Self-Forecasting

Solar Farms in the National Electricity Market (NEM)

Proa

What is Self-Forecasting?

In 2018, AEMO and ARENA initiated the "Market Participant 5-Minute Self Forecasting" program to explore the benefits of Self-Forecasting (SF) for the distribution network and power systems. Semi-Scheduled power generators that participate in this program must provide a 5-minute ahead SF for each dispatch interval, preferably more accurate than AWEFS or ASEFS.

Proa's Self-Forecasting service – the first approved by AEMO

"Following a thorough eight week assessment period, AEMO provided approval to Proa, and the 95 Megawatt (MW) Tailem Bend Solar Farm in South Australia, for self-forecasting generation. Proa is the first company to achieve this distinction."

AEMO Energy Live

Proa, an Australian solar forecasting and energy system modelling company, has delivered the first approved solar farm self-forecast for National Electricity Market (NEM) dispatch.

https://aemo.com.au/en/newsroom/news-updates/aemo-approves-first-solar-farm-forecast

Why is Self-Forecasting so important?

A Self-Forecasting service in place will substantially reduce the costs associated with Regulation FCAS (Frequency Control Ancillary Services). For each 28-day period, AEMO determines the performance for every generator in the NEM using the Causer Pays procedure. The performance factor assigned to a generator is relative to how much that generator hurts system frequency. Depending on different aspects (location, grid connection point, etc.) a 100 MW solar farm can be charged $0.5-1M AUD/year if a Self-Forecasting service is not provided or inaccurate.

Can Self-Forecasts for timeframes other than dispatch intervals be submitted?

No, AEMO only accepts dispatch SF, so 5 minutes ahead

How do Self-Forecasts work?

- ⚓ The Proa Forecasting System (PFS) intra-hour module is used to compute optimal solar forecasts based on live SCADA data, skycam and satellite imagery, and Numerical Weather Prediction (NWP) models.
- ⚓ Every minute a new forecast is generated, the MPF5 for the next Dispatch Interval (DI) is extracted and submitted to AEMO on the participant's behalf.
- ⚓ The market conditions and self-forecasts are closely monitored in real time.
- ⚓ Every day the forecasting performance relative to ASEFS is calculated to ensure the compliance of the service.
- ⚓ The Causer Pays performance factor is calculated for every 28-day period using an exact replication of the procedure. A daily estimate is also calculated to provide visibility on performance during the period.
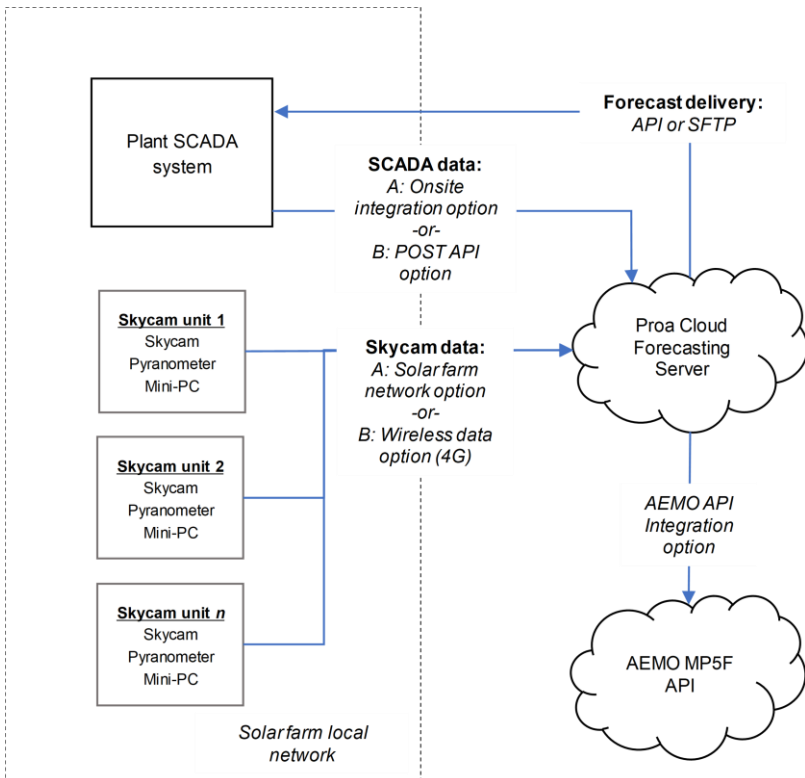
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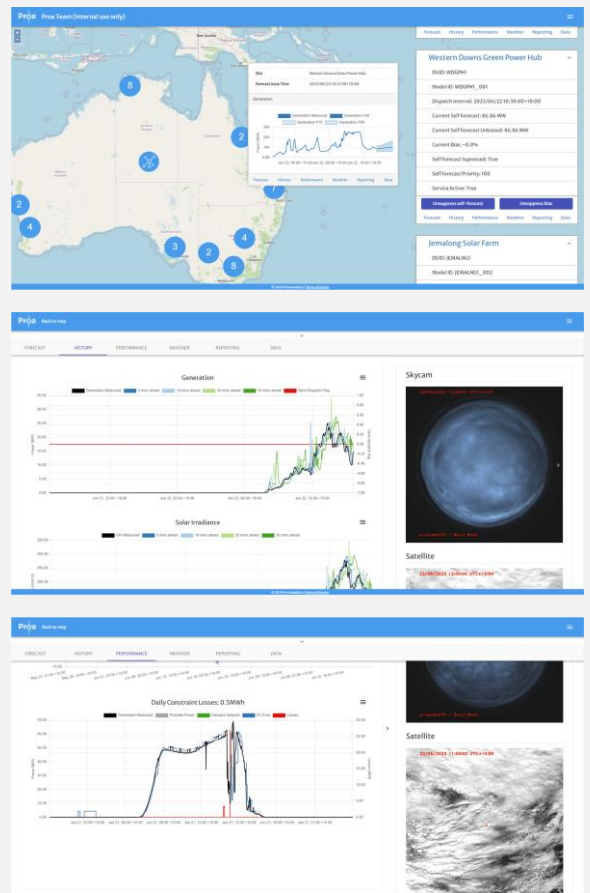Solar Farms in the National Electricity Market (NEM)

Proa's Self-Forecasting track-record

Since 2019 Proa has deployed more than 90 skycams for +3 GW of solar farms across the NEM region. More than 10 solar farms have changed their Self-Forecasting provider to Proa's top performance service.

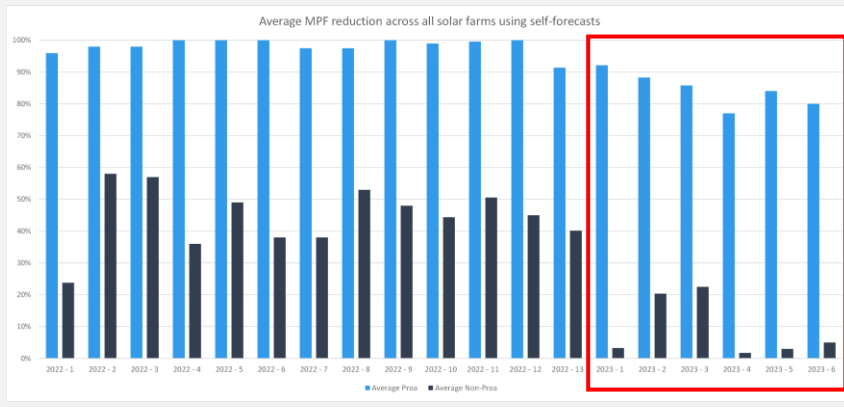## Proa's Data Integration Overview

Proa's Dashboard and Reporting

How are Proa Self-Forecasts Performing?

Average MPF (%) reduction across all solar farms using self-forecasts

On the 23rd of November 2022, AEMO updated their ASEFS and AWEFS dispatch forecast to enhanced models. The period contained within the rectangle borders corresponds to the timeframe after that enhancement.

The Self Forecast service provided by Proa leads in top performance and reliability making it the preferred provider among the asset owners and managers operating in NEM.

The solutions and smarts to help you navigate 5 minutes from now, tomorrow and years ahead