

Wind + Solar Resource Monitoring

Pre-feasibility and operational performance best practise

Paul Copestake
Head of International Markets

August 2020

Measuring Your Renewable Resource



Fulcrum3D Sodar –
wind monitoring



Fulcrum3D Met Station
- solar monitoring



Fulcrum3D CloudCAM
– solar forecasting



Wind Mast – traditional
wind monitoring

All-in-one Monitoring – wind & solar



- ▶ Wind and solar resource monitoring installed on over 180 projects
- ▶ Wind & Solar Forecasting
- ▶ Data Management – secure, reliable and easy to access
- ▶ Australian designed and manufactured
- ▶ In-house team of engineers, energy sector professionals, data scientists and technicians

Data Management



Some of our clients



Wind Monitoring



- ▶ Measuring at least 1 year of the wind data is critical
- ▶ Measurements can be carried out with Remote Sensing Device or mast
- ▶ 100m+ mast typically costs >\$200k and can take several months to install
- ▶ Fulcrum3D Sodar installed for ~\$70k and easily deployable in <6 weeks
- ▶ Fulcrum3D Sodar measure wind speeds up to 200m
- ▶ Includes current hub heights and more of the swept area of the turbine

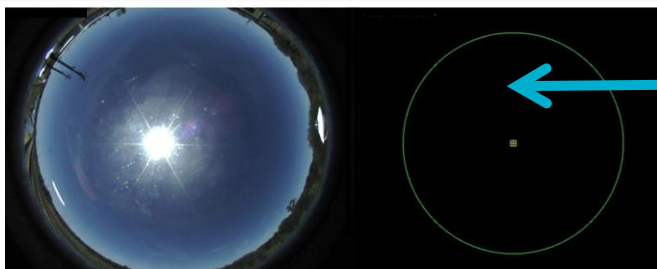
Solar Monitoring



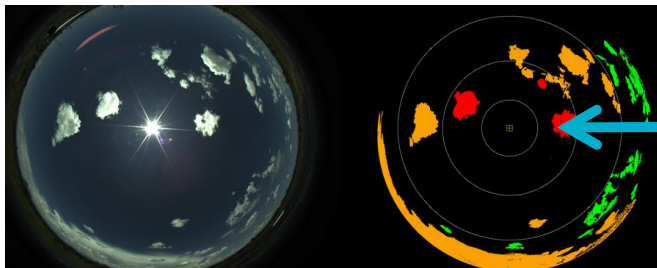
- ▶ Reduce uncertainty with on the ground irradiance measurements
- ▶ Albedo measurements are increasingly important with the advent of bifacial pv modules
- ▶ Met Station instrumentation design in line with that used on operational solar farms
- ▶ Easy to set-up and relocate from project to project
- ▶ Fulcrum3D provide maintenance and calibration services
- ▶ High resolution data available through Fulcrum3D FlightDECK



Wind & Solar Forecasting



Clear sky...
No cloud detected



Robust cloud...
Detected and identified

Site specific horizon mask removes impacts of local objects



 **Genex Power**

 **Fulcrum3D**
WIND SOLAR FUTURES

ARENA

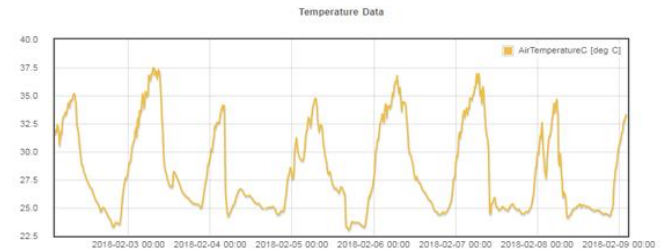
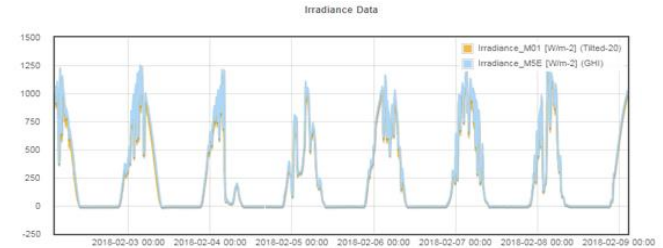
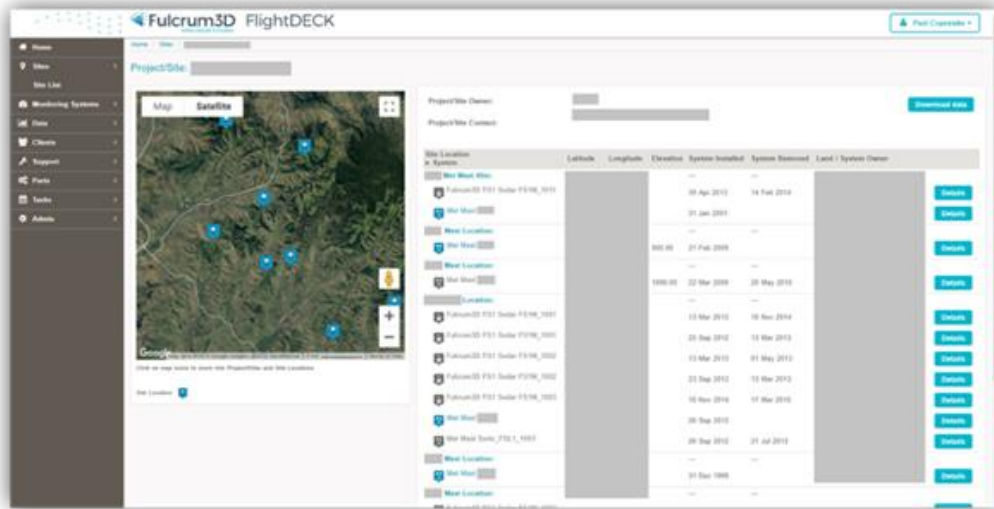


Australian Government
Australian Renewable
Energy Agency

- ▶ CloudCAM Nowcasting
- ▶ CloudCAM Forecasting – solar and power forecasting options
- ▶ Ramp rate control
- ▶ Can be integrated with a range of hardware and software



FlightDECK – Data Acquisition



Live data access on the fly

FlightDECK provides you with secure access to all data collected by Fulcrum3D monitoring systems

- Collects, stores and verifies client data for secure download over the web
- Allows users to manage their equipment locations and configurations
- Data can be made available via machine-scripted download



Thank you

Questions?

