

Green Energy Port HIBIKI

**A Wind Energy Industry Hub
in Japan**



Expectations for offshore wind energy have been growing rapidly in recent years, leading to actions by the national government including the enactment of a law on the use of offshore areas in 2018, the designation of base ports for offshore wind energy in 2020, and the announcement of targets for the adoption of wind energy generation in December of the same year.

These developments have served as a tailwind pushing forward the Green Energy Port HIBIKI Project carried out by Kitakyushu City since 2011. This project is working to create a comprehensive hub for the wind energy-related industry, complete with all the necessary functions close at hand, in an effort to build the suitable environment for the wind energy business here in the Hibiki-nada Area. This project is also well aligned with the city's efforts to achieve its sustainable development goals (SDGs), and the formation of this hub will further support that achievement while also contributing to the development of the regional economy and to the growth of green innovation in Japan.



Advantages of Kitakyushu

JAPAN

NOSHIRO
AKITA

KASHIMA

KITAKYUSHU

NAGASAKI

TAIPEI

IDEAL GEOGRAPHICAL LOCATION

**HIGH CONCENTRATION OF
MANUFACTURING BUSINESS**

ECO-FRIENDLY CITY

FOCAL POINT FOR MARITIME INDUSTRIES

● Approximate distances from Hibiki-nada Area

A k i t a - 580NM N a g a s a k i - 155NM

N o s h i r o - 630NM T a i p e i - 750NM

K a s h i m a - 620NM

1 nautical mile (NM) = 1,852 meters

1 What is the Project?

The purpose of the project is to form and develop the Wind Energy Industry Hub for the wind energy-related industry.

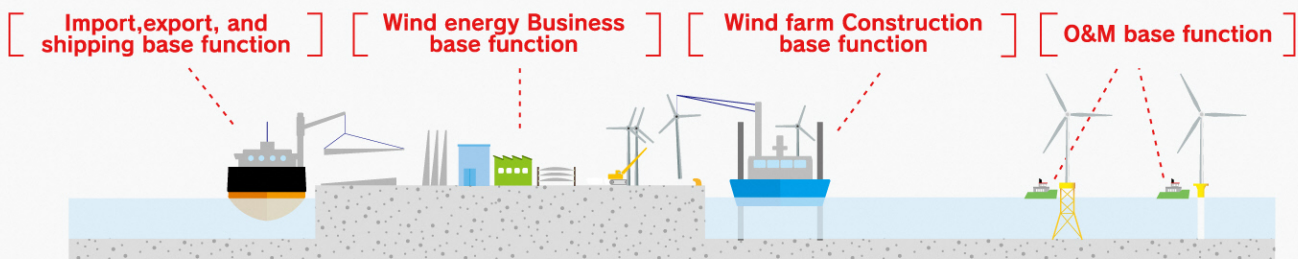
2 What is the Purpose?

- The project aims to grow the economy of Kitakyushu and create job opportunities
- The creation of the Wind Energy Industry Hub will back the development of wind energy in Japan
- With backing wind energy development, we will contribute to a carbon free society

3 What is the “Wind Energy Industry Hub” ?

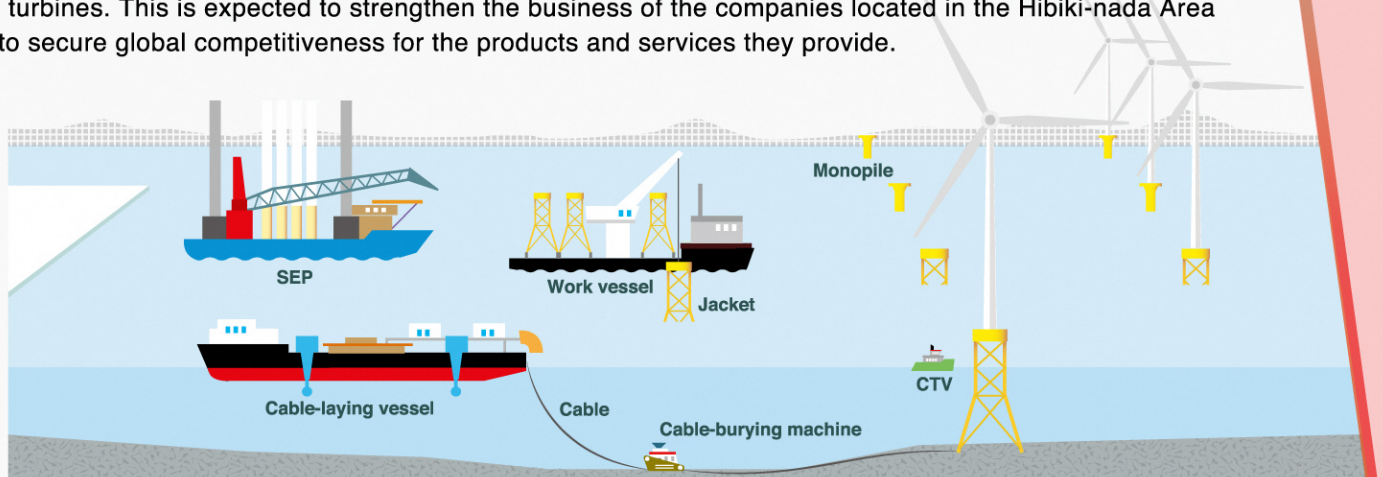
The Hub has the following 4 functions in one place

- **Import, export, and shipping base function** Logistics base function for turbines, parts, and raw materials
- **Wind energy Business base function** Industry cluster, supplying projects, services and all other required for the industry. E.g. Manufacturers, EPCIs, O&M, etc.
- **Wind farm Construction base function** Staging and marshalling port, pre-assembling, loading, shipping-out of turbines and its components.
- **O&M base function** Base function to support offshore wind farm operations and maintenance.



4 What are Merits?

The comprehensive hub will serve as an optimal business center for providing a wide variety of services for wind farms in Japan and throughout the world. It will bring about a synergistic effect by concentrating the industry required for wind energy generation, including factories, warehouses, shipping, and heavy equipment, all centered around a reinforced quay (base port) capable of handling heavy equipment such as wind turbines. This is expected to strengthen the business of the companies located in the Hibiki-nada Area and to secure global competitiveness for the products and services they provide.



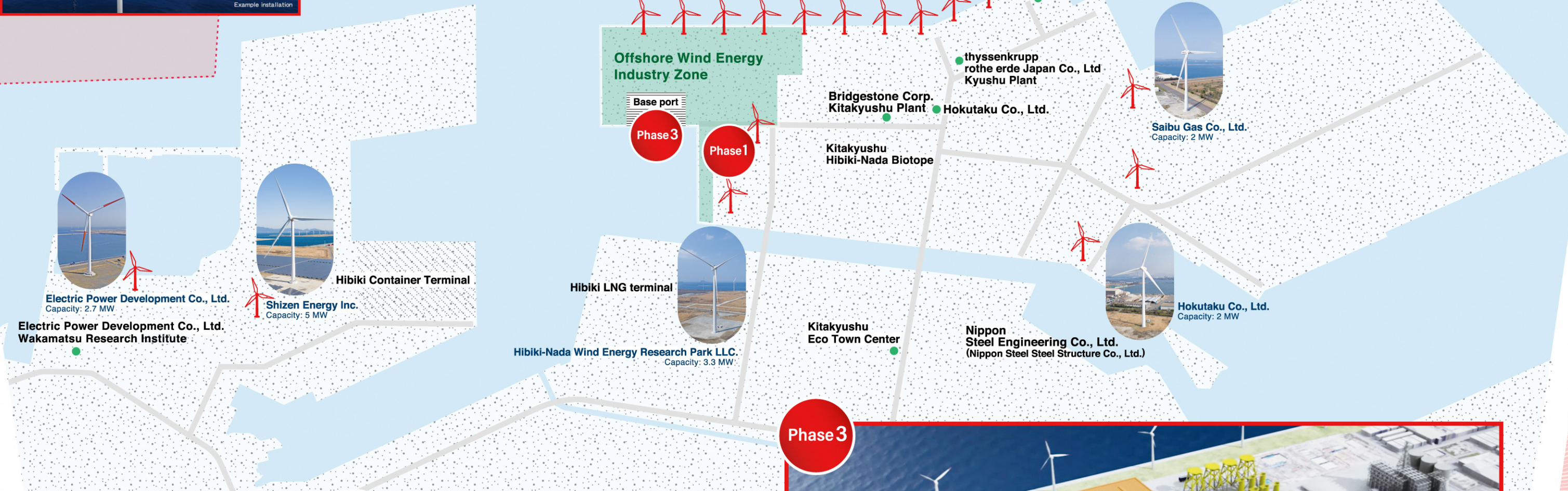
Wind Energy from Hibiki-nada Area



Phase 2

Offshore Wind Farm Area

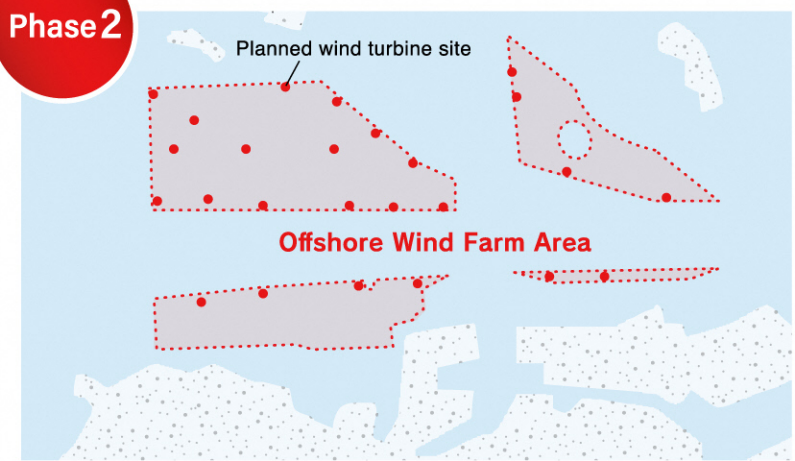
Turbine locations



Phase 1



Phase 2



A testing and research zone was established in the Hibiki-nada Area to support the establishment of the Wind Energy Industry Hub, and submissions of corporate proposals that would attract the industry were called for. That led to the installation and operation of various facilities such as a facility for the land-based testing of offshore wind turbines, an O&M base, cutting edge (at the time) wind turbines, and an experimental power generation facility combining solar and wind energy.

There were no full-scale offshore wind farms installed yet in Japan when the Green Energy Port HIBIKI Project begun. Accordingly, with the partial revision of the Port and Harbor Act in 2016, the first full-scale offshore windfarm in Japan was brought to the Port of Kitakyushu to stimulate the domestic market and boost investment from the industry to the Hibiki-nada Area. Construction will begin in FY2022 and operations are scheduled to commence in FY2025.

Planned turbine: 25 units of V174-9.5 MW (MHI Vestas)

Phase 3



An industrial park will be allocated around the base port for the construction of offshore wind farms, and various industries will be attracted to form Wind Energy Industry Hub, including wind energy-related factories, warehouses, shipping, and heavy equipment.

Project Phases

Three phases and more

Since its launch in FY2011, the GEPH project has been moving forward through the following phases.

Phase 1

[Testing and Research Zone]

FY2013 Called for proposal tender for proving test of wind turbine and for forming the industry cluster.

Phase 2

[First-ever full-scale offshore Wind Farm in Japan]

FY2016 Called for proposal tender for the offshore wind farm with a view to drive demand for offshore wind farms in Japan and boost to form the Wind Energy Industry Hub in Hibiki-nada Area. Selected the Kitakyushu Hibiki-nada Offshore Wind Farm Plan(tentative name).

FY2022 Construction to start

FY2025 Operation to start

Phase 3

[Wind Energy Industry Hub (Forming)]

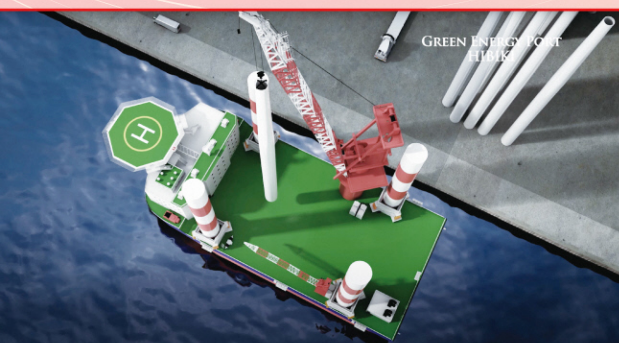
- Construction of the Base Port and the Offshore Wind Industry Zone
- Port sales of the Base Port for offshore wind farm projects in the West Japan region
- Promotion of investments from wind energy business and operation bases for work vessels

Phase X

[Wind Energy Industry Hub (Growing)]

- Actions to grow and advance the hub
- Study and action to upgrade port infrastructure for floating foundations and upsizing of wind turbines

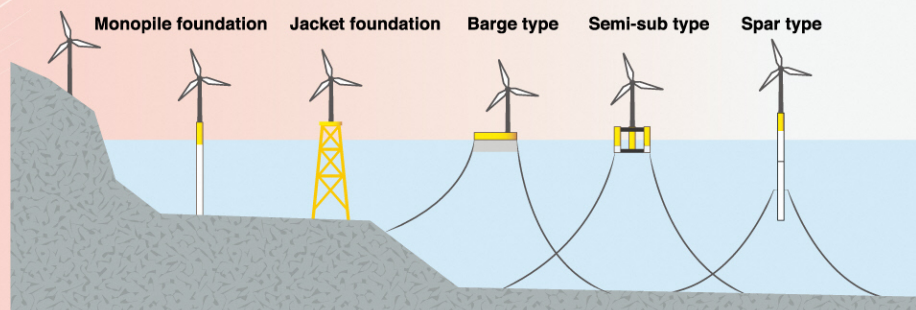
Phase X



Onshore turbine

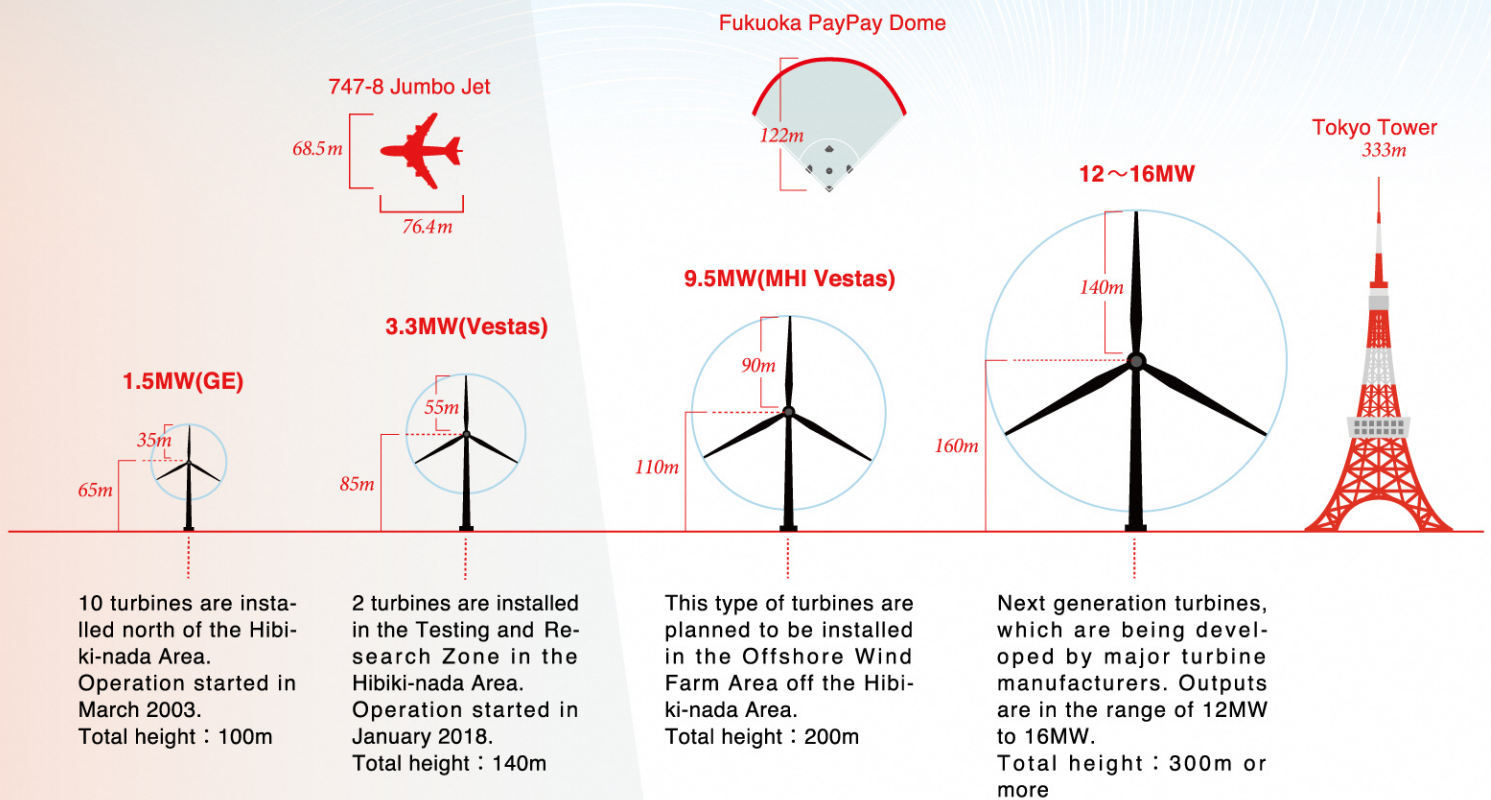
Offshore turbines (fixed)

Offshore turbines (floating)



Today, the majority of offshore wind turbines are installed on the sea floor with fixed foundations. However, expectations are rising for “floating” foundations that are designed to float on the sea surface, allowing installation over areas of deeper sea water. Vigorous efforts are taking place for the commercialization of these floating turbines, and the Wind Energy Industry Hub in Kitakyushu City also work to support the technology accordingly.

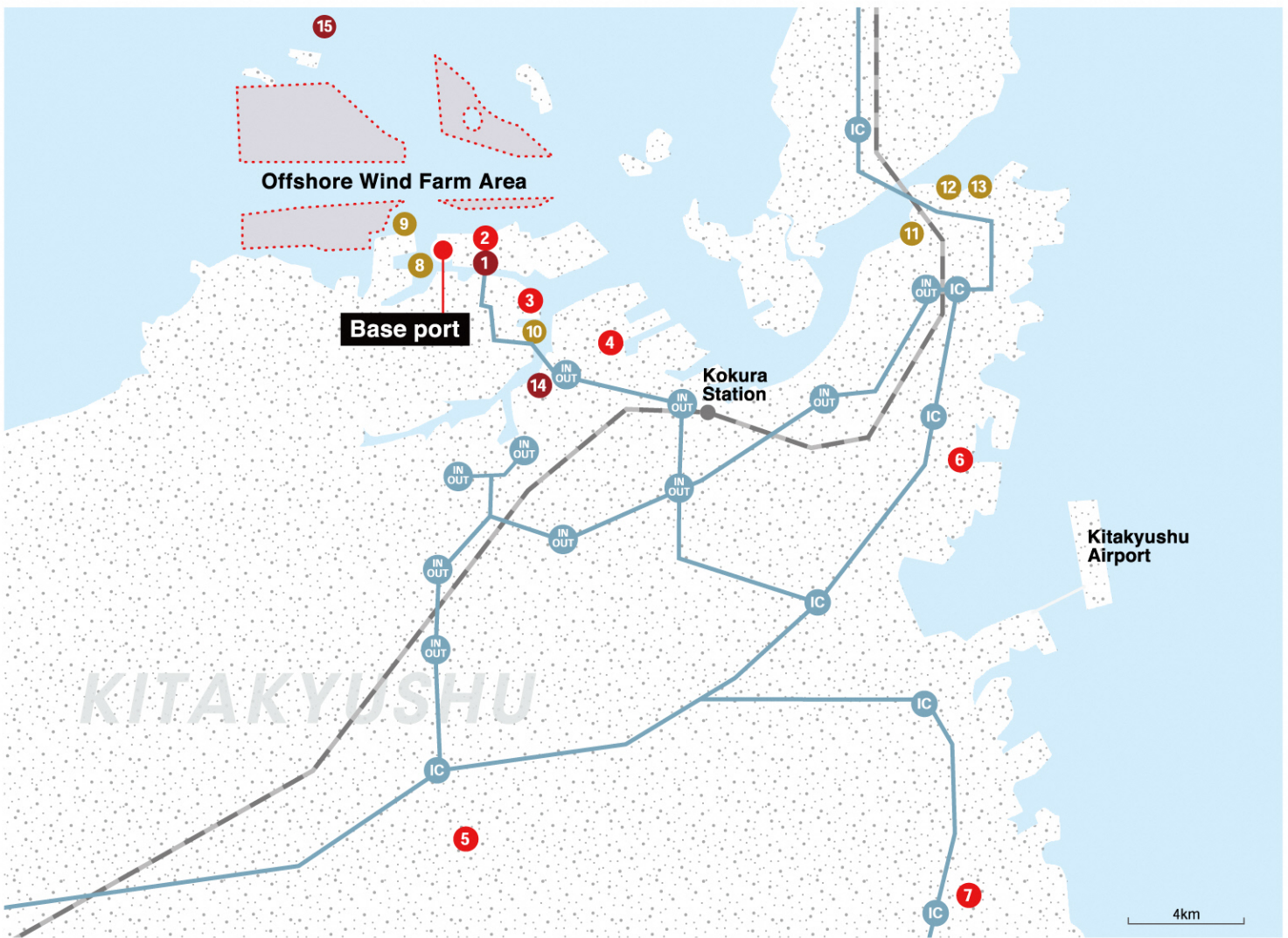
Upsizing of Wind Turbines



Promising Energy

Kitakyushu City has been carrying out its Green Energy Port HIBIKI project since 2011, while the Japanese government has also been working for the development of renewable energy as well, including wind energy. In just the past few years, the government's expectations for wind energy have grown exponentially. The Act on Promoting the Utilization of Sea Areas for the Development of Marine Renewable Energy Power Generation Facilities, came into effect in 2019, is considered a major breakthrough for offshore wind energy generation in Japan, and many people in the industry see this year as a significant milestone.

- 2011** | Green Energy Port HIBIKI Project begun by Kitakyushu City
- 2012** | Act on Special Measures Concerning Procurement of Electricity from Renewable Energy Sources came into effect
- 2016** | Partial Amendment to the Port and Harbor Act came into effect
- 2018** | 5th Basic Energy Plan released (positions renewables as primary energy source, sets 1.7% wind energy target)
- 2019** | Act on Promoting the Utilization of Sea Areas for the Development of Marine Renewable Energy Power Generation Facilities came into effect
- 2020** | Further Partial Amendment to the Port and Harbor Act came into effect
 - Jul.03** - Ministry of Economy, Trade and Industry sets policy for 90% reduction in coal thermoelectric generation by 2030
 - Jul.17** - First Public-Private Council on Enhancement of Industrial Competitiveness for Offshore Wind Energy Generation held
 - Jul.17** - Renewable Energy Economic Creation Plan released
 - Sep.02** - Base Ports designated (Kitakyushu Port, Akita Port, Noshiro Port, Kashima Port)
 - Dec.15** - Second Public-Private Council on Enhancement of Industrial Competitiveness for Offshore Wind Energy Generation held (Established goal to expand offshore wind energy generation capacity by up to 45MW by 2040)



Offshore wind energy-related industry in and around Kitakyushu City

● Manufacturer ● Marine constructor-ships ● Others

1 O&M

HOKUTAKU Co., Ltd.
1-122-13 Hibikimachi, Wakamatsu-ku, Kitakyushu

2 Bearing

Large size bearings
thyssenkrupp rothe erde Japan Co., Ltd.
1-111-1 Hibikimachi, Wakamatsu-ku, Kitakyushu

3 Foundation

NIPPON STEEL ENGINEERING CO., LTD.
(NIPPON STEEL STEEL STRUCTURE CO., LTD.)
64 Anse, Wakamatsu-ku, Kitakyushu

4 Large Steel Structure

Regency Steel Japan Limited
46-59 Nakabaru, Tobata-ku, Kitakyushu

5 Gearbox

ISHIBASHI Manufacturing Co., Ltd.
4636-15 Kamitonno, Nogata

6 Cable

Cable harness for turbines
Furukawa Electric Industrial Cable Co., Ltd.
1-8 Shinmoji, Moji-ku, Kitakyushu

7 Generator

YASKAWA ELECTRIC CORPORATION
2-13-1 Nishimiyaichi, Yukuhashi

8 SEP (Jack up Vessel)

PENTA-OCEAN CONSTRUCTION CO., LTD.

9 CTV

Crew transfer vessels
Tokyo Kisen Co., Ltd.

10 Floating Crane • Deck Barge

KONDO KAIJI CO., LTD.

11 Tugboat

Green Shipping, Ltd.
(Mitsui O.S.K. Lines Group)

12 Floating Crane

FUKADA SALVAGE & MARINE WORKS CO., LTD.

13 Cable Laying Vessel

The Nippon Salvage Co., Ltd.

14 Training

NISSUI MARINE KOGYO CO., LTD.
Nippon Survival Training Center
2-6-27 Ginza, Tobata-ku, Kitakyushu

15 Floating Offshore Wind Turbine

New Energy and Industrial Technology Development Organization

Kitakyushu Port & Harbor Bureau "Green Energy Port HIBIKI" Project Office
1-1 Jonai, Kokurakita-ku, Kitakyushu Phone +81-93-582-2994

Port of Kitakyushu website
<http://www.kitaqport.or.jp/index.html>



Green Energy Port HIBIKI Project website
<http://www.youtube.com/watch?v=R1f3XLO0YpU>
(Videos of the project overview)

