

PELASTAR



THE GLOSTEN ASSOCIATES

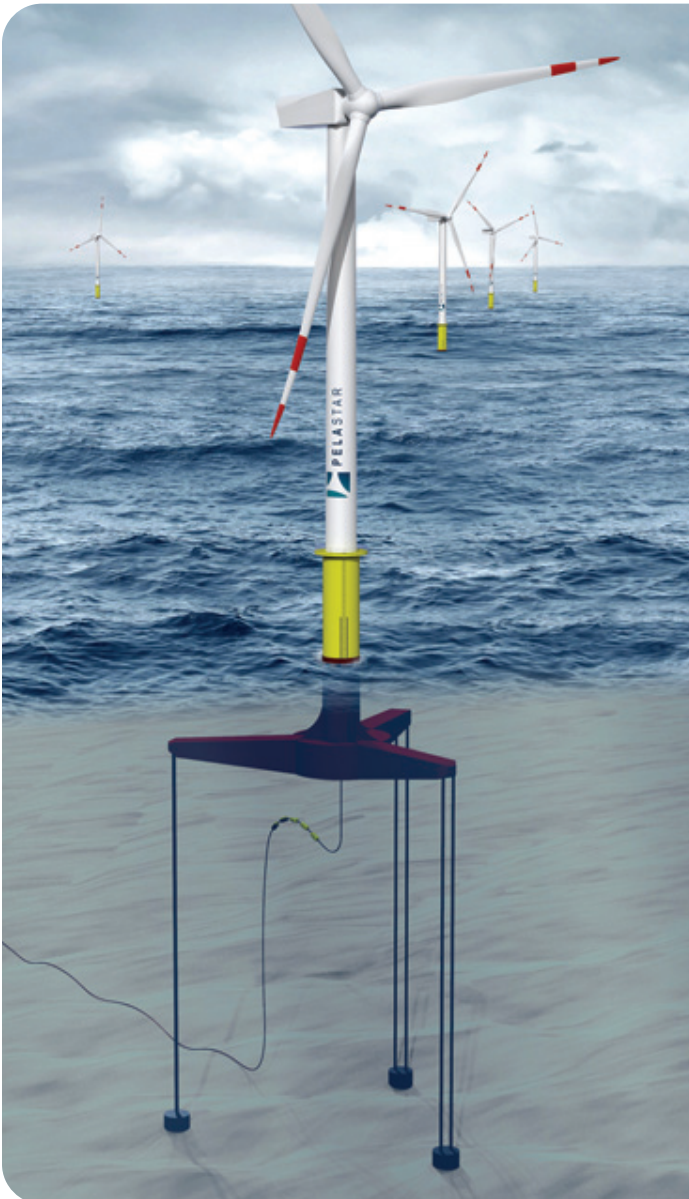
Representing the next generation of deep-sea wind turbine design, the Glostén *PelaStar* integrates many mature technologies including tension-leg platforms (TLPs), offshore utility-scale wind turbines, permanent mooring systems, and high-vertical-load anchors. Together, they form an integrated, lowest cost solution to the challenges facing deepwater offshore wind farms.

PelaStar Offers:

- Stable, minimal-motion platform suitable for current and future turbine designs
- Complete quayside assembly, enabling economical wind farm developments in distant, deep offshore and previously “un-developable” areas
- Deep water capacity and cost-competitive with bottom-fixed turbine foundations in water depths 60 meters and greater
- Steel structure designed for typical shipyard fabrication methods
- Class Rules design with a 25-year – or longer – design and fatigue life
- Basic design that adapts to a wide range of turbine sizes, water depths, and environmental conditions
- Mooring system using steel pipe, strand, or synthetic tendons with high vertical load anchors
- High production assembly design with a minimum cost installation methodology

Each *PelaStar* turbine foundation will have a fully-erected and pre-commissioned wind turbine installed while floating at its staging site. The assembled turbine will be towed to the site and installed, using an installation barge, eliminating costly jackup crane vessels.

Patent Pending





***PelaStar* is comprised of several main components, as shown below.**

- Upper hull is rolled steel with internal ring frames
- Lower hull is subdivided with watertight bulkheads
- Tendon arms are flat plate with internal stiffeners running the length of the arms, and are subdivided with vertical watertight bulkheads.



Underwater View

Glosten Design Tools:

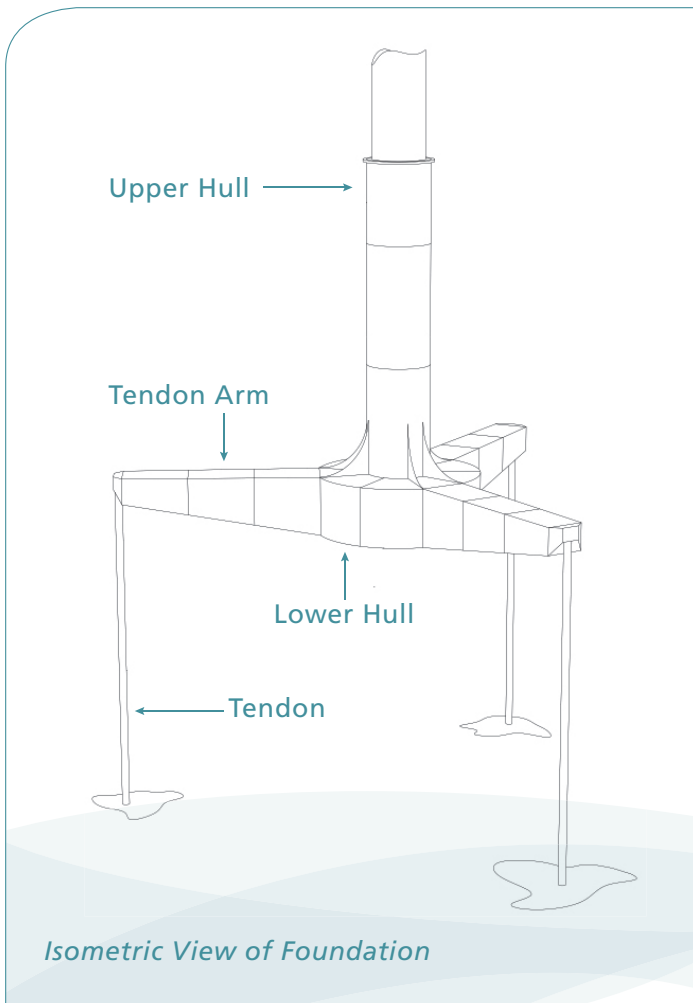
- In-house optimization
- Fully coupled, 6-DOF, non-linear, time domain analysis for parked conditions
- Aero-hydro-servo-elastic, 6-DOF, time domain for operating conditions

Acknowledgement

The Glosten *PelaStar* was conceived by Glosten as the Tension Leg Turbine Platform (TLTP) in 2006. In 2009 the TLTP was adapted for exposed North Sea conditions, specifically the UK Crown Estate's "Round 3 Areas." In July 2009, the TLTP was selected for fully-funded feasibility development by the Carbon Trust Offshore Wind Accelerator Program.

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