



Managers have always been asked to provide reports, results tables and performance indicators.

However, in view of the sheer volume of data to be processed, managers increasingly need tools to help them process and sort the most relevant information.

In addition, operators do not always have the experience feedback necessary to optimally control the energy production of a large wind farm. In some cases, it is even difficult for them to know what consequences the point of operation of a wind turbine will have on the behaviour of the nearest wind turbines.

Here too, the analysis of optimum operating points is not easy without suitable tools.



## CONTEXT

## OBJECTIVE

Assist wind farm managers in analysing, operating and understanding operation data to improve operational management and energy production.



## BENEFITS

- Fast analysis of a large volume of data
- Wide catalogue of performance indicators
- Secure and distant access to dashboards over internet

HOW IT WORKS

### Energy production analysis

A dashboard dedicated to energy production analysis

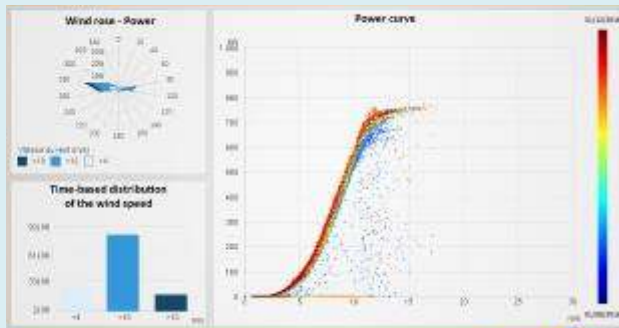
- ✓ Evolution of energy production over the period
- ✓ Distribution of electricity production
- ✓ Production efficiency
- ✓ Distribution in power class



### Power curves

Power curves dashboards

- ✓ Polar power radar indicator as a function of wind direction
- ✓ Distribution of wind speed over 3 classes
- ✓ Indicator for analysing the power curve over the period



### Losses analysis

Estimated Energy Production Losses Analysis Dashboard

- ✓ Comparison between energy produced and estimated energy production
- ✓ Performance indicator on estimated energy production losses
- ✓ Proportion of different machine states
- ✓ Power curve and operating point

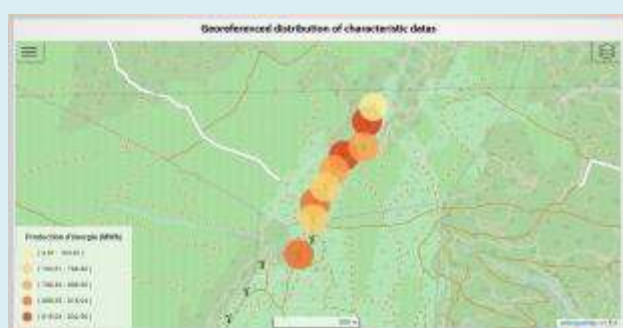


### Georeferenced distribution

Interactive geographical map with performance indicators for farm and machines

- ✓ Power generation - Power generation
- ✓ Estimated production losses
- ✓ Etc...

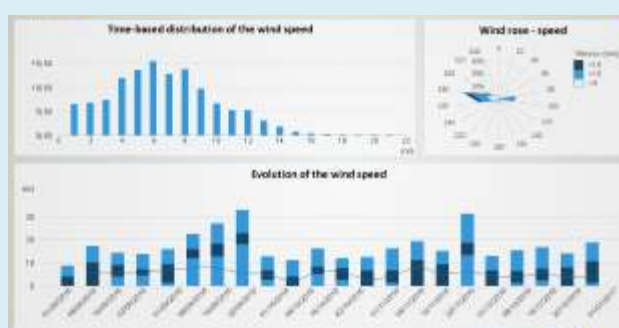
An interesting dashboard especially for a high density of machines



### Wind analysis

Dashboard dedicated to wind analysis and characterization

- ✓ Wind speed distribution
- ✓ Rose of the winds over the period
- ✓ Daily, weekly or monthly change in wind speed during the period



### Wind forecast

Dashboard with some wind forecast indicators over 4 days

- ✓ Wind speed distribution
- ✓ Wind direction distribution
- ✓ Daily change in mean, max and min wind speed over the next 4 days

