

HYBRIDIZATION PROJECTS



INTRODUCTION

Nabla Wind Hub provides **hybridization impacts evaluations**, from the perspective of the "hosting" technology, the wind turbines, who need to justify the reinvestment.

CONCEPT

Co-location of PV, H2, or other clean generation sources is becoming a popular solution, which in Nabla Wind Hub we celebrate and salute, as we opine that the combination of mature renewable technologies, among them, or with new ones, is a **high efficiency scenario**, both in power production and environmental angles.



METHODOLOGY

The strategies of Nabla are based on:

- The Life Expectancy Analysis results.
- Wind farm production results.
- O&M track records to take into account possible non-structural components impact (such as generator, transformers etc.).
- Other aspects as technology used in each wind farm and its compatibility with future redevelopment/repowering strategies that can be more beneficial from an economical point of view.

Such strategies, which will be evaluated from loads (fatigue) point of view, can have a different impact on each asset, for example:

- Design a curtailment strategy for all the wind turbines, that in theory create a lower loads impact for most of the components.
- Stop completely different wind turbines in a time basis so all of them are in the long-term accumulating the same fatigue accumulation, trying to balance this in the smartest way the wind farm can offer.
- Others, depending the case.

Standard horizon of 40 year will be also assessed for this type of Assets.

OUTCOMES

Nabla delivers a **Hybridization Impact Evaluation report**, including the most profitable asset management strategy that seeks for the highest efficiency in terms of production and life expectancy.

REFERENCES

Nabla Wind Hub is an independent technology platform that delivers asset redevelopment projects for the wind industry worldwide. End-to-end & one-stop-shop partner for SPVs and Portfolios revaluation, through Life Extension, Performance Improvement and Maintenance Optimisation; based on state of the art technologies, such as top-accuracy aeroelastic models, in-house rerotoring components, and advanced monitoring solutions.



700 wind farms assessed



1200 wind turbines monitored



2000 blades installed



200 wind turbines guarded

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