# Agenda of the 3rd International Workshop on National Laws and Policy for Offshore Wind Energy

**Date: Tuesday, 12 December 2017**

**Venue: 14F, Howard Civil Service International Hotel, Taipei**

| Time | Agenda |
|---|---|
| 08:30-09:00 | **Registration** |
| 09:00-09:30 | **Opening Remarks** |
| 09:30-10:00 | **Group Photo and Tea Break** |
| **Session 1 Keynote Speech**<br>Moderator: Dr. Nien-Tsu Hu 胡念祖教授<br>Professor and Director, Graduate Institute of Marine Affairs, National Sun Yat-sen University, Taiwan. | |
| 10:00-10:45 | Marine Policy and Offshore Wind Energy Development<br>Speaker: Dr. Wen-Yan Chiau 邱文彥教授<br>➢ Professor, Institute of Marine Affairs and Resource Management, National Taiwan Ocean University<br>➢ Former Legislator and Deputy Minister of Environmental Protection Agency (EPA) |
| 10:45-11:00 | **Break** |
| **Session 2 National Experiences and Lessons (I)**<br>Moderator: Dr. Shih-Ming Kao 高世明助理教授<br>Assistant Professor, Graduate Institute of Marine Affairs, National Sun Yat-sen University, Taiwan. | |
| **11:00-12:20** | **Presenters**：<br>● ***Siting Offshore Wind Farms in Japan: Lessons from Successful Cases Involving Local Communities***<br>Dr. Masahiro MATSUURA, Professor, Graduate School of Governance Studies, Meiji University, Japan.<br>● ***Learning from Early Offshore Wind Experience in Europe: Comparing Developments in the UK, Netherlands and Germany***<br>Dr. Florian Kern, Senior Lecturer at SPRU-Science Policy Research Unit, University of Sussex, Brighton, United Kingdoms.<br>**Discussion** |
| 12:20-14:00 | **Lunch** |
| **Session 3: National Experiences and Lessons (II)**<br>Moderator: Dr. Chung-Ling Chen 陳璋玲教授<br>Professor, Institute of Ocean Technology and Marine Affairs, National Cheng Kung University, Taiwan | |
| 14:00-15:20 | **Presenters**：<br>● ***The Legislative Regime for Offshore Wind Energy in the UK***<br>Dr. Alexandra WAWRYK, Senior Lecturer, School of Law, |

| | |
|---|---|
| | University of Adelaide, Australia.<br><br>● ***EIA and the Development of Offshore Wind Energy in Taiwan: Challenges and Prospects***<br>Dr. Shih-Ming Kao 高世明助理教授, Assistant Professor, Graduate Institute of Marine Affairs, National Sun Yat-sen University, Taiwan.<br><br>**Discussion** |
| 15:20-15:40 | **Break** |
| **Session 4: Offshore Wind Energy and Marine Environment**<br>Moderator: Dr. Yang-Chi Chang 張揚祺教授<br>Professor and Director, Department of Marine Environment and Engineering, National Sun Yat-sen University, Taiwan | |
| 15:40-17:00 | **Presenters：**<br><br>● ***Public Support for Wind Power in the United States: Fair Process, People-Place Relations, and Aesthetics***<br>Dr. Jeremy FIRESTONE, Professor and Director, Center for Carbon-free Power Integration, University of Delaware, U.S.A.<br><br>● ***Can Chinese White Dolphins Coexist with Offshore Wind Farms?***<br>Dr. Lien-Siang Chou 周蓮香教授, Professor, Institute of Ecology and Evolutionary Biology, National Taiwan University, Taiwan.<br><br>**Discussion** |
| 17:00 | **Closing** |
| 18:00 | **Reception Dinner** |

# Siting Offshore Wind Farms in Japan: Lessons from Successful Cases Involving Local Communities

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## Abstract

In Japan, the initial experimental phase of offshore wind power deployment has ended and is followed by commercial deployments. Currently a handful of new projects are proposed by private developers under the favorable feed-in-tariff rate setting. Toda Corporation has been pursuing environmental impact assessment processes for building nine turbines off the coast of Goto Islands, Nagasaki prefecture seemingly without any trouble with local stakeholders and environmentalists. The Ministry of Land, Infrastructure, Transport and Tourism is also promoting the use of industrial port areas for offshore wind farms. On the other hand, offshore wind projects require an adequate level of support by stakeholders. Otherwise, such projects can be substantially delayed or eventually halted due to intractable protests and other political maneuvers. Two successful cases of deploying offshore wind turbines in Japan—those in Goto, Nagasaki and Choshi, Chiba—are instructive in understanding the keys for successful siting of wind turbines. Lessons from these cases are drawn from several years of observation and interviews with their project managers and a few stakeholders. Lessons for successful siting are: 1) involve key stakeholders from the early phase; 2) work with the local government; 3) individual staff working closely with community members; 4) start small as experimentation for adaptive management; 5) take advantage of community pride; and 6) provide benefits to local communities.

## 1. Recent Developments in Japan

### 1-1. Overview

As of 2017, only a limited number of offshore turbines have been built so far in Japan. Not much progress has been made in recent years. Figure 1 shows the growth in the

number of offshore turbines and their production capacity. No new turbine was installed in 2017 and the progress has somewhat stagnated. One of the reasons for this stagnation is a major shift in the development of offshore wind farms in Japan. Previously, many of the turbines are installed for experimental purposes with government subsidies. In 2014, the official feed-in-tariff for offshore wind power was set at the rate of JPY 36/kWh. This triggered a shift from experimental projects to commercial projects. National government halted subsidies for new experimental turbines. Currently, multiple private enterprises are planning several new wind farms in Japan with more than ten turbines at each site. These planning processes, including negotiation with local stakeholders and securing financing arrangements, are taking multiple years and leading to the stagnation in the growth of generating capacities.

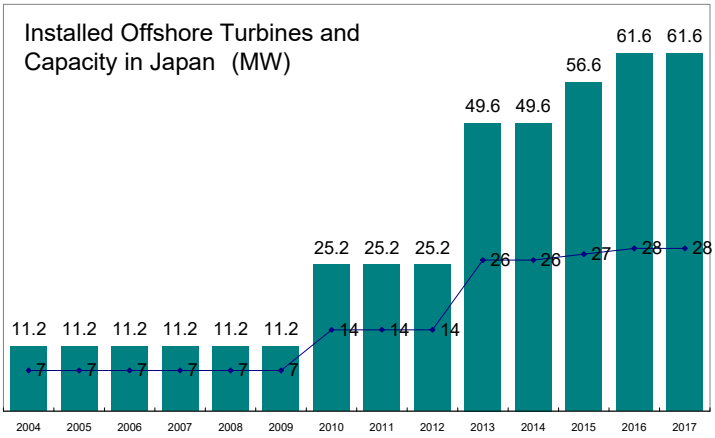


Figure 1: Installed offshore turbines (blue line) and generating capacity (MW: green bar) in Japan

1-2. Goto Floating Offshore Wind Turbine project

One of the major progress of the Japanese offshore wind power in 2017 was the launch of environmental impact assessment procedure for a offshore wind farm proposal in Goto City, Nagasaki Prefecture. The project is proposed by Toda Corporation, one of the major construction company in Japan based in Tokyo. Its proposal was to build 9 turbines with a total of 22MW production capacity off the coast of Sakiyama community on Fukue Island. One of those turbines will have a large 5.2MW capacity, and others will be more conventional 2.1MW ones.

The environmental procedure started in September 2016 with the publication of "Document on Primary Environmental Impact Consideration（配慮書）." It was followed by the publication of "Scoping Document （方法書）" in February 2017.

These documents outline the possible location and configuration of turbines. The project manager organized a public meeting on the island, following the Japanese Environmental Impact Assessment (EIA) Act, in March. Only six local persons showed up in the meeting. Ten written comments were submitted, most of which were about the conservation of flying bats. Local prefecture governor also submitted a comment, following the EIA Act, without raising concerns about the project. Generally speaking, there was no visible protest from the local residents.

On November 1st, 2017, Toda Corporation released a draft Environmental Impact Statement (EIS) （準備書） including the exact location and configuration of the turbines. Written comments about the draft EIS are accepted until December 15th. A public meeting is scheduled on November 14th on the island. According to a newspaper article, the company will start building the turbines in 2018 and will start the operation in early 2021.

## 1-3. Use of port areas for renewable energy

Another major progress was made in the use of port areas. Under the Port Act, industrial port areas are formally designated by the national government and managed by local port authorities. On the other hand, a few major industrial ports had open sea surfaces that could be utilized for siting wind turbines. In 2012, the Ministry of Land, Infrastructure, and Transport produced a guideline for developing offshore turbines inside the port areas which asked

平成２９年１０月１１日

鹿島港洋上風力発電事業に係る環境影響評価報告書（案）の
縦覧及び説明会開催のお知らせ

鹿島港洋上風力発電事業に係る環境影響評価報告書（案）について、住民の皆様の意見をいただくため、縦覧及び説明会を実施いたします。また、意見書の提出の方法についても併せてお知らせいたします。

■事業者名称等
・北側区画　名　　称：株式会社ウインド・パワー・エナジー
　代 表 者：代表取締役　小松崎　衛
　所 在 地：茨城県神栖市東深芝２２６
・南側区画　名　　称：鹿島洋上風力コンソーシアム
　代表企業：株式会社ウインド・パワー・グループ　代表取締役　小松崎　衛
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　所 在 地：茨城県神栖市東深芝２２６

■事業概要
・事業の名称：鹿島港洋上風力発電事業
・事 業 規 模：82MW～136基＝1672MW（北側区画18基、南側区画118基）
・計 画 地：鹿島港港湾区域内（下図参照）

再生可能エネルギー源を利用する区域
北側区画
南側区画

■縦　覧
・場　　所：神栖市役所　政策企画課（神栖市溝口４９９１　５　庁舎本館３階）
　神栖市役所　企業・港湾振興課（神栖市溝口４９９１　庁舎別館２階）
　茨城県鹿島港湾事務所（神栖市東深芝１３）
・縦覧期間：平成２９年１０月１２日（木）から平成２９年１０月２５日（水）まで
・縦覧時間：午前９時から午後５時まで（土曜日・日曜日・祝日を除く）

■説明会
・場　　所：神栖市中央公民館　小ホール（神栖市溝口４９９１－４）
・日　　時：平成２９年１０月１７日（火）１８時００分より

■意見書の提出
・縦覧final全の主旨ならのご意見をお持ちの方は、平成２９年１０月２５日（水）までに、書面にご住所、ご氏名、ご意見をお書きのうえ、下記の送付先まで郵送、FAX、Eメールでお送りください（郵送の場合、当日消印有効）。
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Figure 2: An official EIA announcement for the Windpower Energy project, with proposed sites for an offshore wind farm in the Kashima industrial port area.

port authorities to designate the “area for utilizing renewable energy.” Following this guideline, managing authorities for Kashima Port, Kitakyushu Port, and a few other ports have launched the process of designating such areas and inviting private investors for new projects.

Ibaraki Prefecture Government, the managing authority of Kashima Port, have designated a 680 ha area for renewable energy in 2012 and divided the area into two parts. After an auctioning process, Marubeni (one of the largest trading companies in Japan) and Windpower Energy (a local wind farm operator) were chosen as the developer for each of these areas later in 2012. On the other hand, Marubeni gave up implementing the project in early 2017. Its initial plan was to start constructing turbines in 2015 and start operation in 2017. The company is claiming that the wind condition was not as good as it was anticipated and would not make profit from the project. The other company, Windpower, is still continuing the project in Kashima and some progress was made in 2017. The national government amended the Port Act in 2016 which stipulated a new permitting procedure for allowing private developers to occupy a designated space in the port area. This amendment clarified the formal procedures for obtaining the permit. Following this, Ibaraki Prefecture granted the permit to Windpower in August 2017 to occupy the designated space for 20 years.

## 2. Successful cases

In this section, two offshore wind projects will be reviewed in order to understand the practice of dealing with local hosting communities. Most of the information is gathered by interviews with their project managers and local stakeholders and several years of observation of these projects.

### 2-1. Goto FOWT case

#### 1) Project

In response to a call for proposal by the Ministry of Environment for developing floating offshore turbine technology, the project was initially conceived by a consortium of Kyoto University and Toda Corporation. Researchers and engineers explored the possible sites for experimentation around Japan, and identified Goto Islands as an ideal site due to wind condition and sea depth. The initial experiment was conducted 1 km off shore of Kaba Island, one of the middle-sized islands in Goto. The island is inhabited by 153

Figure 3: Floating offshore wind turbine at the original experimentation location (Photo: author)

residents (as of September 2013) whose two living communities are located on its north and south shores. Livelihood on the island mostly depends on fisheries. The island is connected to the electrical power grid.

When the project was conceived, floating offshore turbine has not yet been developed much. There have been only a few experiments in Europe. Toda's design used conventional concrete tubes as floating device. According to the project manager, the design is cost effective, compared to steel structure, and stable. Because Toda is a construction company and its engineer had long experience in designing concrete structure, this choice of material was natural. The floating device is 76 m in length, and 7.8 m in diameter. The device is stabilized by three anchoring cables and rocks that fills inside the concrete tube. On top of the tube, a 2MW downwind turbine by Hitachi is situated. The electricity produced by the turbine was provided to Kaba Island.

The experimental project, funded by the Ministry of Environment, has ended in March 2016. The ownership of the floating device and the turbine was transferred from the ministry to the local City of Goto at no cost. In 2016, the City has set up an operating company, in cooperation with Toda Corporation, and the turbine was relocated from Kaba Island to Fukue Island where a higher energy demand exists. Now the turbine is operating off the coast of Sakiyama community on Fukue Island. As discussed in the previous section, Toda Corporation is currently proposing to build eight turbines in addition to the existing "experimental" turbine.

2) Early stages

The project was initially conceived by a team of researchers and engineers at Kyoto University and Toda Corporation, in response to the call for proposal by the Ministry of Environment issued in 2010. They scanned locations for the experiment and identified Goto Islands as the ideal candidate.

Before this floating turbine proposal emerged, the New Energy Development Organization (NEDO), a subsidiary of the Ministry of Economy, Industry, Trade, explored a different location in the Goto Islands as a possible site for offshore wind experimentation in 2008. Later the NEDO decided to move forward with Choshi (discussed later) and Kitakyushu locations, not Goto.

Initially the project team approached the City of Goto in 2012. The city has been eager to promote renewable and sustainable energy systems. For instance, they have previously introduced one hundred electric automobiles (Mitsubishi's i-MiEV) for tourism and government office uses. Along this, the city government, including its mayor, welcomed the team's proposal for a floating offshore wind turbine and immediately started working with the Toda's team for negotiating with local stakeholders.

The city's administrative staff helped the team getting in contact with key stakeholders in the area. The project team, along with the local government staff, had initial meetings with a number of stakeholders within only a few days. It was imperative to have those meetings in a short time frame in order to avoid leaving some stakeholders behind. To be approached later suggests a lack of respect. In the Japanese rural areas where consensual decision-making is a norm, it's imperative not to offend every stakeholder.

Initially, the communities on Kaba Island, where the turbine would be located, were somewhat reluctant to accept the project, according to a conference presentation by a representative of local fishermen cooperative. While only one fisherman, who frequently operated in the proposed site, formally objected to the project, there seemed to be mild concerns and worries about the impacts to their operation. The floating turbine would be the first of its kind in the world, and no one knew, including project managers, exactly how it would unfold. One of the strong argument for reaching an agreement was 1) the temporary nature of the experimental turbine and 2) the national support. Because it would be an experimental project funded by the Ministry, the turbine would be taken down after three-year experimentation period. That was the original agreement with the Ministry and the team. Therefore the local fishermen could feel assured that the turbine would leave anyway after three years. Also the project was not structured as a profit-driven project by the utility industry. Instead, it was framed as an experiment commissioned by the national government, notably the Ministry of Environment. Therefore it could be perceived as an experiment for making the environment better, whose goal is hard to object.

Figure: Local fishing community of Ibuki on Kaba Island. (Photo: Author)

3) Changing tide following implementation

The team was formally approved as the Ministry's experiment (only one experiment in Japan) and started building floating device and turbines. The full-scale experimental turbine started its operation on October 28, 2013.

Toda's team was consistent throughout the project in helping the local community. They closely worked with the local community members, and the city's officer. In addition to turbines, the team developed other experimental devices such as a hydrogen generator and a fuel-cell fishing vessel. Those communities depend on fisheries but the rising fuel price in recent years is a crucial issue for them. The team understood their concern through frequent contacts with the local people. Then the team came up with the idea of producing hydrogen, using the electricity produced by the turbine, and using it for fueling fishing vessels. Another rationale for generating hydrogen is the excess power produced by the turbine. The turbine had a 2 MW capacity, but Kaba Island consumed much less electricity. Therefore the team had to consider ways of store the excess energy and transport it to other islands. It was in fact a mutually beneficial solution for all parties involved. This hydrogen project was again supported by the Ministry of Environment and implemented during the project

period.

The city also set up a new group for promoting renewable energy. The city strategically asked the head of local fishing cooperative to be the head of the group in order to gain further support of fishermen for the offshore project. The city also encouraged local businesses to acquire knowledge in the construction and maintenance of wind turbines (including land-based turbines). Previously, maintenance staff were often recruited from the main islands of Japan and had to travel all the way to the islands, which was costly. The city government's plan was develop the skills on the island, save money by hiring local experts, and expand its economy by even sending skilled staffs with niche techniques to the main islands. Currently there is a company in Goto that specializes in the maintenance of wind turbines and it is thriving.

Toda's team also asked local community members to engage in some works of the project. Local community members were asked to maintain some of the facilities on land. In particular, the team set up an information center in the community where visitors could learn about the turbine. The center is housed in a very old traditional house inside the community. Interestingly, visitors in guided tours to the turbine are asked to eat a lunch, prepared by the local community members, and pay for it. The dishes are all locally produced and, in fact, very tasty. It served as an opportunity for the locals and visitors from the world to get in touch. The wind turbine project in fact was utilized as an opportunity for Kaba Island to promote its abundant natural resources and beauty to the world and also communicate with the people whom they would have never met.

The locals were also surprised by the number of visitors coming to the

Figure 4: Visitors listening to the project manager's story at the visitor center, over the lunch served by local fishermen families.

island to watch the floating turbine. The most prominent guest to the island was then the Minister of Environment, Nobuteru Ishihara. Ishihara's father, uncle, and brother are extremely well known in Japan as actor/resses and also famous novel author. Without the project, he would probably never visit the island. Many other guests from other nations also came to the site and applauded the project. This generated a sense of pride in the turbine among the community members.

4) Transition to a full scale project

The three-year experimentation period has changed resident's perception about the offshore turbine in Goto Islands. Concerns about its environmental impact are substantially mitigated after physically having the turbine in the nearby location. Worries about the project manager have also transformed into a trust in the team after three years of relationship building. Now the city government did not want to have the turbine taken away after the formal experimentation period.

An arrangement was made between the Ministry of Environment, the city, and the project team to transfer the ownership of the turbine. On the other hand, in order to connect the turbine to the grid with higher demand, it had to be moved to a new location off the coast of Sakiyama community on Fukue Island (the most populated island in Goto Islands). Before relocating the turbine, Sakiyama community was somewhat involved in the project by hosting the hydrogen fishing vessel and other research equipments. The experiment in fact served as an opportunity for the project team to develop the human relationship before actually moving the turbine to this community. Now, Toda Corporation is aiming at developing a full-scale offshore wind farm off the coast of Sakiyama with eight turbines. It will be structured as a commercial project, not as an experimental project of the government. The environmental permitting procedure seems to be moving forward at an extreme speed, considering similar offshore projects in other Japanese locations. No visible protest against the proposal is observed.

## 2-2. Choshi TEPCO case

### 1) Project

The Tokyo Electric Power Company (TEPCO)'s wind turbine project started as a part of the Ministry of Economy, Trade and Industry (METI)'s exploration into the use of

offshore wind farm. The New Energy Development Organization, a subsidiary of METI, were undertaking various kinds of technical research on offshore wind, and explored sites for building full-scale experimental turbines around Japan. Multiple sites were studied in 2008. In August 2009, the NEDO determined Choshi, Chiba and Kitakyushu, Fukuoka locations as the locations for its experimentation for developing technologies for surveying wind conditions. In April, the NEDO published a call for proposal for experimenting with offshore wind turbines.

2) Early stages

TEPCO started its negotiation with local stakeholders immediately after the announcement by the NEDO. The project was planned and managed by the TEPCO Research Institute based in Kawasaki which is approximately one hundred kilometers away from Choshi. On the other hand, TEPCO was a local quasi-monopoly providing electricity (both generation and transmission) to the Kanto region and had many local offices and staff members in the region. TEPCO of course had an office in Choshi, and some staff members from that office aided with the project managers from Kawasaki. They contacted local city office, council persons, and fishermen cooperatives. One of the issues to be

Figure: Offshore turbine in Choshi (Photo: author)

negotiated was the location of the new turbine. If the location was inside the regulated fishing rights (漁業権) area, TEPCO would have to compensate to the local fishing cooperative. While the compensation is not required by any statute and a voluntary agreement not involving a compensation package is legally possible, the national guideline on compensation following infrastructure projects suggests that disturbances to fishing right areas should be compensated[1]. Due to the restriction set by the project funding agency, however, no financial compensation could be made to the local fishing cooperatives. Therefore anywhere inside the fishing rights area could not be considered. On the other hand, it turns out that many fishermen from different fishing cooperatives are operating farther off the coast. To build a turbine outside the regulated area, TEPCO would have to identify those fishermen and negotiate individually with them considering the risk of lawsuit and political intervention by them. As a compromise, after consultations with the local fishing cooperatives, TEPCO decided to build the turbine just outside the regulated fishing rights area, almost on the edge of it. The location was identified in cooperation with the local fishermen cooperative in order to minimize the effect on fishing operations. Some representatives from the cooperative and the TEPCO staff members took a boat ride together and identified the location.

3) Continued operation

The project was once delayed after the Great East Japan Earthquake of 2011 as the turbine's caisson structure was damaged by tsunami during its construction on the coast. The construction was completed on January 2013 and started its experimental operation. Again, this project was an experimental project funded by the national government. Therefore TEPCO guaranteed to remove the turbine and structure after the predetermined experimentation period.

While TEPCO is a big company with more than thirty thousand employees and most employees are promoted to other positions every few years, the project leader for this

[1] Monetary compensation to the local fishermen is not formally required, but it has been a customary practice in other big projects, particularly the big utility company like TEPCO. The Goto project's site, on the other hand, is within the regulated fishing rights area but the project was succeeded with local fishermen's agreement without involving monetary compensation.

experimental turbine project remained the same. This project was managed as an experimental project and the staff at its research institute, not the managerial staff at its operational divisions, was responsible for it. This "experimental" framing of the project created a somewhat unique opportunity for the project team and the local stakeholders to develop personal relationships and trust.

Meanwhile, the wind turbine brought some tangible benefits to the local fishing cooperatives. Environmental studies require boat equipments and the local fishing cooperatives were given exclusive contract for providing boat services for such studies. Visitors to the turbine are also asked to hire their boat. Although the scale of such financial benefits may be substantially smaller than the size of financial compensations made to fishermen cooperatives after large scale infrastructure projects in other locations, the tangible benefits from the project was surely a plus for local stakeholders. Moreover, the concerns of local fishermen about the negative impacts from the turbine substantially reduced after the operation started. In fact, according to environmental studies, an increasing number of highly-valued fishes (e.g., amberjack) were identified around the caisson structure. Fishermen worried about the reduction in catches before the project was implemented, but in fact no visible negative impact was observed in terms of fisheries.

The initially agreed experimentation period ended in 2015. TEPCO asked for an extension of the experimentation period and the local fishermen cooperative could reach an agreement. Another renewal agreement was made in February 2017.

In retrospect, a source of the support for the project was gained from the local stakeholders' experience with their protest movement against a power plant project proposal in the 1970s. The local municipality once hoped that the TEPCO would build a new power plant at fishing village whose coast would host the new turbine. The project was cancelled following fierce protest by local residents. Even though the community succeeded in protecting its natural environment, neighboring towns and cities on its north enjoyed rapid economic growth later by inviting industrial developments. Some locals considered the new offshore wind project as a renewed chance for them to achieve economic growth without damaging its environmental quality.

## 3. Lessons learned

Those case stories suggest a few important lessons for future project managers in developing offshore turbines in Japan and elsewhere, including Taiwan. Although these project stories are not scientifically vindicated quantifiable information, we can draw practical lessons qualitatively.

Lesson1: Involve key stakeholders from the early phase

In any event, all key stakeholders should be informed of the project from the beginning. Project managers for both projects had numerous face-to-face meetings with all key stakeholders within a very short period (less than a week). One main effect of having such a series of meetings is to avoid offending any of stakeholders; a person might feel that s/he was not respected enough if s/he did not hear anything directly from the manager but his or her neighbors did. On the other hand, no information was disclosed to any of stakeholders before formal decisions were made in order to avoid having rumors circulating around the community.

Project managers should be extremely careful and strategic in communicating with local stakeholders particularly in the early phases of planning. The importance of early phases is supported by abundant research in the field of psychology. Human beings are often affected by reactive devaluation, a phenomena in which people attach less value to a subject when it is provided by someone whom s/he dislike (Ross 1995). Avoid being disliked from the beginning is crucial for any project manager. Once a good rapport is developed, better relationships will continue to develop.

Lesson 2: Work with local government

Offshore projects are often developed in remote coastal areas where the wind condition is good but the project proponent's office is not situated. Therefore it would be a major challenge for the project manager to develop a good rapport with local community members. In order to do so, local government officers are indispensable resource in promoting an offshore wind project. In Goto's case, a particular government officer who has long been promoting offshore project continuously was indispensable in the success of floating turbine project. In Choshi case, the local government support was less visible, but the involvement of TEPCO's local staff

members was crucial in the initial phase of negotiation. Both cases illustrate the importance of involving just a few local staff members inside the project team from the beginning, even before formally announcing the project.

Lesson 3: Individual staff working closely with community members, trust building

Rotation of staff members is frequent in large organizations like government agencies and major corporations. On the other hand, it is detrimental for an offshore wind project in developing a good relationship with the local stakeholders. Partly because the Japanese projects were framed as experimental project funded by the national government, project managers for those projects remained the same throughout the project. It definitely facilitated the development of trust in these managers among the local stakeholders.

Lesson 4: Adaptive management: start small as experimentation

The Japanese experimental cases were successful partly because these were experimental. It was guaranteed from the beginning that these turbines would be removed after the experimentation periods because these were considered experimental devices. Local stakeholders felt assured that these turbines would not remain there forever so that the possible impacts that they fear about can be removed after several years.

It was a typical adaptive management strategy that has been favored in the environmental planning field. When uncertainties are high, one should start the project at a small scale and adjust the project according to the observed impacts. If the wind turbine affected the marine environment negatively, those turbines would have already been removed. Because the environmental damage was not observed, the project could continue and even expand in Goto Islands.

While this gradual expansion strategy might be financially difficult for new developers without financial support from the government, it would be in fact crucial for gaining support of local stakeholders. Without any pilot project, those stakeholders, particularly fishermen, who fears possible irreversible damage to their fish stocks and the natural environments, would never feel assured to say yes. On the other hand, such a small scale project with only one or two turbines cannot be financially feasible due to

too low rate of return from the investment. Thus, it would be crucial for government agencies, including local ones, to support small scale projects across the nations and make people "feel" the safety and benefit of offshore turbines. In Japan, the national government discontinued support for experimentation projects as offshore turbine's technical feasibility has already been tested in the past experiments. It would be difficult in Japan, however, for the future project developers to build turbines in new locations far away from these experimental fields as the "feeling of safety" is not shared among the local stakeholders.

Lesson 5: Take advantage of community pride

In both projects, enough local support could be gained partly because these were "national projects." These local communities were asked to help improve the renewable energy sources for the whole Japanese community. Those who supported the project stressed to those who were concerned that these are the national projects. These were not a profit-driven project by private investors. Such a framing of the project helped stakeholders differentiate the offshore turbines from the existing on-shore commercial turbines.

It also facilitated the sense of empowerment in those rural communities. These communities, without the turbines, had no unique resource that they could take pride at the national level. Now, those turbines are among only the few ones in Japan, or even the first full-scale floating turbine in the whole world. In Goto, the visit by the Minister of Environment and guests from other countries was a major surprise and generated a sense of pride in the turbine among its community members. For the first few projects, that sense of pride would be useful for overcoming the fears and concerns. It also facilitates the further development of the site for additional turbines, as seen in Goto Islands.

Lesson 6: Provide benefits to local communities

Finally, tangible benefits to hosting communities are still important, albeit its form is not in the direct financial compensation to the fishermen. In the past, large amount of lump sum payment was (reported to be) made to local fishermen in order to reclaim land for large scale infrastructure projects. Such lucrative financial payments often

devastated local communities and sustainable fishing practice of local fishermen. Offshore wind projects, however, will not produce such troubles at the local level simply because offshore projects are generally not profitable enough to afford such payments.

The Japanese cases provided benefits to local fishermen in many forms. One example is hiring their boats for surveying and environmental studies. While the benefit is only available during the construction and study period, it still helps local fishermen's business. Another example in Goto Islands was asking local community to help manage the visitor facility. The financial benefit to the community through this arrangement might be relatively quite small, but it is still an extended job opportunity and would also create a sense of the turbine operator as a part of the community. The Goto project also developed a fuel-cell powered fishing vessel, which is still not yet practical for commercial fishing activities. It also demonstrated, however, the commitment of the project manager to help the hosting communities thrive.

# Siting Offshore Wind Farms in Japan: Lessons from Successful Cases Involving Local Communities

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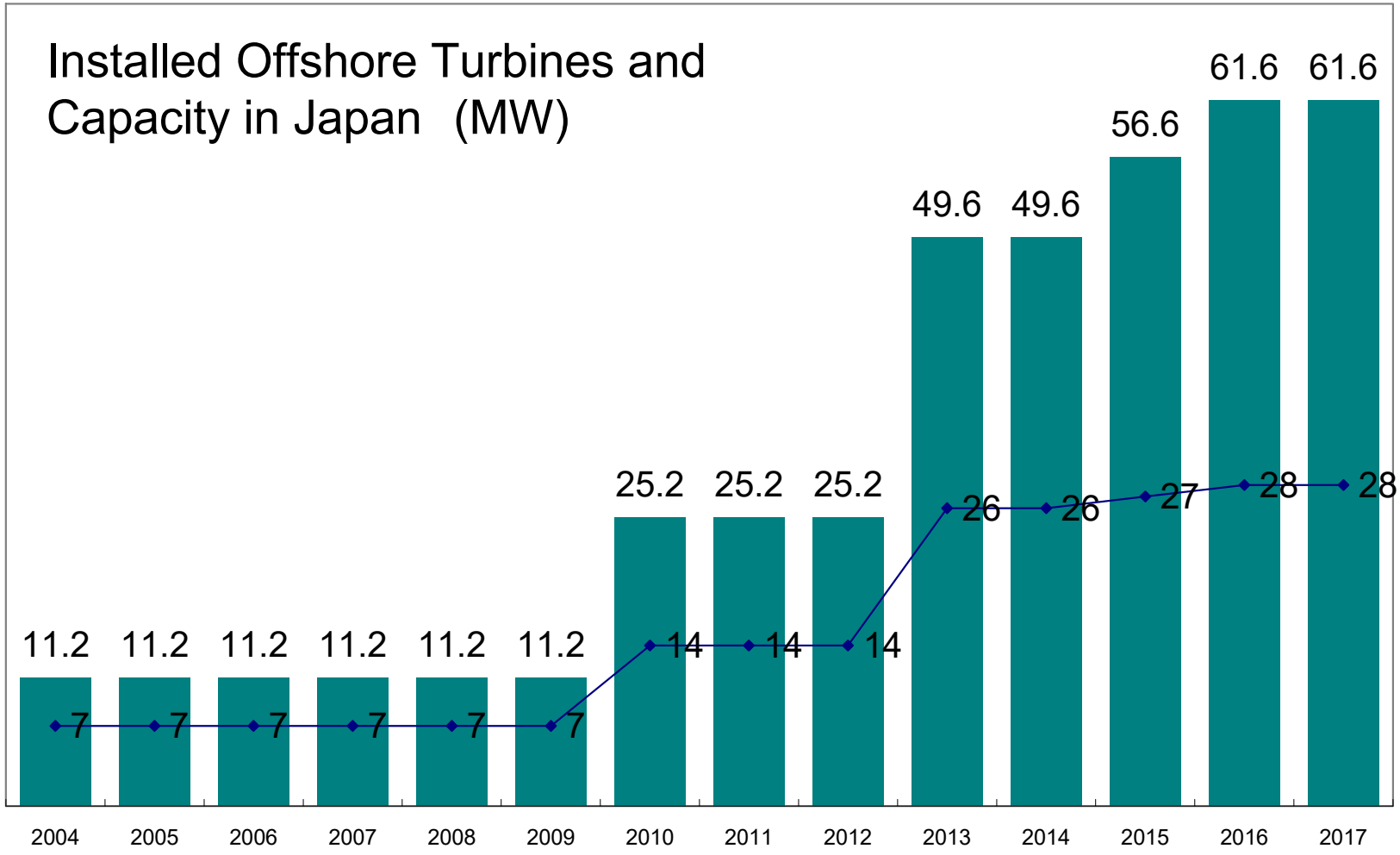
Meiji University, Graduate School of Governance Studies

明治大学
MEIJI UNIVERSITY

# Recent developments in Japan



# Goto Floating Offshore Wind Turbine

- Proposed by Toda Corporation
- Nine additional floating turbines
  - 2.1MW x 8 & 5.2MW x 1
  - One 2.1MW experimental turbine already existing at the location
- Environmental permitting process
  - September 2016: Primary consideration document
  - February 2017: Scoping document
  - November 2017: Draft EIS

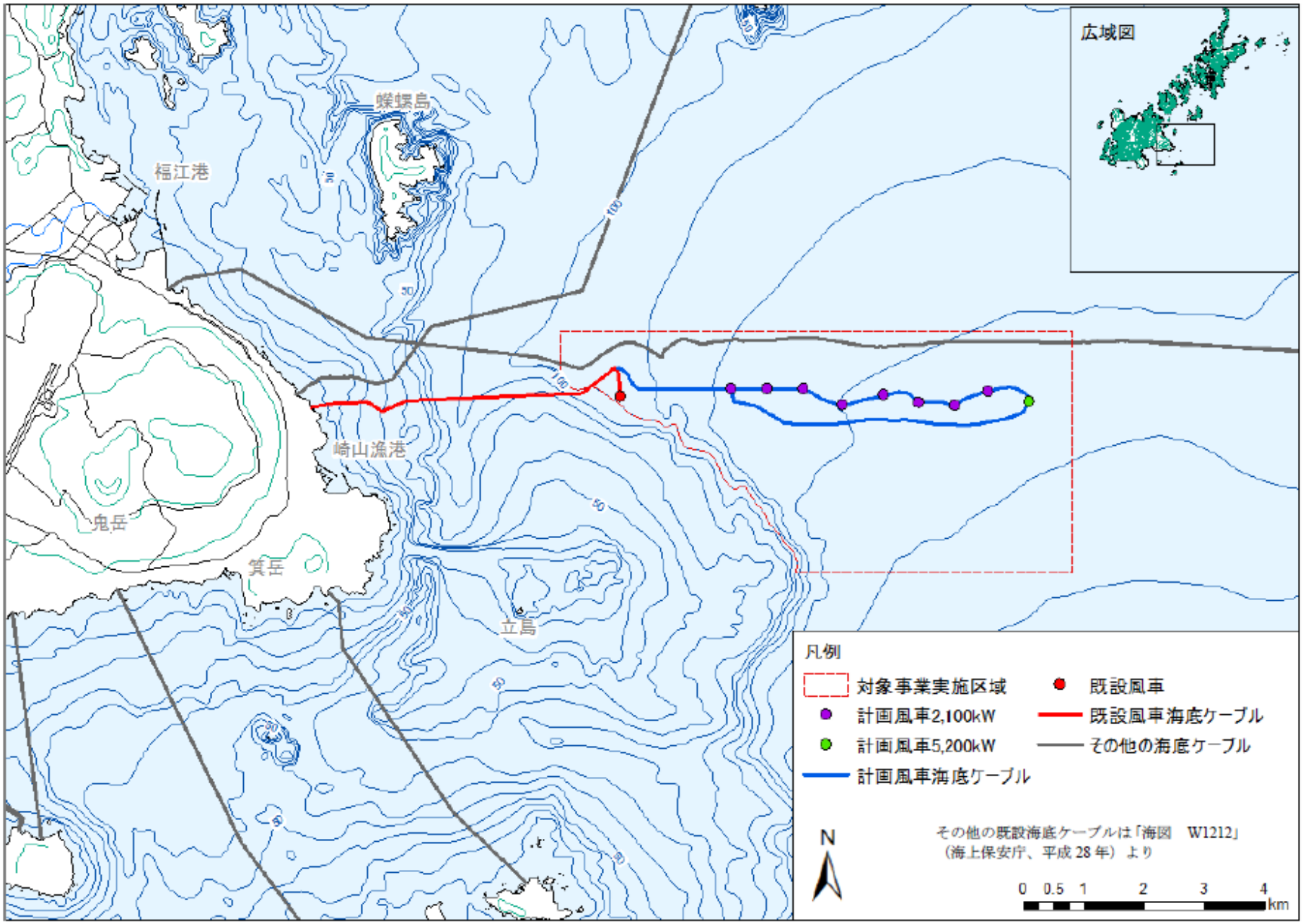


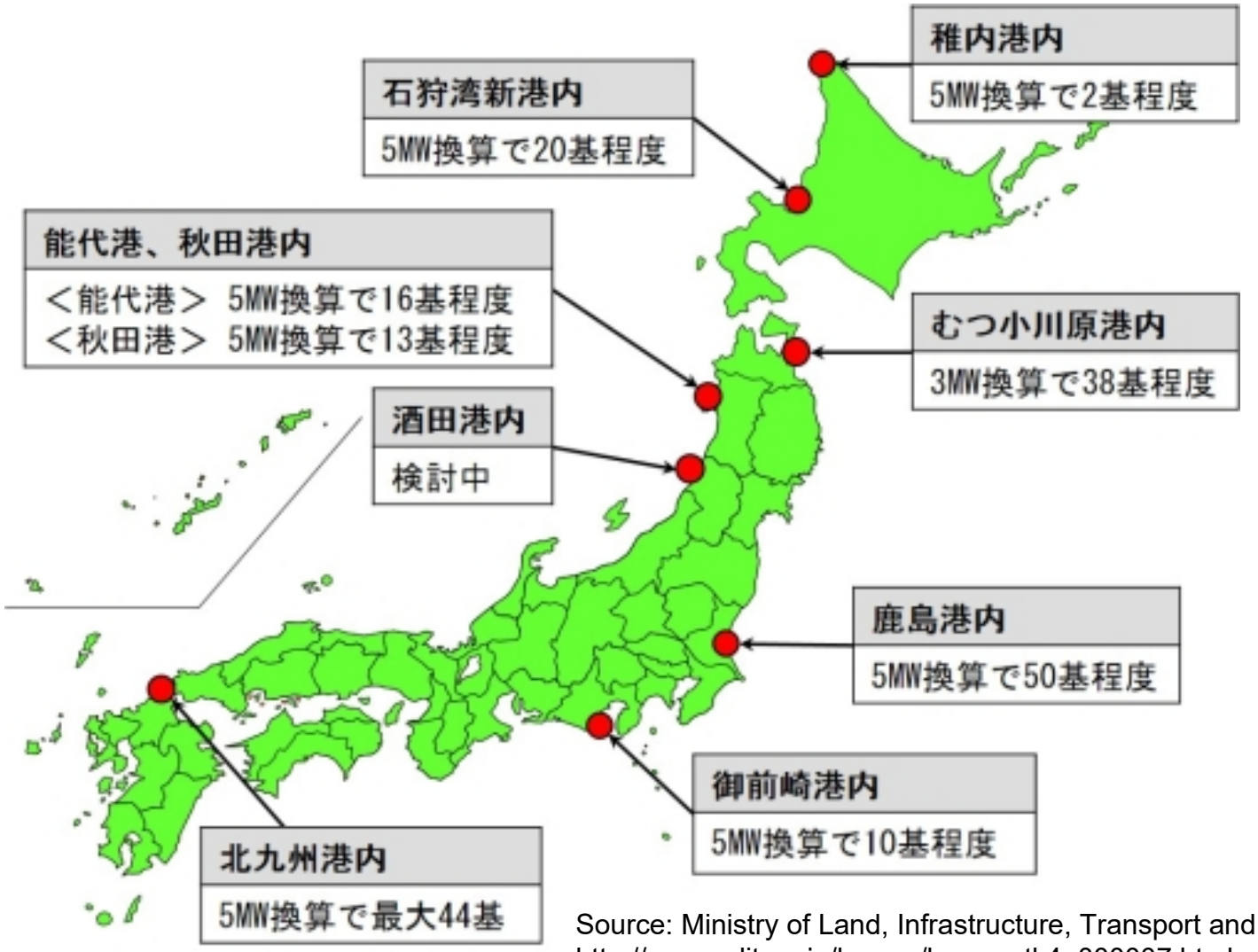

図 2-3　配置計画（2,100kW　8 基＋5,200kW　1 基）

Source: Toda Corporation, Draft EIS for Goto City Offshore Wind Power Project
（仮称）五島市沖洋上風力発電事業　環境影響評価準備書

図 5-2　将来の眺望景観（水平画角 60°）（2-①箕岳展望所）

Source: Toda Corporation, Draft EIS for Goto City Offshore Wind Power Project
（仮称）五島市沖洋上風力発電事業　環境影響評価準備書

# Use of port areas for renewable energy




Source: Ministry of Land, Infrastructure, Transport and Tourism
http://www.mlit.go.jp/kowan/kowan_tk4_000007.html

# Why port areas?

- Maintained by local port authorities under the auspice of a national ministry (the MLIT).
  - Clear jurisdictional demarcation
  - Management of sea areas is assigned to many different ministries/departments, leading to uncertainties and lack of responsibility.
- Less worries about reaching agreements with local communities and fishermen.
  - Heavy industry uses on the shore
  - (In principle) No formal fishing rights recognized in these port areas

# Recent challenges and developments

- Cancellation of new projects
  - Kashima Port Project by Marubeni Co. in December 2016.
    - ✓Continued by Windpower in 2017
  - Iwafune/Murakami Project by Hitachi Zosen (shipbuilding) on Nov. 30, 2017.

- Government's intention to pass a new law for promoting offshore wind turbines.

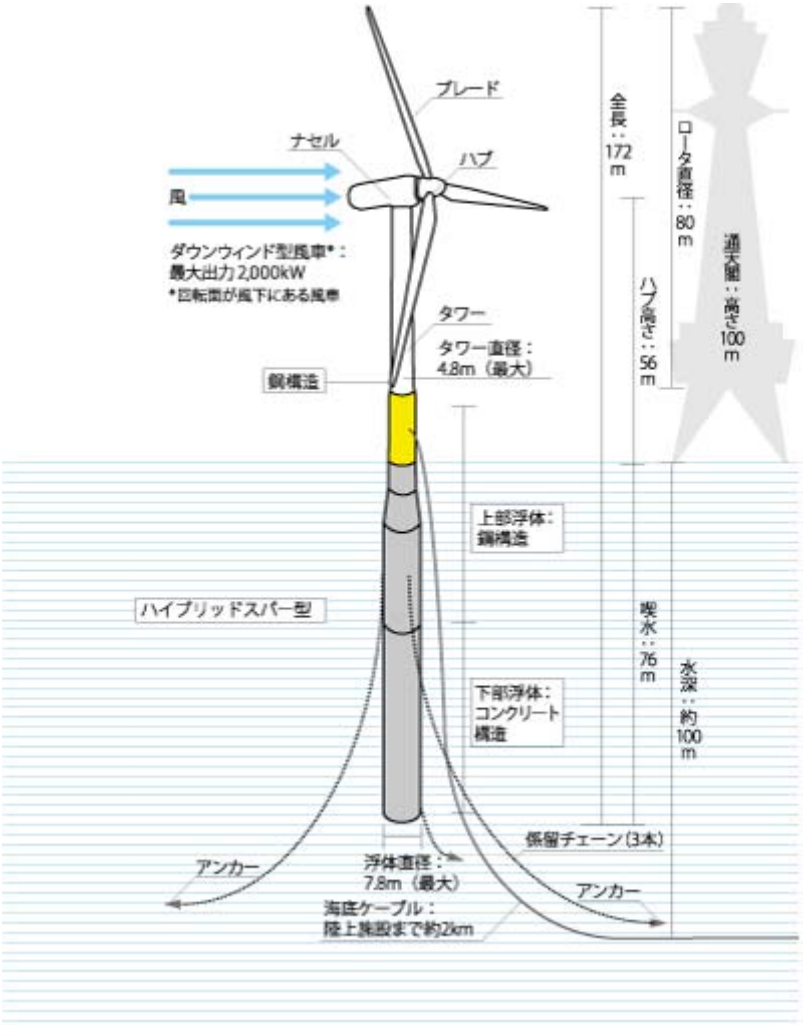
# Lessons from “successful” siting cases

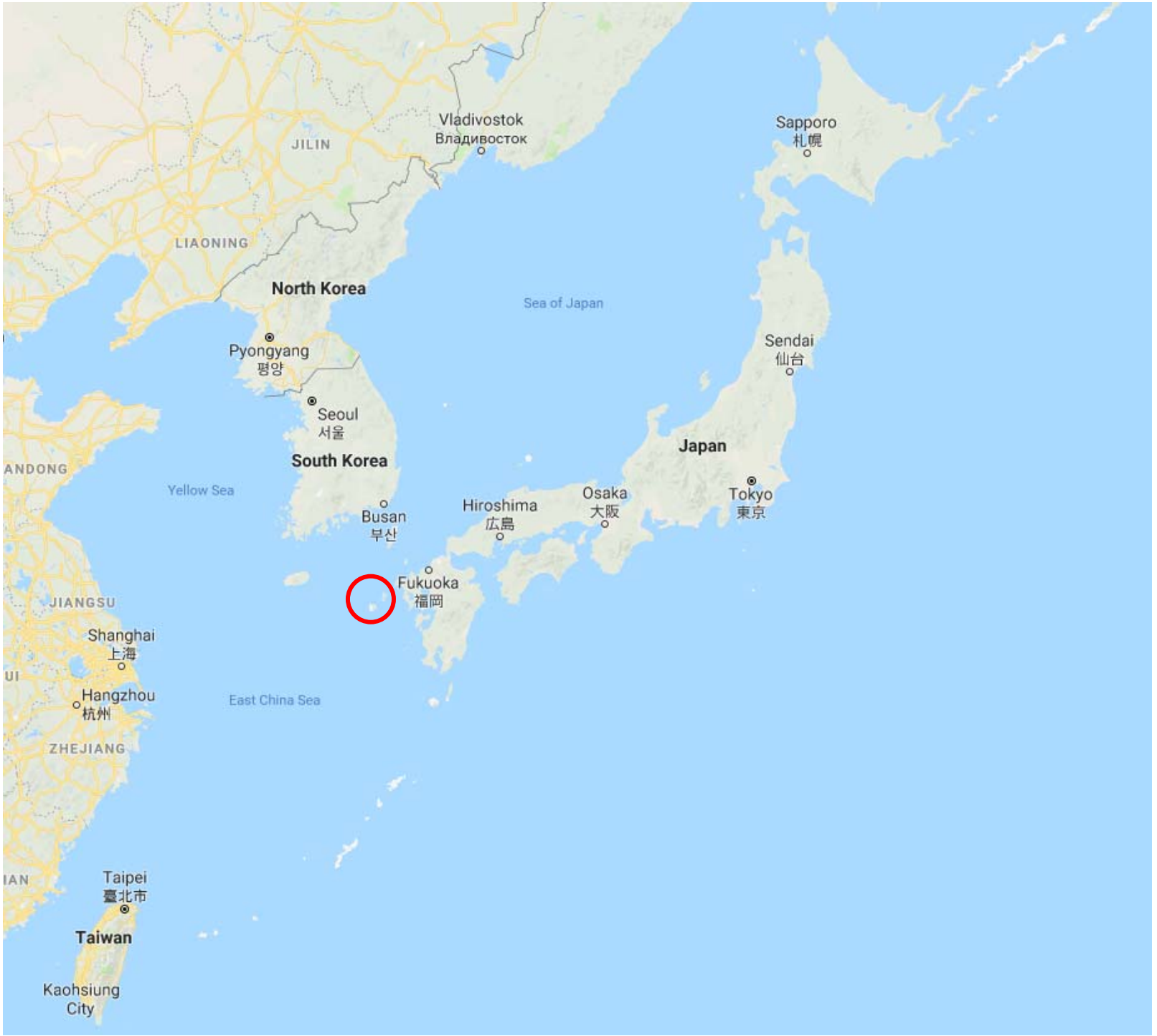
- Goto Floating Offshore Wind Turbine project

- Choshi TEPCO project

# Goto FOWT project

- Kyoto University and Toda Corporation
- Initial funding by the Ministry of Environment
- Goto Islands, Nagasaki Prefecture
  - Off Kaba Island (153 residents)
- Timeline:
  - 2010: MoE accepted the proposal
  - 2012: The team approached the local municipality
  - 2013: Full size experimentation in Oct.
  - 2016: Moved to Fukue Island

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Japan
South Korea
ANDONG
Yellow Sea
Busan
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広島
Osaka
大阪
Tokyo
東京
Fukuoka
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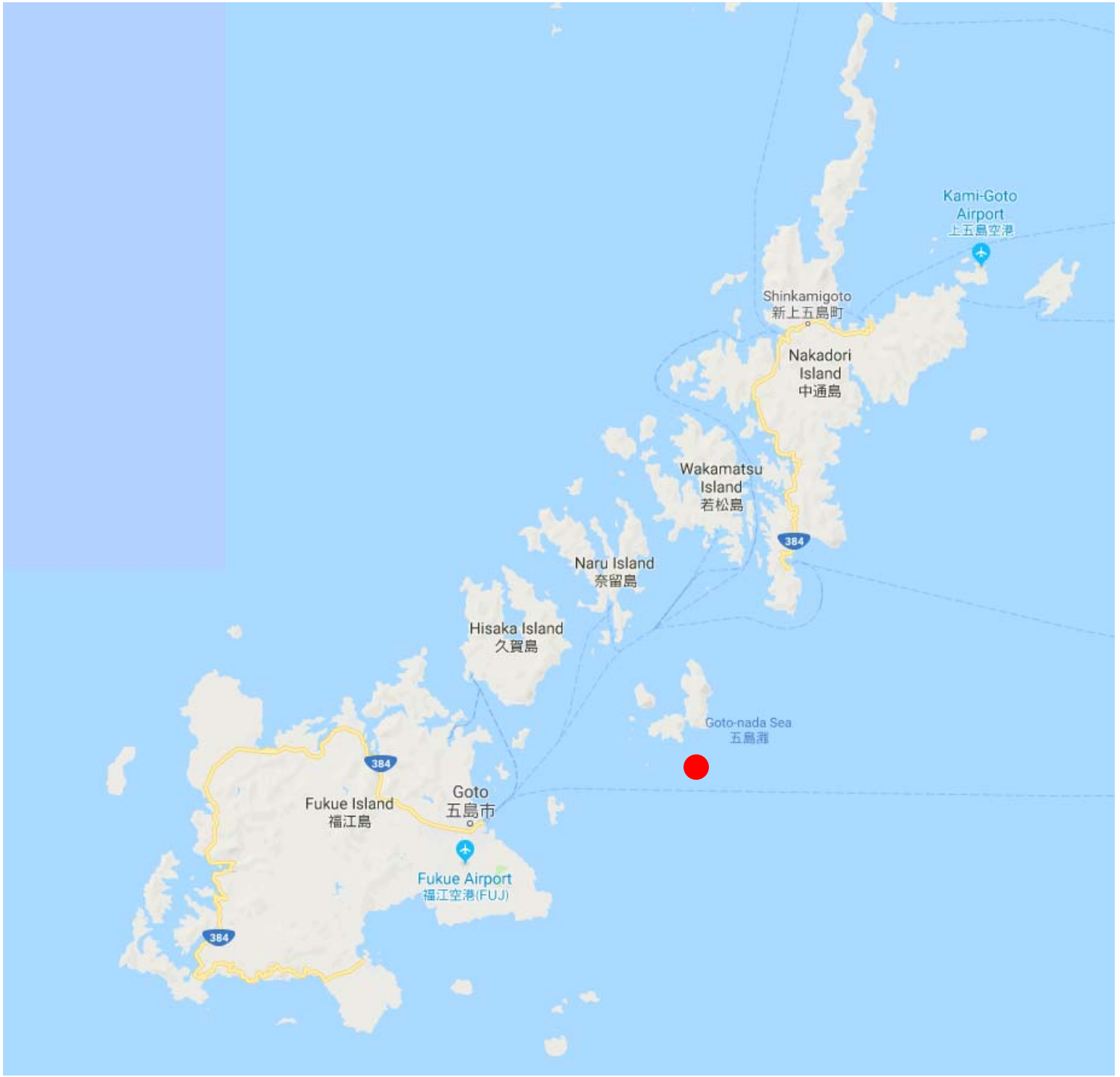
Taiwan
Kaohsiung
City


Kami-Goto Airport
上五島空港
Shinkamigoto
新上五島町
Nakadori Island
中通島
Wakamatsu Island
若松島
384
Naru Island
奈留島
Hisaka Island
久賀島
Goto-nada Sea
五島灘
384
Fukue Island
福江島
Goto
五島市
Fukue Airport
福江空港(FUJ)
384

# Key lessons from the project (1)

- A local municipal government officer committed to the project
  - Mediating between the project manager and local stakeholders
  - Now promoting offshore wind as the municipality's core competence.
- Experimentation as a means of adaptive environmental management
  - Limited to three years
  - Ameliorating fishermen's concern about possible irreversible damage

# Key lessons from the project (2)

- Islanders were impressed by the range of visitors to the community
  - Minister of Environment, Nobuteru Ishihara (son of a famous novelist/Tokyo Metro governor).
  - Local facility for welcoming visitors, helped by community members.

# Key lessons from the project (3)

- Working closely with the local stakeholders and fully understanding their concerns.
  - Developed a fuel-cell fishing vessel with the MoE funding

# Choshi TEPCO project

- Tokyo Electric Power Company (TEPCO)
- Funding by the New Energy Development Organization (NEDO), under the Ministry of Economy, Trade and Industry (METI)
- Choshi City, Chiba Prefecture
  - Off the community of Togawa
- Timeline:
  - 2009: NEDO accepted the proposal, the staff approached the local communities with a local liaison
  - 2013: Full size experimentation in January.
  - 2015/7: Agreements for continued operation


Vladivostok
Владивосток
JILIN
Sapporo
札幌
LIAONING
North Korea
Sea of Japan
Pyongyang
평양
Sendai
仙台
Seoul
서울
Japan
South Korea
ANDONG
Yellow Sea
Tokyo
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Osaka
大阪
Hiroshima
広島
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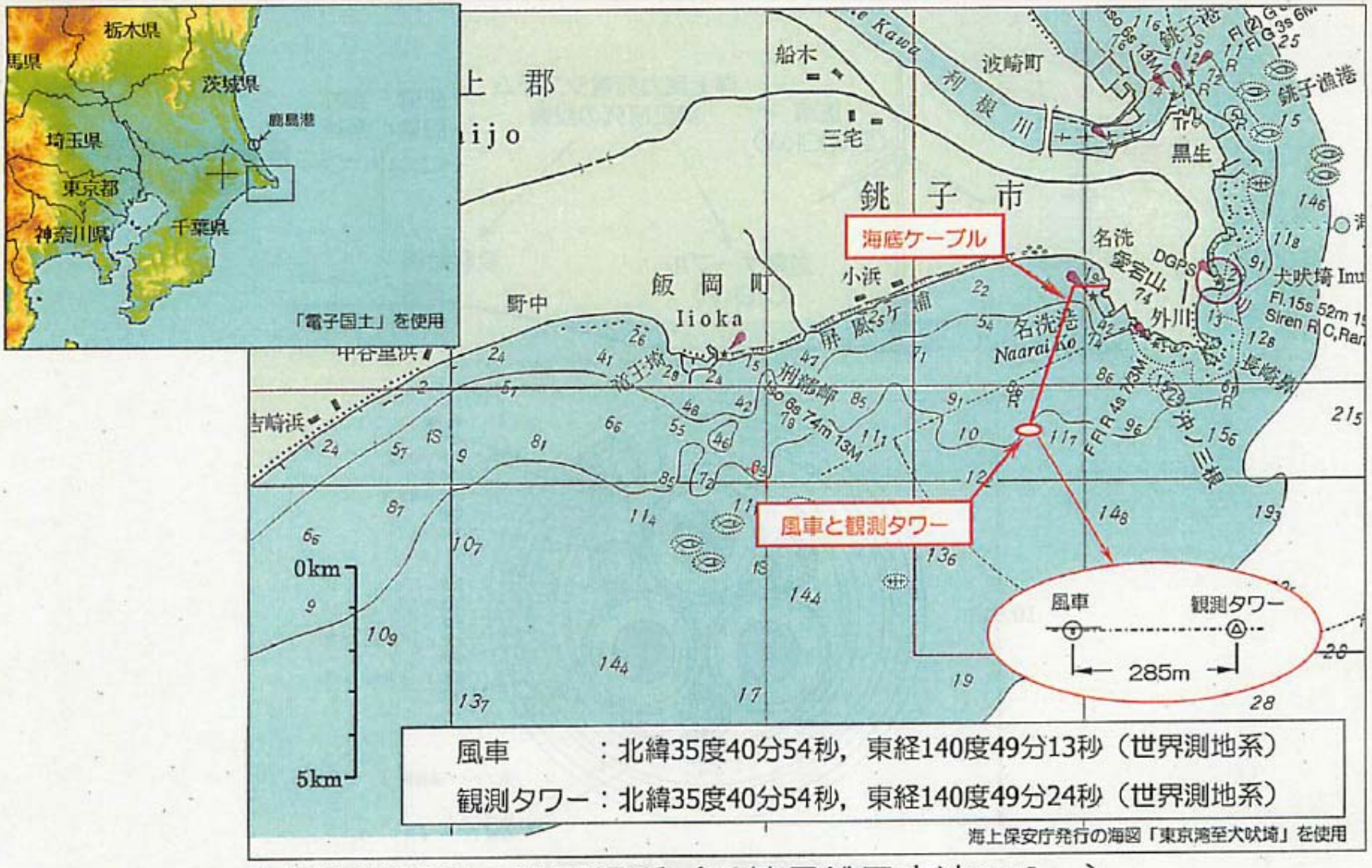
Fukuoka
福岡
JIANGSU
Shanghai
上海
Hangzhou
杭州
East China Sea
ZHEJIANG
Taipei
臺北市
Taiwan
Kaohsiung
City

# 1. NEDO洋上風力発電実証研究の概要




実証研究設備の設置場所（千葉県銚子市沖3.1km）

東京電力

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Source: TEPCO, handout for a site visit to the offshore turbine


NEDO

# Key lessons from the project (1)

- Working with local staff to get in touch with the local stakeholders
  - Project managers from Kawasaki (100km away) approached local stakeholders with help of TEPCO's local staff members.
- Experimental framing of the project
  - Limited to three years, guarantee of removing the facility after the experimentation
  - National experimental project, not a profit-driven project
  - Allowed a staff member at the Research Institute to continue to work on this project for an extended period of time

# Key lessons from the project (2)

- Tangible benefits to the local fishermen
  - Hiring vessels for environmental studies
  - Seemingly better fishing resources around the foundation


Source: TEPCO, handout for a site visit to the offshore turbine

# Lessons learned

1. Involve key stakeholders from the early phase
2. Work with the local government
3. Individual staff working closely with community members, trust building
4. Adaptive management: start small as experimentation
5. Take advantage of community pride
6. Provide benefits to local communities