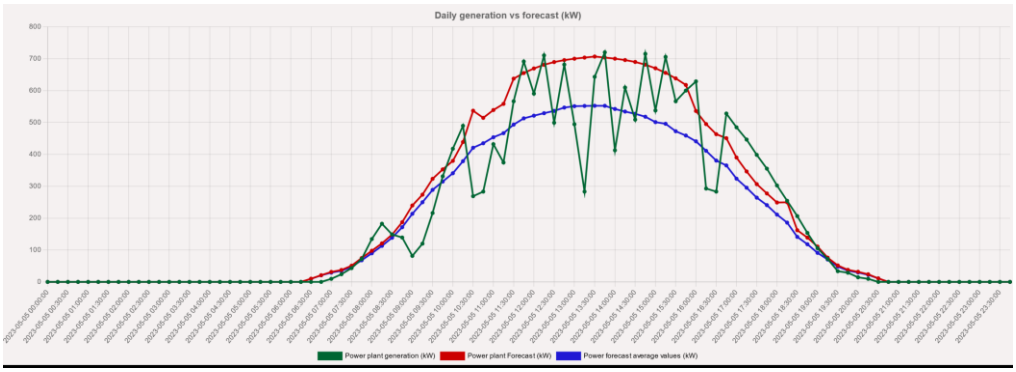
Timestamp	Generated power(kW)
2023-05-05 10:00:00	400.0
2023-05-05 10:15:00	512.0
2023-05-05 10:30:00	608.0
2023-05-05 10:45:00	800.0
2023-05-05 11:00:00	720.0
2023-05-05 11:15:00	592.0
2023-05-05 11:30:00	480.0
2023-05-05 11:45:00	400.0
2023-05-05 12:00:00	464.0
2023-05-05 12:15:00	720.0

Showing 41 to 50 of 96 rows 10 rows per page

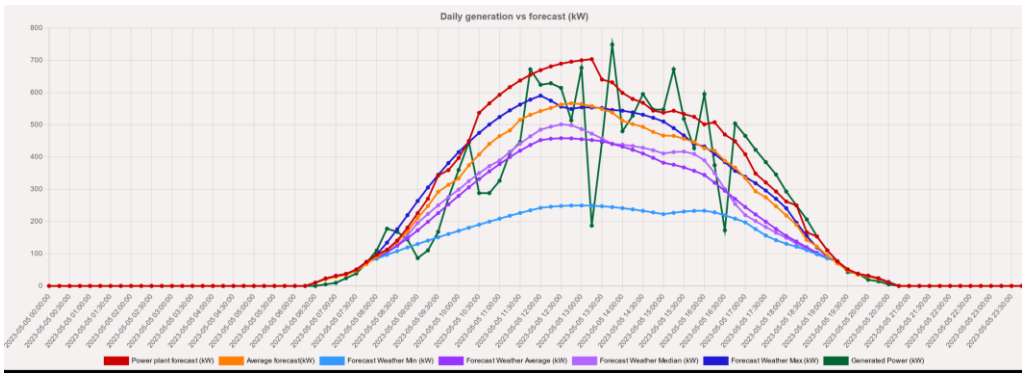
‹ 1 ... 4 5 6 ... 10 ›

POWER PLANT FORECAST

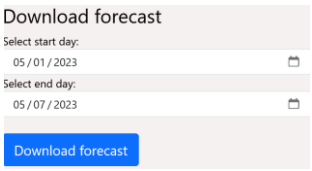
- Powerful Artificial Intelligence models that combine multiple weather sources to provide 15-minute forecast up to 7 days.

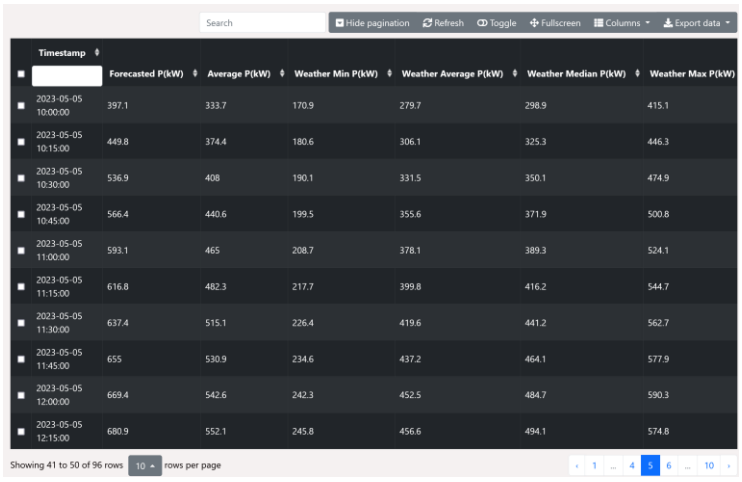


- Multiple forecast scenarios based on weather probability



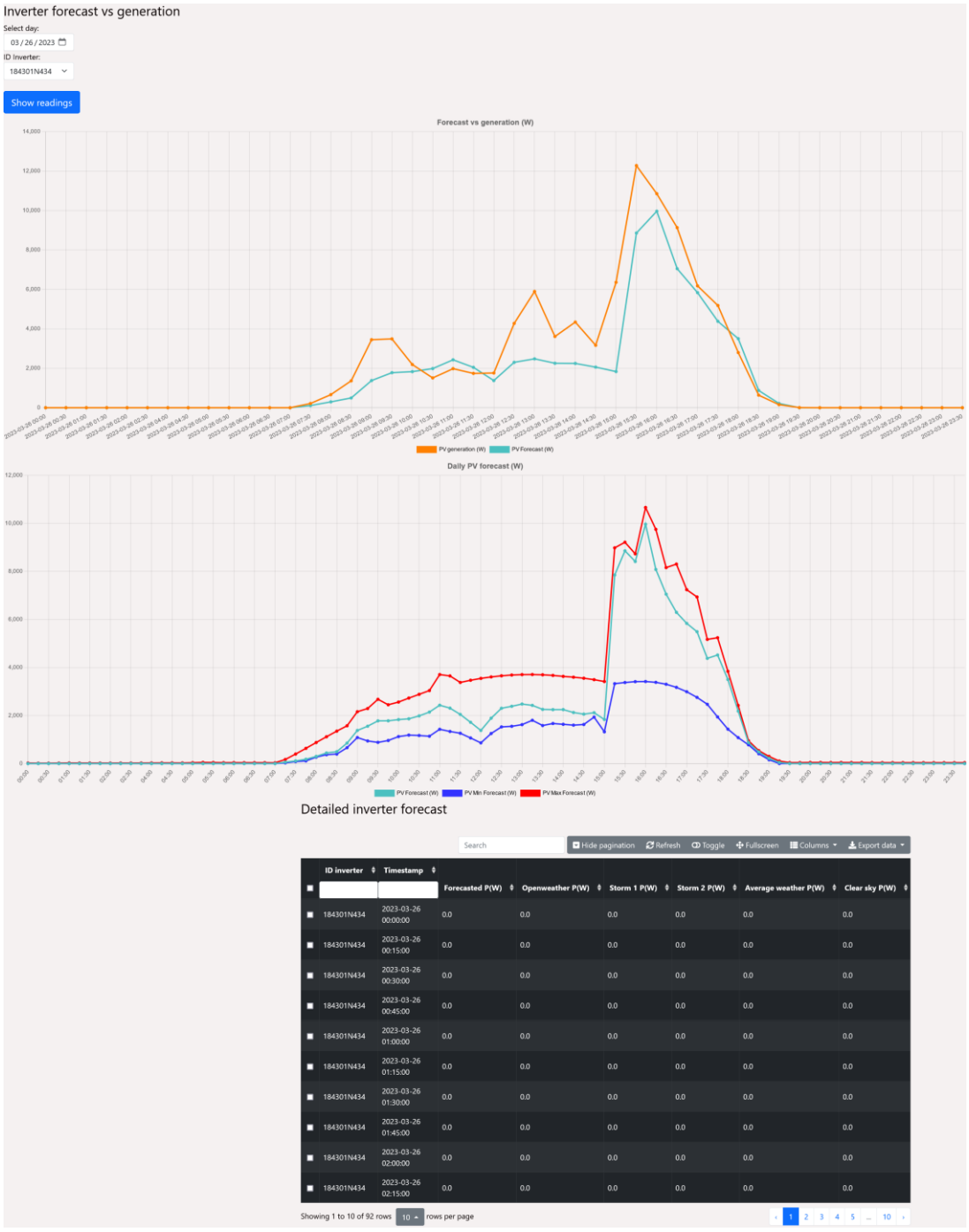
- View tabular data and export in .csv or excel for different time intervals.





INVERTERS MONITORING

- Monitor and forecast the PV power for each inverter.



WEATHER DATA

- Collect and integrate more than 10 weather sources related to the location of the PV power plant.
- Weather monitoring and forecast for different time intervals and weather stations.

OUR SOLUTION WAS PUBLISHED IN PRESTIGIOUS INTERNATIONAL JOURNALS:

- S.V. Oprea, Bara, A – **A Stacked Ensemble Forecast for Photovoltaic Power Plants combining Deterministic and Stochastic Methods**, Applied Soft Computing (Q1), Volume 147, Published: November 2023, https://doi.org/10.1016/j.asoc.2023.110781
- A Bâra, S-V Oprea, **Embedding the Weather Prediction Errors (WPE) into the PV Forecasting Method using Deep Learning**. Journal of Forecasting, Wiley, https://doi.org/10.1002/for.3064
- S-V Oprea, A Bâra, **On-grid and Off-grid Photovoltaic Systems Forecasting using a Hybrid Meta-learning Method**, Knowledge and Information Systems, https://doi.org/10.1007/s10115-023-02037-8
- S.V. Oprea, Bara, A - **Ultra-short-term forecasting for photovoltaic power plants and real-time key performance indicators analysis with big data solutions. Two case studies – PV Agigea and PV Giurgiu located in Romania**, Computers in Industry (Q1), Volume: 120, Published: September 2020. https://doi.org/10.1016/j.compind.2020.103230

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