nabralift®

self-erecting tower

The wind energy market is currently demanding extra-large tower solutions for the new generation of Wind Turbine Generators (WTGs) to exploit available locations with lower wind resource and maintain energy production and profitability of wind farms. As a consequence of this, towers with heights over 120m are now a reality in all relevant markets. However, none of the current tower alternatives provide a solution for all the challenges associated to these tower heights.

> Nabralift has been highlighted by MAKE Consulting as one of “the technologies capable of revolutionising the wind power industry“.

NABRAWIND

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Breaking XXL Tower Barriers

DRASTIC COST REDUCTION
Tower cost (also including foundation, logistics and installation) is reduced by a 15/30%.

CRANE-LESS INSTALLATION
Self Erecting System avoids using large-size cranes regardless of the final hub-height.

FAST INSTALLATION
A 150-150m tower can be installed in 3 days, even in high wind conditions.

EASY INTEGRATION
Nabralift is a very stiff tower than do not require relevant modifications in the existing WTG design.

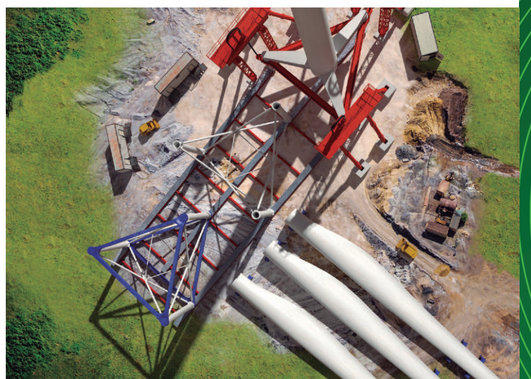
The Nabralift Tower

The Nabralift Tower in a metallic hybrid support structure formed by:

- **an upper tubular tower segment** larger than the blade, so that blade tip clearance is unaffected,
- **a straight frame tower segment** constituted by several modules of uniform height
- **a transition piece** between the upper tubular tower segment and the frame tower segment

The Self Erecting System

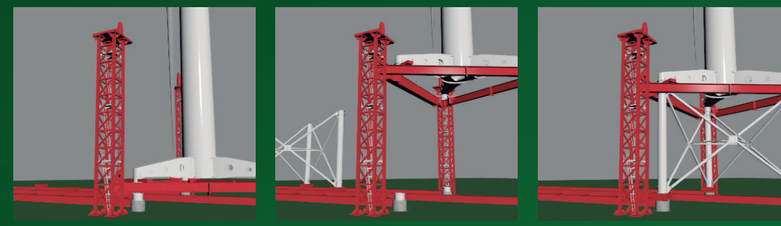
Nabralift integrates a Self-Erecting System (SES) that allows the installation of a full WTG (tower, nacelle, rotor) without using large-size cranes regardless of the final hub- height.
For this purpose, the SES is able to hoist the WTG in intermediate stages and install tower sections under it.



The Self-Erecting process

The tower transition is fixed on the foundation, and after the tubular tower section, the nacelle and rotor are installed with a small standard crane. Then, the Self Erecting System (SES) is installed on the tower foundation, and one erection cycle is repeated for every frame module: the SES jaws clamp the tower, which is detached from the foundation and elevated. Then, the frame module is guided and fixed to the foundation interface. The tower is then lowered and connected to the new frame module.

SES is designed to operate in high wind wind conditions (up to 15m/s), avoiding inoperative time periods in the WTG assembly. 3 frame modules can be installed in 3 days.



The prototype

Nabralift first prototype (160m hub height) is already in construction and will be installed during 2018 in Eslava (Spain). The tower prototype will be tested after erection to demonstrate 25 years of operative life. For this purpose, several millions of load cycles will be applied in an innovative fatigue tower test method. **Nabralift 160m height prototype will be the second highest wind turbine tower in the world.**