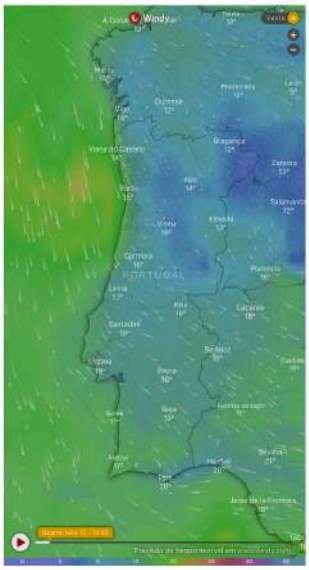
OUTAGE PREDICTION

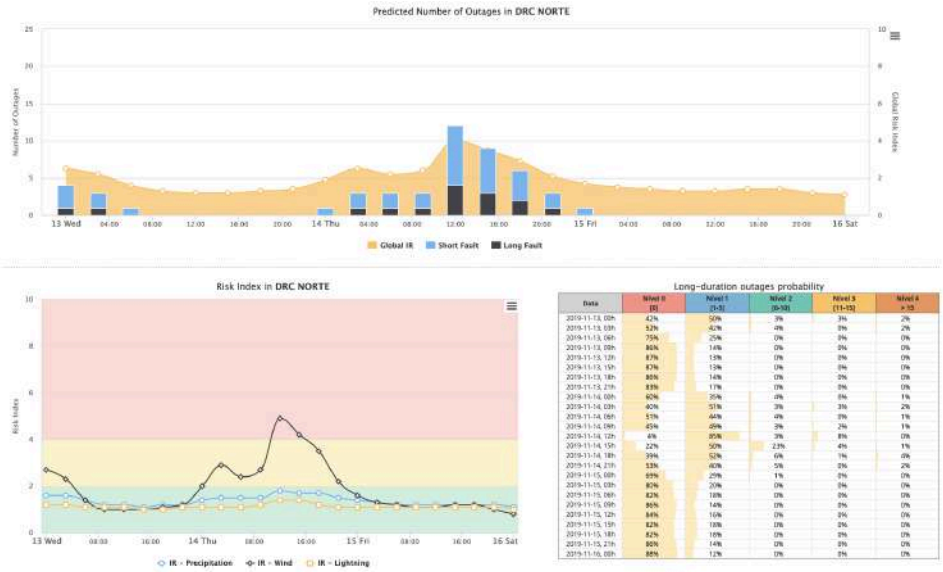
AI AS A PRODUCT

SMARTWATT INTELLIGENCE

WHAT?

Outage Forecast is a tool that delivers a **risk index of the probability of outage on the electrical grid**, identifying the number of faults and location.

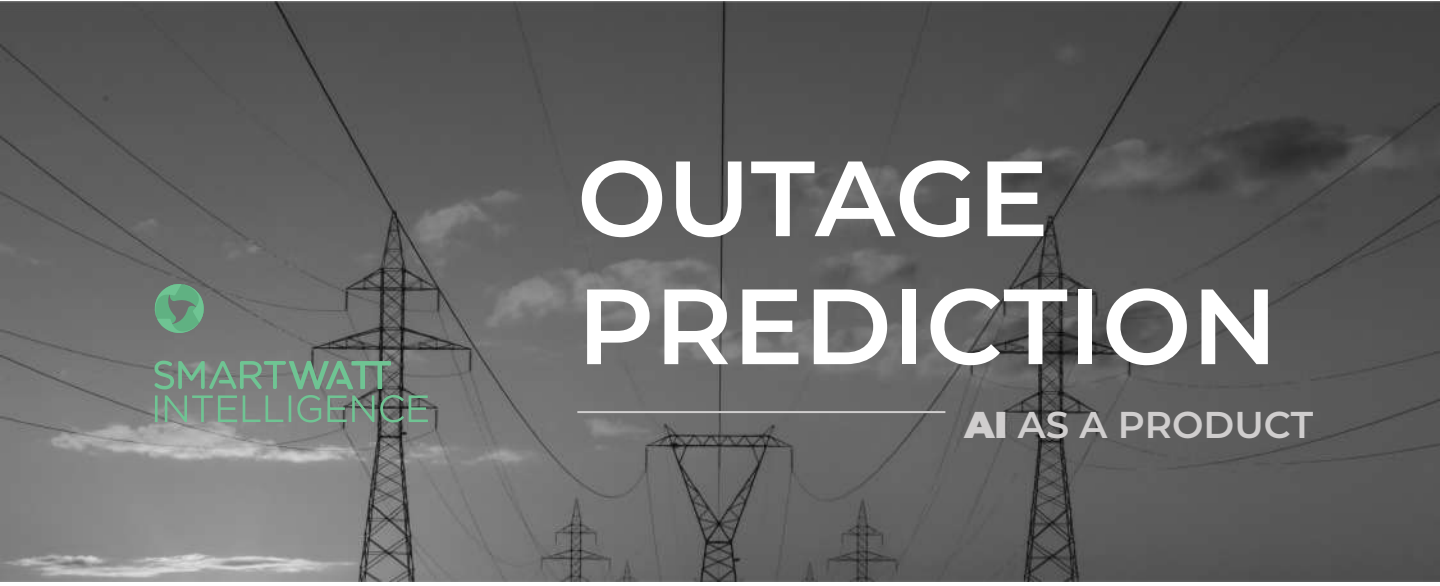




REAL OUTAGE FORECAST FOR 13-15 OF NOVEMBER, 2019, FOR NORTH OF PORTUGAL.

> *"Outage Forecast was one of the first successful applications of Machine Learning techniques to an EDP Distribuição's real challenge. The deployment of this project help us better understand the impact of weather conditions across all mainland Portuguese HV and MV grid, and by predicting the number of outages help us improving our work force management strategies and operational planning.*

ENG. BERNARDO ALMEIDA
EDP PROJECT MANAGER
EDP – Portuguese DSO



SMARTWATT INTELLIGENCE

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HOW?

Using Artificial Intelligence tools such as Machine and Deep Learning, allowed SMARTWATT to build an algorithm that performs the analysys of the following data sources: **historical weather data, orography of the area, topology of power lines and records of outages**. The grid was split from 100 to 100 meters and connected to weather forecast points.

The algorithm delivers the **risk index probability of eletrical fault**, into the client's system or into a web platform, divided in short and long faults, number of clients in fault, reposition time and other relevant insights to better management.

IS IT ACCURATE?

This tool is being used in Portugal for 1 year, with 80 000 km of power lines, and for **85%** of the time the forecast matched with what happened in real time. It is also relevant to mention that for **99%** of the time, when there was an outage, the real events happened in the forecasted level or above.

85%
OF ACCURACY

MAIN BENEFITS

- ✓ Prevent the effects of the extreme weather events of the grid;
- ✓ Emergency equipments allocation;
- ✓ Grid Reliability;
- ✓ Work force allocation.