Research and development for advanced floating offshore wind project

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New Energy and Industrial Technology Development Organization
### Research and Development of Offshore Wind Power Generation Technology

<table>
<thead>
<tr>
<th>Year</th>
<th>Feasibility study</th>
<th>Demonstration</th>
<th>Research and Development</th>
<th>Installation support</th>
<th>Peripheral technology</th>
</tr>
</thead>
<tbody>
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<td>2008</td>
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<td>Demonstration Research of Offshore Wind Measurement System</td>
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<td>2010</td>
<td></td>
<td>Demonstration Research of Offshore Wind Power Generation System</td>
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<td>Development Support for Bottom-fixed Offshore wind farm</td>
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<td>2011</td>
<td></td>
<td>Research and Development of Large-scale Wind Turbine</td>
<td>Development Support for Bottom-fixed Offshore wind farm</td>
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<td>2012</td>
<td></td>
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<td>Floating LIDAR in Nearshore</td>
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<td>2013</td>
<td></td>
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<td>Offshore Wind Map</td>
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<td>2014</td>
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<td>2017</td>
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The installation of offshore wind power in Japan

**Kitakyushu (bottom-fixed) NEDO**

2MW offshore wind turbine and offshore meteorological mast were installed and operation started May 2013. Investigate the characteristics of meteorological and oceanographic in the Sea of Japan and summarize offshore wind systems in Japan for construction, maintenance/operation and environmental impact assessment.

**Fukushima (floating) METI**

2MW floating offshore wind turbine and floating substation were installed and operation started November 2014. 7MW floating offshore wind turbine was installed FY 2015. 5MW floating offshore wind turbine will be installed FY 2016.

**Goto (floating) MOE**

2MW floating offshore wind turbine and floating substation were installed and operation started October 2013.

**Choshi (bottom-fixed) NEDO**

2.4MW offshore wind turbine and offshore meteorological mast were installed and operation started January 2013. Investigate the characteristics of meteorological and oceanographic in the Pacific Ocean and verification of numerical simulations.
The type of offshore wind

Gravity foundation at Choshi in Chiba Prefecture

Jacket and gravity hybrid foundation at Kitakyushu in Fukuoka Prefecture

Demonstration of advanced floating offshore wind generation
- Water depth is from 50m to 100m
- Weight reduction of floating Offshore wind turbine system
To achieve cost reduction

Fukushima floating offshore wind farm demonstration project
from left, 2MW compact semi-sub, 7MW V-shape semi-sub and 5MW advanced spar

Spar type of floating offshore wind at Kabashima Island in Nagasaki Prefecture

[NEOD Project] [NEOD Project] [METI Project] [MOE Project]
Advanced floating offshore wind project status

Demonstration

Component technology

Research & Development

Technology appraisal

Demonstration

Feedback of R&D needs

Technology Readiness Level

Needs based R&D

Science led, speculative R&D

Engage with innovators to address key challenges

Applied R&D to address issues

Shortlist and appraise technology to evaluate benefits and risk

Demonstration of technology

Technology Push...

...Market Pull
Thank you for your attention

PORTCATE ONE (New Crew Transfer Vessel (CTV) at Choshi from January 2016)