World’s first craneless bottom-fixed offshore turbine,
5 MW “ELISA” prototype

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Abstract

CONCRETE TELESOPIC TOWER configuration allowing for both self-transportation and fully onshore installation of the complete wind turbine. Making the most out of the required gravity based foundation, using it also as a temporary SELF BOUYANT PLATFORM with virtually no extra-cost.

Objectives

Significant cost reduction (>30%) as compared to Jackets or XXL Monopiles.

Complete independence of heavy-lift vessels: lower risk

Full in-shore assembly of the overall WTG on harbor: lower risk.

Well suited for industrialized construction and very intensive in local content

Direct scalability in terms of turbine size, water depth, construction infrastructure and installation means.

Methods

GENERAL DESCRIPTION
Cost effective and groundbreaking, the solution uses a gravity based foundation configured to act as a buoyant platform which integrates an autolift telescopic tower together with the complete wind turbine.

THE OPPORTUNITY
As each complete unit can be fully assembled onshore, conventionally towed to the site and completely installed with no need for costly and scarce heavy-lift vessels, the technology overcomes a critical bottleneck for the offshore wind industry.

The technology concentrates all assembly works on controlled harbor areas, working with limited drafts (<6m) and heights (<50m), and profits from the capabilities of industrialized precast concrete for the low-cost manufacturing of repetitive units with enhanced robustness and durability.

Conclusions

1st WORLD’S BOTTOM-FIXED OFFSHORE WIND TURBINE INSTALLED WITHOUT HEAVY-LIFT CRANES/VESSELS
TO BE FULLY OPERATIVE IN Q2 2018 (5 MW WTG)

References

www.elisaoffshore.com
www.esteyco.com