Introduction of Japan’s Offshore Wind Policy

March 2022

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1. The 6th Energy Strategic Plan - Points of outlook for energy supply and demand in FY2030 -

- The 6th Energy Strategic Plan was approved by the Cabinet in October 2021, raising the percentage of renewable energy to 36-38% by FY2030. The share of wind power is 5% of that total.

<table>
<thead>
<tr>
<th>Energy efficiency improvement</th>
<th>(2019 ⇒ previous energy mix)</th>
<th>Energy mix in FY2030 (ambitious outlook)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final energy consumption (without energy conservation)</td>
<td>(350 million kl ⇒ 377 million kl)</td>
<td>350 million kl</td>
</tr>
<tr>
<td>Power generation mix</td>
<td>Renewable energy</td>
<td>62 million kl</td>
</tr>
<tr>
<td>Electricity generated</td>
<td>1,065 TWh ⇒ Approx. 934 TWh</td>
<td></td>
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<tr>
<td>Hydrogen/Amonia</td>
<td>(0% ⇒ 0%)</td>
<td></td>
</tr>
<tr>
<td>Nuclear</td>
<td>(6% ⇒ 20-22%)</td>
<td></td>
</tr>
<tr>
<td>LNG</td>
<td>(37% ⇒ 27%)</td>
<td></td>
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<tr>
<td>Coal</td>
<td>(32% ⇒ 26%)</td>
<td></td>
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<tr>
<td>Oil, etc.</td>
<td>(7% ⇒ 3%)</td>
<td></td>
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<tr>
<td>( + non-energy related gases/sinks )</td>
<td></td>
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<tr>
<td>GHG reduction rate</td>
<td>(14% ⇒ 26%)</td>
<td>46%</td>
</tr>
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Continuing strenuous efforts in its challenge to meet the lofty goal of cutting its emission by 50%
2. Measures to introduce offshore wind power

- Japan’s Vision for Offshore Wind Power Industry (December 2020)
  - Target by Government
    - Introduction Target; **10GW by 2030, 30-45GW by 2040**
  - Targets by Industry
    - Cost reduction target; 8-9 yen/kwh by 2030-2035
  - Supports to build reliable supply chain and R&D

- Current Status of Offshore Wind Promotion Act (April 2019~)
  - Round 1 auctions are finalized (Mitsubishi won 1.7GW)
  - Round 2 auction (Akita) is in progress
  - Many pipelines; 7 promising zones, 10 preparation zones
The results for 3 areas of Round1 auctions were published in December 2021.

(1) Noshiro City • Mitane Town • Oga City, Akita Pref.
Winner: Mitsubishi etc. (0.48GW)
FIT price: 13.26yen/kWh

(2) Yurihonjo City (North • South), Akita Pref.
Winner: Mitsubishi etc. (0.82GW)
FIT price: 11.99yen/kWh

(3) Choshi City, Chiba Pref.
Winner: Mitsubishi etc. (0.4GW)
FIT price: 16.49yen/kWh
4. Current Status

Sea area offshore the Gan-u and Minamishiribeshi regions, Hokkaido Pref.

Sea area offshore Shimamaki, Hokkaido Pref.

Sea area offshore Hiyama, Hokkaido Pref.

Sea area offshore Matsumae, Hokkaido Pref.

Sea of Japan offshore Aomori Pref. (northern side of the Pref.)

Sea of Japan offshore Aomori Pref. (southern side of the Pref.)

Sea area offshore Happo Town and Noshiro City, Akita Pref.

Sea area offshore Noshiro City・Mitane Town・Oga City, Akita Pref.

Sea area offshore Katagami City and Akita City, Akita Pref.

Sea area offshore Yurihonjo City (North・South), Akita Pref.

Sea area offshore Yuza Town, Yamagata Pref.

Sea area offshore Murakami City and Tainai City, Niigata Pref.

Sea area offshore Awara City, Fukui Pref.

Sea area offshore Goto City, Nagasaki Pref.

Sea area offshore Enoshima, Enoshima City, Kanagawa Pref.

Sea area offshore Isumi City, Chiba Pref.

Sea area offshore Choshi City, Chiba Pref.

Sea area offshore Isumi City, Chiba Pref.

Sea area offshore Karatsu City, Saga Pref.

Sea area offshore Eno Island, Saikai City, Nagasaki Pref.

Sea area offshore Kujū City, Saga Pref.

Sea area offshore Shiroyama, Saga Pref.

Sea area offshore Aomori Pref.

Sea area offshore Ishikari, Hokkaido Pref.

Mutsu Bay, Aomori Pref.

Sea area offshore Kuji City, Iwate Pref.

Sea area offshore Awara City, Fukui Pref.

Sea area offshore Hartō Island, Aomori Pref.

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Sea area offshore Aomori Pref.
5. Demonstration of Japanese version of Centralized model

- GOJ establish more efficient approaches to conducting wind surveys and seafloor/oceanographic surveys necessary in project development by carrying out demonstration projects (～FY 2022) led by GOJ to accelerate project formation.

✓ 3 Demonstration areas
1. Gan-u and Minamishiribeshi regions, Hokkaido Pref.
2. Hirono Town, Iwate Pref.
3. Sakata City, Yamagata Pref.

✓ Survey Items
1. Wind conditions
2. Weather conditions
3. Seafloor/Oceanographic survey
4. Environmental Impact Assessment
5. Fishery Impact Survey
6. Green Innovation Fund

**Phase 1: Development of elemental technologies** [Budget amount: up to 34.5 billion yen]
- **Wind Turbine Technology**
  - Nacelle internal components
    - [Daido Metal]: Bearing
    - [Ishibashi]: Accelerator
    - [NTN]: Bearing
  - Tower
    - [Komai Haltech]

- **Manufacturing and Installing Floating Foundations**
  - TLP
  - Semi-submersible
  - Spar
  - [Modoc etc.]
  - [Hitachi Zosen etc.]
  - [TEPCO RP etc.]

- **Wind-Related Electrical System Technology**
  - [TEPCO RP etc.]
    - Dynamic Cable Offshore Substation

- **Operation and Maintenance Technology**
  - [Kansai Electric Power etc.]
    - Drone Inspection
  - [Furukawa Electric etc.]
    - Cable Laying Vessel (CLV)
  - [Tokyo Kisen etc.]
    - Service Operations Vessel (SOV)
  - [TEPCO RP, Toshiba][Hokutaku][NTN][Toda Corporation]
    - Digital Platform

**Phase 2: Demonstration of floating system** [Budget amount: up to 85 billion yen]
Conduct demonstrations of the integrated use of related technologies in the overall system while also utilizing these elemental technologies.
Thank you