Selected by NEDO for 'Development of next-generation technologies to promote the introduction of floating offshore wind power generation'

～Technology Development for Full Concrete Compact Semi-Submersible Floater and Deep Water Mooring System～

11th September, 2024
Tokyo Electric Power Company Holdings, Inc.
Hokkaido Electric Power Co., Inc.
TAISEI Corporation

We, Tokyo Electric Power Company Holdings, Inc., Hokkaido Electric Power Co., Inc., and TAISEI Corporation, hereby announce that we have jointly submitted the proposal of 'Technology Development for Full Concrete Semi-Submersible Floater and Deep Water Mooring System' for 'Development of Next-Generation Technology Contributing to Promote the Introduction of Floating Offshore Wind Power Energy' called by New Energy and Industrial Technology Development Organization (NEDO) and the proposal was selected at this time.

The Japanese government aims to maximize the deployment of renewable energies to achieve carbon neutrality by 2050, and has set a high target for offshore wind power generation to 'form projects of 30 GW to 45 GW by 2040.' Moreover, 'the Bill for the Act for Partially Amending the Act on Promoting the Utilization of Sea Areas for the Development of Marine Renewable Energy Power Generation Facilities' was approved in a Cabinet meeting on 12th March 2024, which includes the establishment of a system to permit the installation of offshore wind power generation facilities in the Exclusive Economic Zones of Japan. In response to these movements, it is considered that the development of next-generation technologies for the large-scale deployment of floating offshore wind power generation in deep waters will increase in importance ever.

In this project, a full concrete compact semi-submersible floater※1 and a taut mooring system※2 applicable to deep water will be developed as next-generation technologies for lower cost and strengthening the domestic supply chain.

In comparison to conventional steel floaters, concrete, the main material of concrete floaters, can greatly contribute to the stability of material supply and the local economy through local production and local consumption, on the other hand, there are challenges associated with the evaluation method of cracks and watertightness, and also the manufacturing methods for efficient production.

While the taut mooring system occupies a smaller area in deep waters and can reduce costs by using synthetic fiber ropes, which are cheaper per unit length than steel chains,

there are safety issues against seismic motion and associated tension.

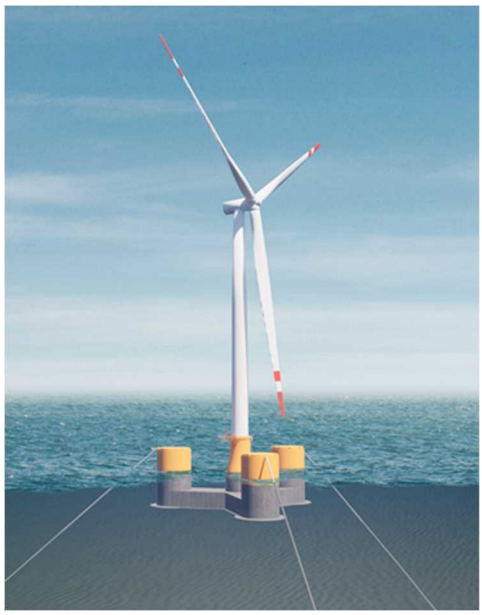
We will jointly conduct not only various studies and evaluations to resolve these technical issues, but also surveys on community acceptance to verify technology development in potential sea areas where floating offshore wind turbines may be installed in the future.

We will contribute to the realization of carbon-neutral society by leveraging respective knowledge and working together for this project.

※1…Full Concrete Compact Semi-submersible Floater

Semi-submersible concrete floater which mainly consists of concrete. Compared to conventional concrete floaters, it will achieve approximately 30% weight reduction.

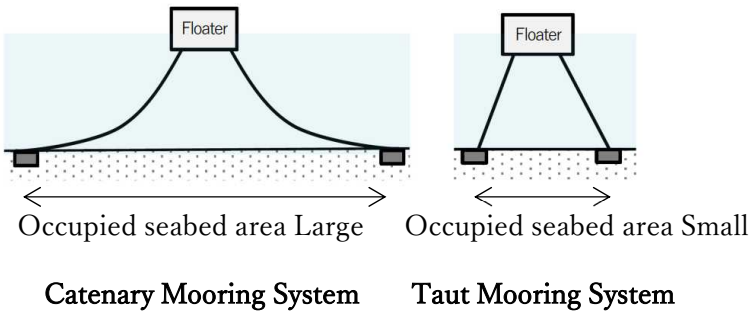
(Ref) Image of Full Concrete Compact Semi-Submersible Floater



※2…Taut Mooring System

Mooring system using synthetic fiber ropes for most of the mooring lines. It requires a smaller occupied seabed area than conventional catenary mooring system.

(Ref) Image of Taut Mooring System



<Outline of the Project>

Adopted theme	Technology Development for Full Concrete Compact Semi-Submersible Floater and Deep Water Mooring System
Period	September, 2024 ~March, 2026 (Plan)
Major Roles of Participating Companies	【Tokyo Electric Power Company Holdings, Inc.】 ● Development of Lower Cost Mooring System applicable for Deep Waters 【Hokkaido Electric Power Co., Inc.】 ● Survey on Community Acceptance 【TAISEI Corporation】 ● Technology Development to Resolve Design Challenges of Concrete Floater ● Technology Development of Rapid Mass Production of Concrete Floater ● Verification of Advantages of Concrete Floaters

End of release