

Communication process of offshore wind development between fishermen and developer ~ Goto City, a case study ~

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Offshore wind project are expected to be one of important energy resources in the future. However, with regards to the sea area utilization, the communication process between developer and fishermen is still not clearly defined. The purpose of this paper is to discuss a communication framework between developer and fishermen for an offshore wind project. The results recommend managing stakeholder concerns with official meeting and establishing another meeting to work with local stakeholders to realize their local activities.

Keyword offshore wind energy, social acceptance, stakeholder

1. Introduction

The Japanese government announced renewable energy as a major future energy source in the Fifth Strategic Energy Plan (2018). Being an island nation that is naturally surrounded by water, offshore wind projects (OWPs) are expected to become an important source of energy generation for Japan. The bill promoting ocean renewable energy passed through the House of Representatives in November 2018 and within this bill, the permission process of long-term occupation of the general sea area is described. Regarding communication between OWP developer and local stakeholders, it was described to establish local Renewable Energy Committee (REC), however communication process will be designed by local authority. Therefore, it mostly depends on the skills and motivation of the local authority.

As Japanese fishermen face the challenge of decreasing fishing amount, it is even more desirable to reach a favorable situation for both of developer and fishermen for OWP development. Therefore, in order to ease the fishermen's concerns, avoid misunderstandings and reach consensus, it is required to involve fishermen in the early stages of the project.

Conflicts between developers and local stakeholder frequently arise, typically during the environmental impact assessment (EIA) phase. Stakeholders' concerns can be broadly divided

into two categories. On the one hand, there are concerns that can be addressed and explained by further research conducted by the developers (e.g. economic and ecologic impact). On the other hand, the local stakeholder's personal skepticism about the project and fear of negative impacts to their own user rights might not be easily explained by mere statistical facts (Wever, 2015). While EIA do address issues related to the nature and the environment, not all concerns of the local stakeholders are taken into consideration, which might lead to conflicts within the project development process (Larsen, 2018).

The EIA process of Goto city for a commercial-based OWP started in 2016 and it experiences less problems involving fisherman compared to other OWPs. This is because developers started to communicate with local fishermen since the pilot project started. During this process, trust between developer and fishermen was built. In addition, coproduction between developers and fishermen is also promoted in Goto city as an important factor to support the relationship. The research at hand aims to discuss a communication framework between developer and fishermen for OWP.

2. Research framework

2.1 Promotion of OWP with REC

The Japanese sea area is divided into 2 areas; the general sea area and the port area. At first, a manual for OWP installation within the

port area was announced by the Ministry of Land, Infrastructure and Transport and the Ministry of Environment in 2012. In the port area, the body promoting OWP is a local port authority. The manual recommends organizing a REC including stakeholders to select the site. After the site selection, project details will be determined, and the public tender process will start. According to the advice from the REC, the local port authority choose the developer, who will participate in the REC. In practice, the REC is the place for communication between stakeholder and developer. As a temporary measure, some municipalities which would like to install OWP in the general sea area started to establish such kind of REC and started communication with stakeholders.

The new “Act on Promotion of Use of Sea Area for Arrangement of Marine Renewable Energy Power Generation Facilities” passed the diet in November 2018, to designate the promoted area for the installation of OWP including the general sea area. The establishment of a REC and public tender process is following the manual for OWP installation within the port area.

Above mentioned, Japanese OWPs are promoted by REC scheme. Concerns of stakeholders can be reflected in the discussion process as much as possible. However, the practical scheme for communication is not clearly determined. Hence, the structure of REC can be directly related to the quality of stakeholder management (Reypens et.al, 2016). It is important to consider, what kind of factors should be satisfied for a better REC scheme.

2.2 Case study

Goto city is located in the south of Nagasaki prefecture in the Kyusyu area in Japan and the population is 38,000. The area spans 420 km². Goto city consists of 11 habited islands and 52 non habited islands. The main industries are agriculture and fishery.

In the end of 2010, Goto city was selected as a site for the first pilot floating OWP by the Ministry of Environment. The spar type floating foundation was constructed by the construction company that will be the future developer for the commercial based OWP in Goto city. A a 1:2 scale, three prototype was

installed off the coast of Kabashima island in 2012 and wave, wind and environmental conditions were measured during the test operation, in order to manufacture the prototype.

The EIA for the 2MW prototype was conducted in 2011. The investigated items are noise, low frequency sound, landscape, turbidity, noise in water, and bird strike. The overall effect on the environment was estimated low and the 2MW prototype was installed in 2015. After one year of test operation, the prototype had to move to Fukue island, the biggest island in Goto city, because residents in Kabashima island are too few to utilize the whole electricity produced by the prototype. Off the coast of Fukue island, the prototype started commercial operation. Because the developer had to invest in the electricity cable connecting the turbine to the island, it is not economically feasible to operate only one turbine. A commercial based 22 MW project was proposed by the developer and EIA started in 2016.

In 2014 Goto city established a REC and in addition an Island Fishery Promoting Research Meeting (FPM) was established in 2015. This setup is unique to Goto city, therefore, this research will focus on those 2 communication bodies.

2.3 Methodology

We conducted this research via paper, interview and observation survey. The interview survey was conducted in November 2018 and in March 2019. In addition, we participated in FPM as an observation procedure (Table1).

3. Result

3.1 Goto REC

In 2014, the Renewable Energy Department of the local authority established “Goto REC”. At the first meeting, the status of the negotiation process with local fishermen was explained. As mentioned above, the 2 MW prototype had to be relocated from Kabashima to

Table1 Survey details

Paper	Protocol of REC, Protocol and provided material at FPM
Interview	Renewable energy department and Fishery department of Local Authority
Observation	FPM from 2016 to 2018

Fukue island, the developer had to negotiate with local fishermen to obtain an agreement document. At first, the negotiation was challenging, and it seemed impossible. However, the local authority and the president of the local fishery union supported the negotiation process and finally, the developer could get agreements from the fishermen. The president was the former chairman of the local assembly and he believes that the OWP could be a chance for the fishermen's future development.

For detailed discussion, Goto REC established 3 working groups (WG). The "Regulation WG" discussed mainly about the issues of shipping safety, the "environmental WG" discussed mainly about the EIA requirements as well as landscape issues, and the "Fishery WG" discussed the possibility to manage each local fishermen's profit and risk. In addition, a research meeting for renewable energy related industry was established and the local industry started to join the process.

During the Fishery WG, difficulties to unite fishermen's concern was discussed using the interview results of local fishermen. Because of various fishing methodologies, it is not possible to satisfy all fishermen with Goto OWP. An OWP can generate profits for coast area fishing, however it is sometimes harmful and creates obstacles to other fishermen. Fishermen requested the establishment of a foundation for fuel cost and fishing boat insurance support.

Such kind of fair support for fishermen was recommended by the "Fishery WG" to developer and it was decided to establish a fishery promoting foundation scheme after Goto OWP operation start. The estimated yearly allowance of the foundation is 180,000US Dollar and it will be allocated to individual fishermen for shipping boat insurance and fuel cost. There are other ideas. Examples are: discharge of small fish and a seaweed recovery project, However, because it contributes only to coastal fishing, but not to offshore fishing, it was not recommended by the "Fishery WG".

3.2 FRM

In 2016, the/an(?) FRM was established by the Japan Fisheries Research and Education Agency to consider future fishery development

combined with OWP. The administration works are supported by department of renewable energy and the department of fishery of Goto city jointly. Participants are developer, fishermen, the local authority, automobile industry and researcher. The main project of FPM is the design for a fishing boat with hydrogen engine supplied by OWP. That is also the reason why an advisor from the automobile industry is also invited as an advisor.

In addition to the main project, small projects were organized. Seaweed recovery project which was already started by a local fishery group in 2012 and was not accepted by the REC is started as one of the FPM's projects. Methodology of energy saving operation for fishing boat is also started as a project, due to fishermen concerns of how to reduce fuel costs. These small-scale activities are added by the local authority. All participants gather annually or semi-annually to share the progress of each project.

All projects are developed by the collaboration between researchers and fishermen. For the main project, the researchers initiated the discussion with fishermen to consider the arrangement plan of shipping boat with hydrogen engine. For the project of energy saving operation for fishing boat, a measurement facility was equipped on the fishing boat and it is investigated when and how a fishing boat use the most energy and how it is possible to reduce energy use. For the seaweed recover activities, the researchers visited local fishermen to investigate the condition of the seaweed and informing and educating fishermen the possibilities and the positive effect of seaweed recovery. In March 2019, the city department of fishery announced a plan for seaweed recovery, upon the successful case from FPM. The researcher mentioned that he had no experience working with fishermen directly until this time. The fishermen mentioned that working with a researcher is a good opportunity, because the scientific analysis is reliable, and it reinforce their own activities.

4. Discussion

Goto REC works for specifying the possible risks and considering how to manage

those risks. To consider risks and profit, “fairness” of profit generated from the Goto OWP is important. The establishment of fishery foundation is very unique to divide profit fairly. However, it was difficult to consider about a project which can contribute to fishermen.

FPM mainly contributes to project development of local fishermen. Because the project was largely focusing on fishermen’s challenges, it can contribute to motivate fishermen to participate in the process. The support from a researcher was efficient and this kind of new synergy can form a new type of policy making.

Proceeding those process, the president of local fishermen union contributed not individual profit, but to consider fishery industry as a whole. Such kind of key person is important to proceed communication process between developer and stakeholder.

5. Result

This research aim is to discuss about the communication framework between developer and fishermen for OWP.

The REC which is organized by the local authority worked well to manage conflict and seek to find out how to divide the profit fair. On the other hand, FPM can consider fishery cooperation with project base. Working with researcher, there are more fishermen motivated by the results.

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