



OPEN
CLIMATE
FIX

Solar Nowcasting with Satellite Imaginary using ML

21 May 2024



nationalgridESO

Google.org





About OCF



- Founded in 2019
- Non-profit product lab developing open-source AI solutions to decarbonise the electricity grid
- 40 years experience in AI & energy



GLOBAL TOP 100
OUTSTANDING PROJECT

AI solutions for Sustainable Development



Solution

Energy
Industry

Researchers



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Open Source Code and Datasets

- All code made available on [GitHub](#)
- Models and datasets on [Hugging Face](#) 🙌
 - 500 people have signed up and downloaded datasets on Hugging Face
 - URL: <https://huggingface.co/openclimatefix>
- EUMETSAT data on [Google Public Datasets](#)
 - 15 years (and dozens of TBs) of geostationary satellite data
 - Accessible in an easy-to-access format (Zarr) for machine applications
 - **16,000 downloads** of the EUMETSAT datasets

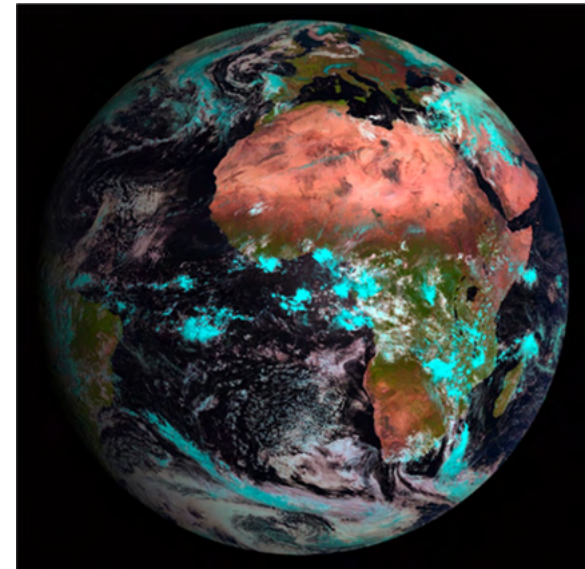
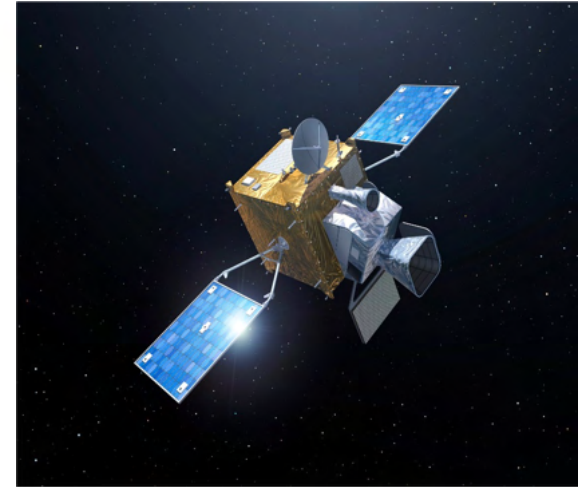


Image take from [EUMETSAT's website](#)

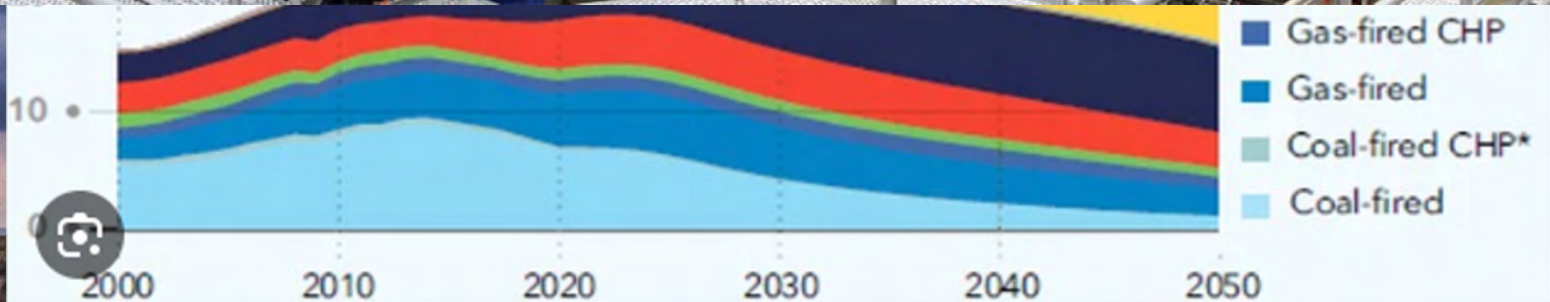
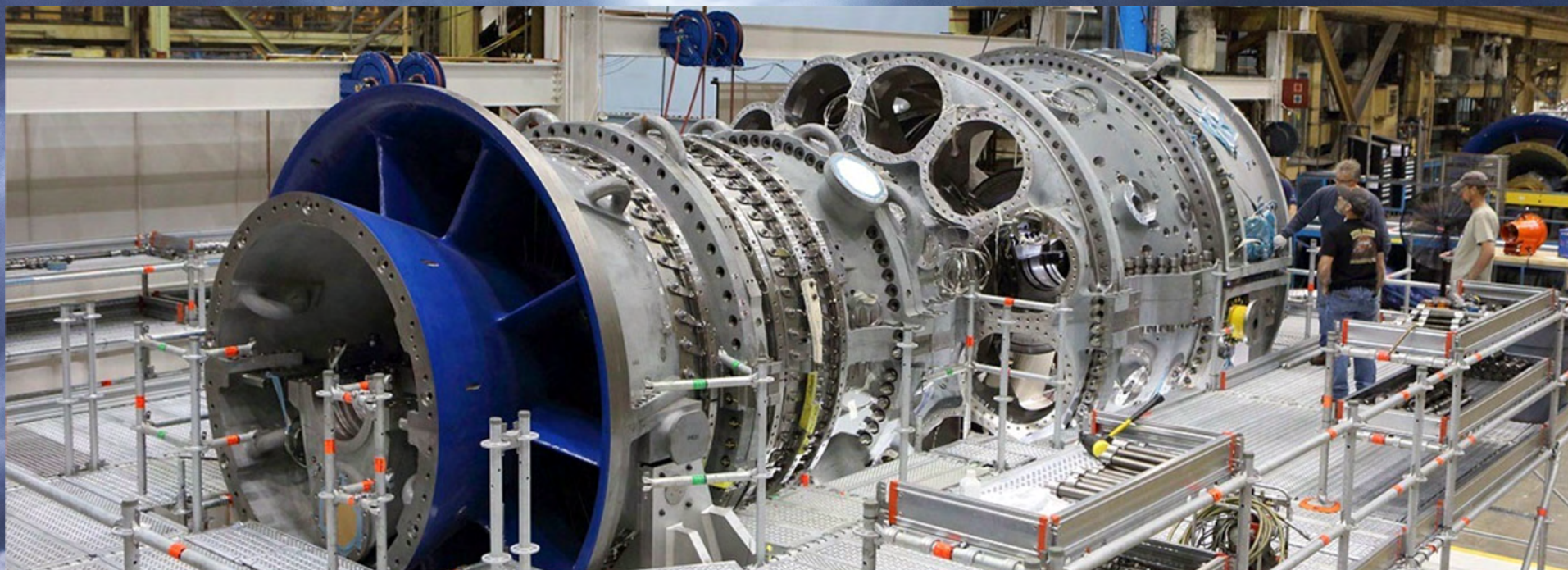


Photo by [Raychel Sanner](#) on [Unsplash](#)



Tech Guild > OCF > April 17th 2024

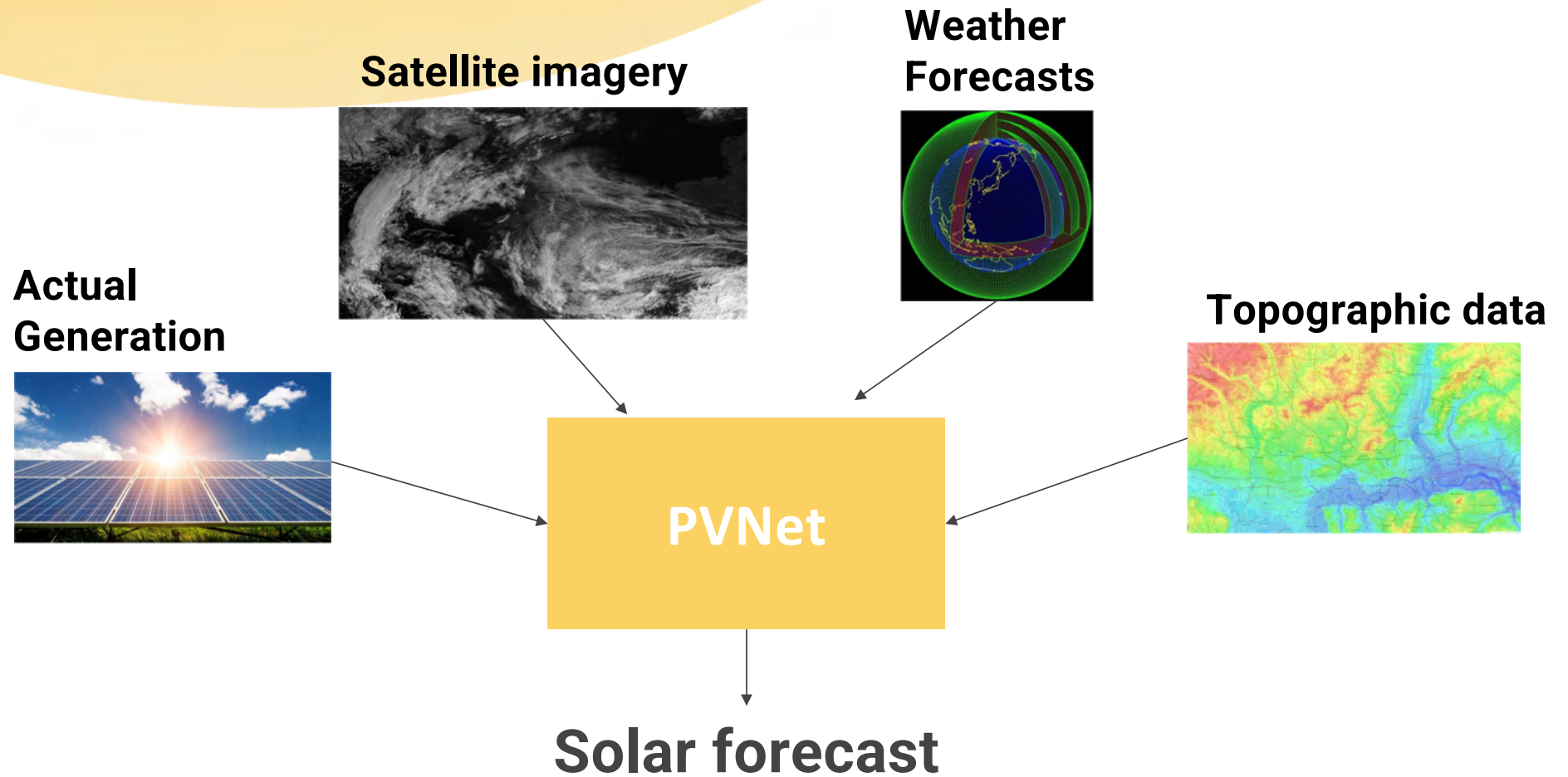
Solar Nowcasting UI

<https://app.quartz.solar/>





Model Input Data





National Grid ESO

- Quartz Solar Forecast used in the control room
- Used for real-time balancing decisions
- 5 mins to 36 hours ahead
- All open source

QUARTZ SOLAR powered by <><< PV Forecast Solar Sites Delta

All Sites 0.0 / 46.3 KW 14:00

Thursday, 1 February 2024, 14:00

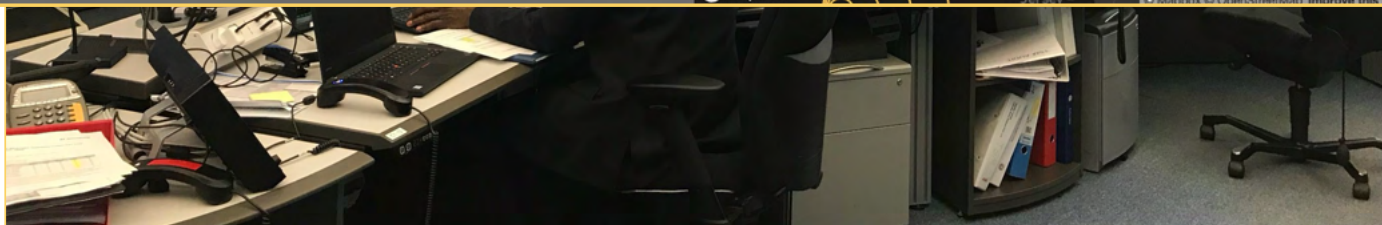
Aggregation Level: National, Region, Grid Supply Point, Site

Region: North Sea

Region	Capacity	KW
UKPN (East)	29%	15 / 51 kW
WPD (South West)	11%	4.6 / 41 kW
SPEN (SP Distribution)	6%	2.4 / 39 kW
SSE (Southern)	22%	6.2 / 28 kW
ENWL		13% / 28 kW
SSE	4%	1.0 / 27 kW

Legend: PV ACTUAL, OCF FORECAST, OCF FINAL FORECAST

mapbox





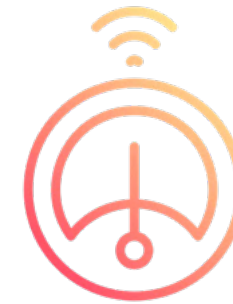
Sites Use Cases



Home Energy Management



EV Charging Optimisation



Home Energy Optimisation

Flexibility markets



Who actually uses this?

- Smart home operators
- Startups in this space
- Experts in battery optimisation
- Research and academia
- Hobbyists

<><< <https://github.com/openclimatefix/Open-Source-Quartz-Solar-Forecast>

Open Source Solar Forecast - Demo

```
pip install quartz-solar-forecast
```

Scan QR code to go to
the Quartz Solar Open
Source repo.

