June 22, 2015

Marubeni Corporation
The University of Tokyo
Mitsubishi Corporation
Mitsubishi Heavy Industries, Ltd.
Japan Marine United Corporation
Mitsui Engineering & Shipbuilding Co., Ltd.
Nippon Steel & Sumitomo Metal Corporation
Hitachi, Ltd.
Furukawa Electric Co., Ltd.
Shimizu Corporation
Mizuho Information & Research Institute, Inc.

Fukushima Experimental Offshore Floating Wind Farm Project
Second Phase Update

A consortium comprised of Marubeni (project integrator), the University of Tokyo (technical advisor), Mitsubishi, Mitsubishi Heavy Industries, Japan Marine United, Mitsui Engineering & Shipbuilding, Nippon Steel & Sumitomo Metal, Hitachi, Furukawa Electric, Shimizu, and Mizuho Information & Research, has been participating in an experimental offshore floating wind farm project sponsored by the Ministry of Economy, Trade and Industry since March 2012. Assembly works of the 7MW oil pressure drive-type wind turbine, which is the world's largest scale one, on the three-column semi-sub floater at Onahama port has been successfully completed and delivery of the floater to testing area is going to start shortly as part of the second term.

1. Outline of construction works in the second term:
   - Assembly and setting of 7MW oil pressure drive-type and 5MW downwind-type floating wind turbines, delivery of the facilities to the testing area, and connection to the undersea cable.
   - Operation & Maintenance of the facilities
   - Data acquisition and analysis.

2. Work progress to date:

   <7MW oil pressure drive-type floating wind turbine>
   - Preceding works i.e. installation of chains, anchors and undersea cables at the testing area has been successfully completed.
   - Delivery of the three-column semi-sub floater from Nagasaki to Onahama port has been successfully completed.
   - Installation of 7MW oil pressure drive-type floating wind turbine on the floater at Onahama port has been successfully completed.

<5MW downwind-type floating wind turbine >

- Procurement of chains and anchors, and production of high-voltage riser cable have been successfully completed.
- Parts procurement and construction of 5MW downwind-type floating wind turbine is in progress.

3. Next Step

The following activities need to be completed to start operation of the power facilities:

※ Schedule will be changed depending on the meteorological and sea conditions

7MW oil pressure drive-type floating wind turbine	
June 30 –	Delivery of the facility from Onahama and its mooring operation in the testing area
Mid-September –	Electric work and Commissioning
Mid-December –	Start of Demonstration Operation
5MW downwind-type floating wind turbine	
Late July	Installation of chains and anchors at the testing area

Facility specifications

Facility Name	Scale	Wind Turbine Form	Floating Form	Project Term
Floating Substation “Fukushima Kizuna”	25MVA 66kV	Substation (Hitachi)	Advanced Spar (Japan Marine United)	1st
Floating Wind Turbine “Fukushima Mirai”	2MW	Downwind-Type (Hitachi)	4 Column Semi-Sub (Mitsui Shipyard)	1st
Large Floating Wind Turbine “Fukushima Shimpuu”	7MW	Oil Pressure Drive-Type (Mitsubishi Heavy Industry)	3 Column Semi-Sub (Mitsubishi Heavy Industry)	2nd
Large Floating Wind Turbine “Fukushima Hamakaze”	5MW	Downwind-Type (Hitachi)	Advanced Spar (Japan Marine United)	2nd

7MW Oil Pressure Drive-Type Floating Wind Turbine “Fukushima Shimpuu”