EXPLORING OPPORTUNITIES OF ADDRESSING CONFLICTS BETWEEN FISHERIES AND OFFSHORE WIND ENERGY INDUSTRY

−FROM A STAKEHOLDER PARTICIPATION PERSPECTIVE

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Sharing science,
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Abstract

The increasing demand for renewable energy and the developing climate awareness has accelerated the growth of wind energy. Owing to the availability of resources and the technological advancement of cost-efficiency, it has promoted the rapid development of offshore wind energy. However, the development of offshore wind power and preexisting maritime industries and communities, that is, fishery, have created a conflict of marine space use and a clash of interest.

The conflict between these two industries may lead to potential obstacles to the development of marine renewable energy. Previous studies have shown that the participation of stakeholders will not necessarily resolve conflicts of interest, but it could increase mutual trust among participants and reduce the difficulty of developing offshore wind energy. It can be said that fishery stakeholders participate in the offshore wind energy planning process plays an important role in the energy transition.

This research presents the opportunities of the fisheries stakeholder involved in developing offshore wind farms in the UK and Taiwan, mainly focusing on the latter. The aim of this analysis is to ultimately reduce or prevent the conflict between the offshore wind industry and fishery in Taiwan by comparing a developed practice of stakeholder participation in the UK with the fledgling case in Taiwan.

Through documents analysis and interviews with stakeholders, it is found in this research that the participation mechanisms could lead to the dominance of empirical data and technocrats, which is observed in the two cases, while the case in the UK provides more room for fishery stakeholders to involve. In addition, informal consultation, consistent data, and adequate representation of fishers could effectively raise the trust of fishery stakeholders, thereby decreasing conflicts.

Keywords: offshore wind energy, fisheries, conflict, and stakeholder participation.

List of Acronyms

OWF	*Offshore wind farms*
OWE	*Offshore wind energy*
UK	*United Kingdom*
MSP	*Marine Spatial Planning*
NIMBY	*Not in my backyard effect*
FLOWW	*Fishing Liaison with Offshore Wind and Wet Renewables Group*
CFLO	*Company Fishing Liaison Officer*
FIR	*Fisheries Representative*
MMO	*Marine Management Organization*
EIA	*Environmental Impact Assessment*
EIS	*Environmental Impact Statement*
EPA	*Environmental Protection Agency*

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1. Introduction

1.1 Background information

The reduction of fossil fuels or conventional energy has been the consensus of many countries since 1990, which was reflected in the Paris Agreement in 2015. In addition to reducing carbon emissions, the benefits of using renewable energy can also bring additional energy security to countries that are unable to produce conventional energy sources like coal or natural gas (Esteban et al., 2011). Therefore, with the necessary orientation towards renewable energy, wind energy plays an important role among all renewable sources.

The availability of resources and the technology's maturity in cost-efficiency leads wind energy to an essential role in renewable energy, therefore, from 2001 to 2007, wind energy is the most blooming one among all renewable energy sources. The annual global wind capacity additions have grown from about 25,000 MW to approximately 80,000 MW in 2001 to 2007 (Esteban et al, 2011). The noticeable growth of offshore wind energy (OFE) can be attributed to two determining factors: the lack of open land for the development of onshore wind farms; and the expectation of overall lesser influence in the environment with offshore wind farms (OWF) contrasted with onshore wind farms (Esteban et al., 2012), for example, offshore wind speeds tend to be faster and steadier than onshore, and a larger suitable free area in the sea for OWF being installed, which could lead to greater installations (Esteban et al., 2012). These advantages have caused many countries to accelerate their offshore wind energy development in recent years includes European countries, such as the United Kingdom, Germany, Denmark, and the Netherlands (Bilgili et al.,2011).

Nevertheless, these rapid developments also bring problems; an issue that cannot be ignored is the spatial using conflict, especially the conflict with commercial fisheries, highlighted by Gray et al. (2005). The main reasons for the conflict between OWF and fishery are the negative impacts caused by construction and operation, as well as the spatial exclusion of fishing grounds. The conflicts between OWF and fisheries could lead to a deeper consequence, that is, the series of restrictions brought by OWF not only threatens livelihoods of fishermen[1], but also the traditional way of fishermen's lives and thus brings social conflicts (Haggett et al., 2020). It is widely accepted that the successful development of the renewable energy sector depends to a certain extent on

[1] Fishers is a gender-neutral term of fishermen while it is not discussed in this study. Therefore, fishers and fishermen are mixed used in this study.

the acceptance of the projects by stakeholders (Wever et al., 2015; Chen et al.,2015; Enevoldsen & Sovacool, 2016; Dwyer &Bidwell, 2019).

In addition, it has been pointed out that effective and early participation of fishermen is essential to increase acceptance. For example, formal consultations, that is, providing fishermen with information about the project and discussing their possible problems and concerns, are the attraction and enabling for fishermen to participate in decision-making (Wever et al., 2015; Chen et al.,2015; European MSP Platform, 2018; Kafas, A. et al.,2017).

However, previous studies have shown that fishers negatively view the negotiation process (Gray et al., 2005; Alexander et al., 2013a). Many fishers in the UK believe that there is almost no meaningful discussion between fisheries and offshore wind energy developers. They may sometimes influence the process, but the ultimate power is still in offshore wind farm developers (Gray et al., 2005).

Gray et al. (2005); and Alexander et al.(2013a) highlight that although the consultation process is essential, consultation is not effective in enhancing fishermen's acceptance of OWF because the consultation process is only "verbal", and the imbalance of power means that fishermen have limited opportunities to influence decision-making. O'Faircheallaigh (2010) and Reilly et al. (2016) have noticed that stakeholder participation in decision-making is more beneficial than consulting. Therefore, exploring existing fishers' participation mechanisms and evaluating opportunities to increase the effectiveness of participation would have a significant impact on the development of offshore wind power for its sustainability.

Therefore, assessing the contribution of stakeholders participating in the process of OWE could reduce the conflict and thereby boost the progressing transition towards renewable energy with a special focus on the OWE sector in the UK and Taiwan. The former is regarded as the country with a significant contribution to OWE development and stakeholders involved in OWF process. In contrast, the latter is regarded as the country that is proliferating in OWE generation in Asia.

1.2 Problem definition

1.2.1 The case of the UK

For transiting towards a more sustainable energy system to lessen the dependence on fossil fuels, the Renewable Energy Directive is introduced in 2009 by the EU, which guides that 20% of the EU energy has to be reached by renewable energy by 2020. To

follow the directive, the target for UK is that 15% of the final energy consumption should be accounted for renewable energy by 2020 (Department for Business, Energy and Industrial Strategy, 2020).

Overall, the UK has dragged the most investments in offshore wind energy in the EU since 2009, while the UK has the largest offshore wind capacity in Europe in 2020, with 42% of all installations at 10,428 MW of total offshore capacity (Ramírez et al., 2021).

In addition, among all renewable energy source in the UK, offshore wind energy is also regarded as one of the rapid growing sectors. For example, electricity generated from renewable sources increased between 2018 and 2019 to a record 120.5 TWh, while it was buoyed by the large increases in capacity for offshore wind to 32.1 TWh (Department for Business, Energy and Industrial Strategy, 2020). However, the target cannot be satisfied by one department alone, but obliges stakeholder involvement and collaboration, which the attention is paid by Marine Management Organisation in the UK (MMO, 2019).

1.2.2 The case of Taiwan

Taiwan currently derives 80% of its energy from fossil fuels and only 5.6% from renewables (Taipower, 2020). However, the government expects to achieve its target of 20% renewable energy by 2025. The goal of increasing the power capacity generated by OWFs in 2025 is 5.7 GW, compared to the offshore wind power capacity in 2019 of around 0.2 GW from the demonstration unit (Taiwan Executive Yuan, 2019). The Taiwanese government's motivations for developing offshore wind power are to achieve energy independence and reduce environmental pollution. Although there is sufficient sunshine and wind in Taiwan, solar energy and onshore wind power have their development limitations due to limitations of empty land. Moreover, Taiwan's geographical conditions are suitable for setting up offshore wind farms: the average depth in most areas of Taiwan Strait is less than 50 meters; the narrow tube effect of Taiwan Strait leads to a powerful wind speed and stable wind direction. Therefore, offshore wind power is suitable for Taiwan as an essential way to reduce the use of fossil fuels.

Based on previous news and reports, fishers are most concerned with fishing areas, shipping route limitations, and the marine environment's impacts (Sun, 2020). In addition, the fishermen and their respective associations prefer direct economic compensation and emphasize income losses from fisheries (Chen et al., 2015).

Specifically, the clashing interests between wind power development and fisheries in Taiwan mainly come from significant conflicts between these two sectors in Taiwan, including compensation disagreement, marine space allocation, and development process dispute (Chen, 2019; Chen et al., 2015; Shiau & Chuen-Yu, 2016). Although the government tried to provide fishers with compensation to resolve these conflicts, compensation strategies still suffer from two main problems. First, it is challenging to calculate fishery losses due to insufficient primary surveys and fishery statistics. Second, if negotiation processes for compensations are in deadlock, there is no room for a trusted arbitration mechanism to intervene (Sun, 2020).

Moreover, Chen (2019), Lu (2020), Lu & Liu (2017), and Wu (2020) have concluded that one of the strategies in common to solve the above-mentioned conflicts is to embrace an exhaustive stakeholder participation within the process of developing OWF. Therefore, Taiwan's offshore wind energy development cannot only be viewed as an energy issue, but one in which the social and political aspects must also be considered. It is also pointed out by Wu (2020) that a comprehensive stakeholder involvement is a crucial step for Taiwan developing offshore wind energy toward the goal of energy transition while preventing and mitigating the conflict between the two above, which brings out the research objective and research question that are elaborated in the next section.

1.3 Research objective and research question

The research objective is to better understand if form and extent of participation of the fisheries sector in decision making regarding OWF development has an impact on avoiding, solving, or mitigating conflict by elaborate the opportunities of stakeholder participating in offshore wind energy development process in the UK and Taiwan while placing extra emphasis on the latter.

Therefore, the main research question is:

How does fisheries stakeholder participation play a role in the planning process of offshore wind farms in Taiwan and the UK, thereby impacting, avoiding, solving, or mitigating conflict?

1.4 Research framework and sub questions

To answer the main question and illustrate the broad lines of how the research objective was achieved, a research framework based on Verschuren & Doorewaard (2010) is shown in Figure 1.

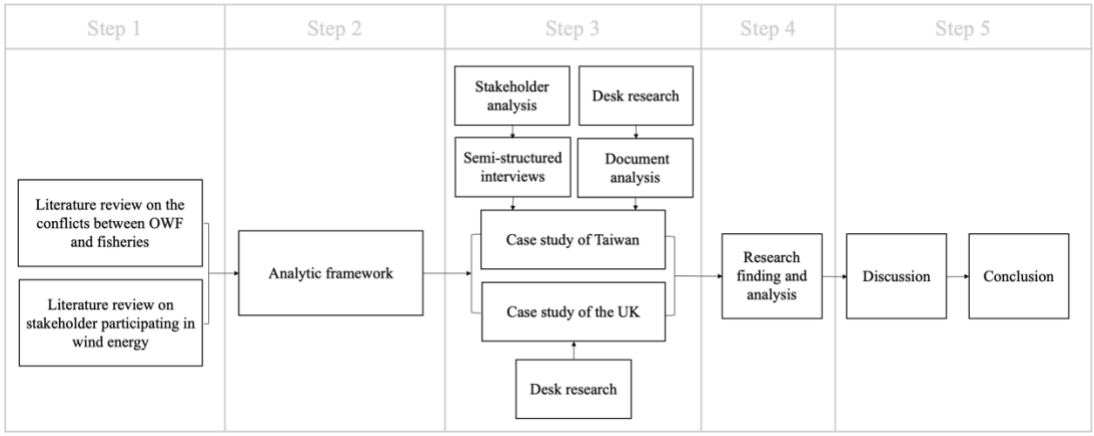

Figure 1. Research framework

This research framework is a schematic representation of the steps that were taken to achieve the objective. Firstly, a literature review provided the input for the nature of conflicts between OWF and fisheries. This review addressed a broad set of prevention and mitigation of conflicts from different scope and concluded in a common precondition as stakeholder participation. Secondly, based on this review, a theoretical framework was developed as the stakeholder participation perspective.

To answer the main research question, the following sub-questions, which include two descriptive and one exploratory question, are employed as intermediate steps:

SQ1: Who is involved and what are their roles in the OWF planning process?

SQ2: When are the fisheries stakeholders participated in the OWF planning process?

SQ3: How do these stakeholders participate and to what extent of the stakeholders participate in the OWF planning process?

SQ4: How does the stakeholders participate in the OWF process effect on conflict?

2. Theoretical backgrounds

2.1 Conflicts

The analysis of obstacles to the development of offshore wind energy is a longstanding discussion in the literature. The difference between theoretical and empirical strategies to exploring the subject that is be expatiated by various studies on strategies to prevent and mitigate conflicts (European MSP Platform, 2018; Devine-Wright, 2014; Devine-Wright, 2009; Todt et al., 2011).

A unique context through which conflicts related to the wind energy industry emerge can be found in case studies on OWE effects on fisheries (e.g., Todt et al., 2011). Moreover, the nature of conflicts or the stakeholders in the conflicts have been conducted in previous studies (Lacroix and Pioch 2011), for example Gray et al. (2005), Hooper et al. (2015) and Lodmell and Johnson (2002) in the UK; Haggett et al. (2020) in both the UK and US; Musial and Ram (2010) in the US; Buck and Buchholz (2004).

Conflict is defined as a term that describes a dispute, clash of interests, competing interests or disagreements used (Stepanova et al., 2020). In this study, conflict refers to situations where stakeholders, primarily fishermen and OWF developers, have incompatible interests within a geographical area. The conflicts are often seen as the result in the displacement of the fishery or damage of the wind turbine structure. Previous studies highlight those economic losses and threaten livelihoods are a typical feature of conflicts between OWF and fisheries (European MSP Platform, 2018).

The fact that the fishermen's opposition to the local construction of OWF can easily be regarded as a typical NIMBY reaction. However, according to Devine-Wright (2005), the NIMBY factor is considered to be too narrow to explain the nature of such conflicts, and also incorrectly describes the appearance of local opponents, for example, local people may be concerned about the legitimacy of the planning process; the inequality distribution of project benefits; the impact of OWF on the local economy, fishery culture and traditions (Todt et al., 2010), and the fact that the composition should not be out of context when analyzing their reasons for opposing OWF. The prevalence of NIMBYism in cases of conflict between OWF and fisheries evidences the centrality of limited maritime space as the core issue contributing to the conflict, as fisheries are not opposed to OWF development in general but only when it affects their livelihoods. In other words, conflicts arise when an exclusive territory plan occurs in a marine area that infringes on the benefits and values of various stakeholders to such a level that they cannot endure the change without negotiation.

The objective of many case studies on the nature of conflicts or the stakeholders in conflicts has been to investigate the characteristics and success of preventing and mitigating them using strategies. Such as increasing participation in decision-making processes (Bell et al.,2013; Devine-Wright, 2005; European MSP Platform, 2018); a higher-level policy framework such as marine spatial planning (European MSP Platform, 2018; Stelzenmueller et al., 2016); establish a liaison group to include different stakeholders and regulators (European MSP Platform, 2018; FLOWW, 2014; Dalton, 2019). However, for solving the conflicts, most scholars have emphasized a critical premise: effective participation for stakeholders in the processes (Alexander et al., 2013b; Reilly et al., 2015; Klain et al., 2017; Wright, 2016). Therefore, it is important for effective participation to be clarified. According to Rowe & Frewer (2000), the effectiveness of participation is concerned by who, when, and how the stakeholders are involved, which are elaborated in the following section.

2.2 Participation

Literature on wind energy policy analysis has increasingly examined on participatory and collaborative decision-making processes of stakeholders (Solman et al., 2021; Suškevičs, 2019; Langer, 2017). Stakeholders in this study are defined as any community or individual who is influenced by the movement of the organization's objectives (Freeman, 1984). Different terms like stakeholder participation or public engagement are found in the literature, but, 'stakeholder participation' is the primary term used throughout the remainder of this study for clarification.

There are both normative arguments and instrumental reasons for stakeholder participation in decision-making. Normative arguments tend to emphasize democratic legitimacy of both the process and the results of negotiations (Healey, 1997; Klijn & Koppenjan, 2003). On the other hand, instrumental approaches toward stakeholder decision-making concentrate more on involvement since it is possible for smaller influential stakeholders to deploy means to delay and or stop implementation (Breukers & Wolsink, 2007). Although participation in decision-making is unpromising to shift people who are fundamentally against wind energy into supporters, Breukers and Wolsink (2007) found that conditional supporters, such as local residents or nature protection organisations, may accept the wind farm when they have been given an opportunity to influence the decision-making. In addition, it is likely to improve the quality of the wind project when stakeholders bring in their knowledge and experiences (Breukers & Wolsink, 2007).

2.2.1 Who are involved?

A fundamental dilemma for assessing stakeholders participating in the offshore wind energy development process is "who" are the stakeholders authorized to participate in discussions and the development process. The difficulty is additionally pointed out by Pomeroy and Douvere (2008) that not too many stakeholders are participating in the project to impede and delay the process and not to miss essential stakeholders. Although fisheries are seen as one of the actors in the OWF, there are different kinds of fishermen and fishermen associations. Since the description of crucial stakeholders is a significant challenge, the stakeholder analysis approach identifies essential stakeholders for the OWF process is recommended by Ehler & Douvere (2009) and Pentz (2012) through identifying and describing stakeholders' interests and objectives. This comprehensive method sketches the interrelationships among stakeholders (Ramirez, 1999).

2.2.2 When are stakeholders involved?

Following the question of who should be involved in the OWF process, the next step is to distinguish the most appropriate point of time for participation. Jami & Walsh (2014); Corscadden et al (2012) and Gilliland & Laffoley (2008) determined that early engagement of the stakeholders is a preliminary achievement of the elements of stakeholder participation in offshore wind energy development, which is ensured by sufficient steps to notify the interested stakeholder about the decision-making process and its results and build the intent for change and alternative options if required.

However, Ehler & Douvere (2009) state that not all stakeholders need to be entangled all the time since expert instruction could be underemphasized or missed in some cases. In addition, an inadequately regulated stakeholder participation process has an opportunity to lead to the loss of a public official's creditability since authorities' implementation of achieved decisions is not always promised (O'Faircheallaigh,2010; Coenen & Frans, 2009). In addition, according to Jami & Walsh (2014), the decision-making process is not linear, but a systematic evaluation is thereby needed for identifying remedial steps driving to the constant improvement of the process.

2.2.3 How do stakeholders involve?

This study draws extensively upon Jami and Walsh's (2014) framework for developing indicators for variables of OWF stakeholder participation, as shown in Table 1. To be clarified, the "public" from Jami and Walsh (2014) is refers to the fisheries stakeholders in this study.

(a) Approach of stakeholder participation in decision-making

There are different ways for stakeholders to be involved in decision-making processes, ordering from those that capture input opinions to those that need assessments that shape decision-making processes. The former can refer to top-down delivery of information between governors and the stakeholders, such as public opinion surveys or focus groups, while the latter refers to a two-way information exchange that attempts stakeholders' involvement and more direct engagement, such as consensus conferences or citizen jury. As this study focuses on fishermen's participation in the development of OWF, this framework is a necessary indicator to identify how fishermen participate in the decision-making process.

Table 1. Public participation techniques (Jami & Walsh, 2014, page 197).

Method	**Description**
Referenda	Vote is usually a choice of one of two options, all participants have equal influence.
Public hearing	True participants are experts and politicians making presentations, the public may voice opinions but have no direct impact on recommendation.
Public survey	Sample of the population segments of interest is participating, often achieves through written questionnaire or telephone survey.
Negotiated rulemaking	Small number of representatives of stakeholder groups (may include public representatives) are major participants, consensus required on specific question/ regulation.
Consensus conference	Lay panel with independent facilitator questions expert witnesses chosen by stake-holder panel, meetings open to wider public. Conclusions on key questions made via report or press conference.
Citizen jury/panel	Generally, twelve to twenty members of the public are selected by a stakeholder panel to be roughly representative of the local population. Similar to consensus conferences but meetings not generally open.
Citizen/public advisory committee	Small group selected by sponsor to represent views of various groups or communities to examine some significant issue, and interaction with industry representatives.

Focus groups	Small group of five to twelve selected to be representative of public, free discussion on general topics with video/tape recording and little input/direction from facilitators to assess opinions/attitudes.

(b) Levels of stakeholder participation in decision-making

After examining the different techniques of stakeholder engagement, Arnstein's (1969) ladder of participation becomes one of the appropriate frameworks for this study, which measures different levels of participation and influence in decision-making processes, especially in the fields of environmental governance (Arnstein, 1969), to examine the techniques of participation proposed by Jami and Walsh (2014).

Table 2. The ladder of participation (Arnstein, 1969).

Categorizations	**Levels of participation**
Real participation	Citizen control
	Delegated power
	Partnership
Symbolic participation	Placation
	Consultation
	Informing
Non-participation	Therapy
	Manipulation

Arnstein provided three categorizations, non-participation, symbolic participation, and real participation, and eight levels of participation, however, it is still too vague to analyze. Therefore, a stakeholder participation spectrum based on Arnstein's that was developed by the International Association for Public Participation (IAP2) is used in this study. Ditto, to be clarified, the "public" from International Association for Public Participation (IAP2) is referred to the fisheries stakeholders in this study.

Table 3. IAP2 public participation spectrum (Jami and Walsh, 2014, p. 199).

Levels of participation	**Description**	
Empower	• Citizen juries • Ballots • Delegated decisions	
Collaborate	• Citizen advisory committee • Consensus building • Participatory decision making	
Involve	• Workshops • Deliberative polling	
Consult	• Public comment • Focus groups	• Survey • Public meetings
Inform	• Fact Sheets • Websites	• Open houses

The lowest level of participation on this spectrum is providing simple information to the stakeholder. The next levels are consulting and involvement for considering stakeholder's views while the final decision is still made by public officials, which is usually in the form of formal consultation. The highest levels are collaboration and empowerment, which refer to a greater level of co-operation, shared objects, and joint decision-making (Jami & Walsh, 2014).

It is widely accepted that stakeholder participation in wind energy development is necessary, but it is debatable about which level of participation on the spectrum emerges. Rowe & Frewer (2000) also state that more "knowledge-based decisions require lower levels of involvement than value-based decisions, and the most appropriate method depends on the specific circumstances of each particular case"(Jami & Walsh, 2014: page 198).

Therefore, we cannot conclude that the same level of participation will necessarily emerge in the same way across all contexts. For example, in Taiwan, the value of stakeholders' input in the OWF process is recognized by both central and local governments, but, in practice stakeholders are provided with a limited role at best (Zhang et al., 2017).

3. Methodology

This chapter discusses the data collection methodologies applied in this study. The aim of this research is to address disputes between the offshore wind energy industry and fisheries by evaluating who, when and how fisheries stakeholder participates in the decision-making of offshore wind energy, therefore, the study is based on qualitative as well as case study, combining secondary data analysis through policy document analysis and semi-structured interviews.

First, the two types of research are explained, followed by an explanation of the methods of data collection. Subsequently, the method of data-analysis is presented followed by an explanation of how this methodology is reflected upon in the result chapter.

3.1 Research types

3.1.1 Qualitative research

The reason for making use of quantitative analysis rather than qualitative research is the further builds on words and language instead of numbers or numerical data, therefore, quantitative analysis provides an insight of reasons behind certain behavior. It is highlighted by Van Thiel (2014) that rigor reliability and validity are two important criteria to increase the quality of quantitative research. The reliability of the outcomes is restricted by the precision and the consistency (Van Thiel, 2014). Therefore, this study assures accuracy by identifying clearly explained and theory-based variables to meet the objectives of the research.

For achieving consistency, the research data is obtained by triangulation methods and taken by the sources and steps are documented for reviewing and checking afterward. Furthermore, a pilot interview is also taken as a rehearsal of the interview questionnaire for ensuring consistency and achieving greater reliability (Van Thiel, 2014). With operationalized indicators by sufficiently translating from theoretical concepts, the internal validity of this study is guaranteed. However, it is worth mentioning that the generated results are neither generalizable nor universally applicable under any conditions.

3.1.2 Case study

This study makes use of a case research strategy to assess the opportunities to address disputes between the offshore wind energy industry and fisheries in Taiwan. a case study is defined by Yin (1994) as an empirical analysis that examines a present aspect

within the real-life context. Moreover, case study strategy is frequently applied in public administration and public management research as it highly links to contextual conditions (Van Thiel, 2014).

Since the conflict between offshore wind industries and fisheries is not isolated, and the nature of national-bound process, a case study research method for analyzing the stakeholder participation in the process of offshore wind farms development has been identified as appropriate for this study.

It is worth to be noticed that, in order to provide a solid research result and highlight the stakeholder participation process of OWF in Taiwan, this research additionally provides the experience of UK as a benchmark, and a mature experience of developing stakeholder participation in OWF (Esteban et al., 2011; Gray et al., 2005; Haggett, 2008). Therefore, rather than giving equal attention of two cases, this study takes the case of the United Kingdom as a basis for mirroring the case in Taiwan, which provides a more in-depth study of the latter. Therefore, this study is still set to be a case study rather than a comparative case study. In addition, to emphasize the research object base on Taiwan, the data in terms of the UK is taken by second-hand data and desk research.

3.2 Methods of data collection

The aim of this study is to better understand how the development of sustainable energy in Taiwan causes friction with preexisting maritime industries and communities in addition and how stakeholder participation contributes to reducing the dispute. This analysis is based on the categorization of participation level, based on several criteria, which are exhaustively explained in section 2.2.

These categorizations require an interpretive policy analysis to study the development of OWF, content and application of policies, policy documents and acts that collect data through interviewing, reading and observation (Yanow, 1996). According to Yanow (2000), policy analysis is based on interpretation, because policy analysis is not a way to understand the truth, but about how the policy is understood, and focusing on the gap between policy expectations and implementation. This gap may be due to the policy being understood and framed differently. Therefore, the core issue of interpretive policy analysis is to understand how policies are defined or framed from different perspectives, that is, how the value expressed by the policy is conveyed to different groups, including policy makers, implementing agencies, and affected citizens. In this study, the conflict between offshore wind power and fisheries can be viewed as the same policy framed by different industries. Therefore, a mixed method approach is used as data collection

of this study, which combines the analysis of policy documents about the offshore wind farm development process regarding fisheries field, with reflection through semi-structured interviews.

3.2.1 Document analysis

The aim of document analysis is to gather context and background information which can be useful for having a deeper understanding of the case study. Also, it is a suitable method to supplement the historical context of the case since document analyses are never fixed and static but need to be seen as situated products (Owen, 2014).

The reason that analysis policy documents is taken by this study is due to the documents were constructed by the governors to display the completion of the previous consultation process and thereby provide additional information, which are not illuminated in interviews for instance, while it is highlight by Bowen (2009) that policy documents could only show the bright side of the narrative or thin information.

O'Leary (2004) suggests the process of document analysis including four steps before analyzing data, namely gathering documents; organizing collected data, reviewing the credibility of the data by evidencing who produced the text and their background. All the documents as the data for this study are gathered by the government website, as the result, five documents were identified as essential for the document analysis. Table 4 provides an overview about the analyzed documents. Although all documents were assessed in the original language, that is Mandarin, the title of the documents are translated and attached the original name to the reference as verification.

Table 4. Documents used for analyzing the OWF process in Taiwan (Author, 2021).

Year	Type	Name	Responsible Agency
2015	Act	Operation Points for Offshore Wind Power Planning and Site Application	Bureau of Energy, Ministry of Economic Affairs
2018	Policy Paper	Offshore Wind Power EIA Review Situation Report	Office of Energy and Carbon Reduction, Executive Yuan
2020	Statutory Guidance	Application setup process of wind energy	Bureau of Energy, Ministry of Economic Affairs
2020	Academic Research	The Meeting as Convergence and Competition of Future Temporalities: An Ethnographic Analysis of the Environmental Impact Assessment of Taiwan's Offshore Wind Development	Department of Anthropology, National Taiwan University
2020	Academic Research	Fishery practitioners' perceptions toward the potential community impacts of the establishment of offshore wind power at the west coast of Taiwan	Institute of Marine Affairs and Resource Management, National Taiwan Ocean University
2004	Statutory Guidance	Environmental impact assessment process	Environmental Protection Administration, Executive Yuan

3.2.2 Semi-structured interviews

Semi-structured interviews are executed as a complement of document analysis to obtain specific information about the story is not shown in the policy documents. Also, owing to the opening and flexibility in nature, the open-end questions of semi-structured interviews provides rooms for interviewees to explain, clarify and go further on the questions while ensuring predefined issues are integrated in the same way for all interviewees (O'Leary, 2004), which can be seen form the appendix II.

Before selecting appropriate interviewees, it is crucial for this study to overview the context about the friction between offshore wind farms and fisheries and the main stakeholders through analysis of previous relevant studies and collection of white papers, news articles, and NGO reports. Next, the snowball sampling method for stakeholder identification is used as a feasible starting point to organize semi-structured interview partners with different identities, such as individual fishermen, fishermen's

union representatives, and NGOs. Interview results present stakeholders' experiences of inter-industry conflict and perceptions of which conflict reduction strategies they preferred. Interviews are conducted online, and the data is transcribed from Taiwanese or Mandarin to English for content analysis to determine the preference of different stakeholders and compare their preferences with the list of theoretically assumed strategies by coded and analyzed.

Table 5. List of Interviewees, code, and time of the interviews. (Author, 2021).

Title	**Function**	**Role**	**Date and Medium**	**Code**
Local fishermen	Individual fishermen	The young generation fishermen	31.05.2021 Audio-call	Interviewee 1
Local fishermen	Individual fishermen	The middle generation fishermen	02.06.2021 Audio-call	Interviewee 2
Local fishermen organization	Self-organized fishermen organization	Local fishermen organization against OWF	28.05.2021 Video-call	Interviewee 3

3.3 Methods of data analysis

3.3.1 Coding

Both the document analysis and analysis of interview data were executed using coding. Coding is essential as it structures the gathered data according to themes and facilitates answering the research questions (O'Leary, 2004). According to Saldaña (2009) a code is a "summative, salient essence-capturing" (Saldaña, 2009, p.3) word, aiming to retrieve all necessary information, in order to fully address the research questions that frame the study and to limit the amount of data (Drisko & Maschi, 2015). In order to organize the coding process and provide a systematic overview of the citations for the different codes, the software program Atlast.ti was used (O'Leary, 2010).

Based on the literature and theory elaborated in chapter 2, a code book, as suggested by Saldaña (2009), for analyzing the contribution of stakeholder participation in the planning process of offshore wind farms was developed and has constantly been updated during the coding process. The code book with definitions for the codes can be found in appendix I. The documents were investigated according to the same codes as the interviews.

3.3.2 Ethical considerations

Three measures are taken to cover ethical issues in this research, including informed consent, anonymous information, and epidemic prevention measures. Firstly, to secure an informed decision for interviewees about whether to participate in this research. They are provided more than sufficient information beforehand to decide whether to participate in this research, which provides a signing of a consent form in this research based on the General Data Protection Regulation (GDPR) principles of the EU. Secondly, to assure anonymity, the respondents interviewed are not named. The data such as recordings for transcription is safely documented and saved on a password-protected laptop. Finally, since this research is completed during a global pandemic, the investigation obeys the advice of RIVM of the Netherlands to set up interviews by phone calls or video calls.

4. Research findings and Analysis

This section follows the analysis of the framework obtained in Chapter 2 and examines the OWF development process separately from the three aspects of Who, When, and How, and focuses on two different contexts, namely the United Kingdom and Taiwan.

In addition, the reason for studying the UK case is that it is an acknowledged developed practice as stakeholders engaging in the OWF process (Berry & Higgs, 2012; European MSP Platform, 2018; Haggett, 2008). However, the UK practice is not discussed as a benchmark in this study but a mirror to reflect Taiwan's practices since the difference of context and institutional structures.

4.1 Who are involved: the case of the UK

Danielsen (1994) and Sorensen et al. (2001a) consider that fishers are the group seriously affected by OWE, whose livelihood is in danger. Under the context of UK, the stakeholders involved in fisheries can be divided into three main types: Fishermen's Federation, Fishing Liaison with Offshore Wind and Wet Renewables Group (FLOWW), Corporate Fisheries Liaison Officer (CFLO), and Fisheries Representative (FIR).

(a) Fishermen's federation

It is a unit of numerous fishermen's associations, fish producer organizations, and other individual fishermen, which represent local fishers in negotiations affecting fisheries. Although these organizations do not represent all fishers, they are the primary means of contact for local fishermen's groups (FLOWW, 2014).

(b) Producers' Organizations and Fishermen's Associations

They represent fishers at a local level and are a valuable organization of connection for aiding relationships with regional fishers (FLOWW, 2014).

(c) Fishing Liaison with Offshore Wind and Wet Renewables Group (FLOWW)

The FLOWW was established in 2002, which is facilitated by a secretariat financed by The Crown Estate. The purpose of its organization is to promote a good relationship between fishing and offshore wind power, and its goal It is to assist the two parties to reach effective communication. Its members include fisheries agencies, offshore wind energy developers, government agencies and the Crown Manor. In order to achieve its intended purpose, FLOWW recommends that developers designate CFLO and FIR as the communication units with the fishery (FLOWW, 2014).

(d) FLOWW: Company Fishing Liaison Officer (CFLO)

In the development phase, the developer develop a fishery liaison plan as part of its contact with the fishery, in which at least one individual is designated as the fishery contact of the developer, known as CFLO. CFLO is directly employed by the developer and represents the developer when communicating with fishery representatives. As a fishery liaison for developers, they can focus on projects negotiated with fisheries/fishermen. Including visits to local fishermen's associations and regional groups as early as possible in the site selection stage. Early contact with fishermen and the beginning of effective contacts help promote the relationship between developers and locals; developers can obtain primary information through CFLO in consultation with the fishermen's associations. These provided information It is helpful for more detailed consultations with affected fishermen and developers. In the construction phase, CFLO is also responsible for providing fishery-related information. It can be said that CFLO, as a unified object of long-term consultation with fishermen, helps to simplify the process of conveying fishermen's opinions.

(e) FLOWW: Fisheries Representative (FIR)

In contrast, the Fisheries Representative (FIR) is the counterpart of CFLO. They act as a trusted point of contact within the fishing community and also represent the fair fishery viewpoint in the area where the offshore wind farm is located. The person called FIR does not have to be an active fishing boat owner, but the valuable thing is that they are trusted by people in the fishing industry, and their opinions contact the developer on behalf of the local fishermen. At the same time, FIR necessity to propagate information from the developer to the fishermen promptly, including during the construction phase. In addition, an important feature is that FIR accurately transmits information to CFLO so that CFLO can be disseminated among relevant departments. This information is in the developer's organizational structure.

4.2 When are the stakeholders involved: the case of the UK

The legal framework for the developing offshore wind energy in the UK is based on the "Planning Act" and the Marine and Coastal Access Act (MCAA). which are promoted in 2008 and 2009, are regarded as the starting point of the UK MSP since it provides a legal framework and process for all developers and stakeholders to follow.

The Crown Estate owns and has the right to develop the territorial waters, including exploring and utilizing the natural resources of the British. The developers have to submit a complete construction proposal to obtain the permit, including an

environmental impact assessment (EIA) that needs to include fishermen's negotiation and consent. After obtaining the necessary consent, Crown Real Estate sign a site final lease agreement to obtaining a development permit from the Maritime Safety Administration.

According to the "Marine and Coastal Access Act", Marine Management Organization (MMO) is appointed to be the statutory body to undertake MSP in The UK as the marine authority by the Secretary of State. As an executive non-departmental public body, MMO is responsible for drawing up Marine Plans, granting Marine Licenses, and consenting OWF projects with a capacity of less than 100MW while the projects exceeding a capacity of 100 MW require the consent of the Planning Inspectorate.

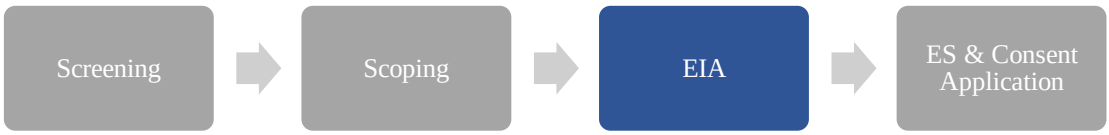

Figure 2. Steps of the permission process of OWF in the UK.
Adapted from 'FLOWW Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Liaison' by FLOWW (2014, p.11)

Regardless of projects with a capacity of less than or more than 100MW, developers need to consult stakeholders, such as fisheries, for committing the EIA process requirement. Moreover, a formal consultation process that allows fisheries stakeholders to submit their opinion on the OWF is undertaken by the consenting authorities. The critical periods for fishers and the developers to make an arrangement are illustrated in figure 2 and described in table 6.

Table 6. The stages of EIA which developers undertake for developing OWF.
Adapted from 'FLOWW Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Liaison' by FLOWW (2014, p.11)

Steps	**Step description**
Step 1- Screening	- Primarily this is engagement between the developer and consenting authority. Initial engagement with the fishing industry would be expected at this stage, e.g. to establish whether the development is likely to overlap/potentially conflict with fishing activity. - Probably the earliest opportunity for fishermen to find out about the project. - Project is now likely to be listed on Consenting Authority website.

Step 2- Scoping	- Developers use available data to look at possible fishing impacts. Developer may contact Federations, Producers' Organisations etc. during preparation of the scoping report. - Consenting Authority consults on the Scoping Report - opportunity for detailed input and identification of stakeholders (including fishermen)
Step 3- EIA	- Main opportunity for consultation. - Will be technical consultation with fishermen, and also public exhibitions and wider consultation on the project. - Opportunity to provide data to support impact assessment, and discuss possible mitigation where effects are identified.
Step 4- ES & Consent Application	- Likely to be an opportunity to comment on the draft of Environmental Statement (ES) before it is submitted. - Consenting Authority will formally consult on the application - opportunity for fishermen's view to be included. - Consenting authority may request more detailed information from consultees to assist in decision making.

4.3 How do stakeholders involve: the case of the UK

According to "East Inshore and East Offshore marine plan areas-Statement of Public Participation" proposed by MMO, MMO is considered to improve the extent of stakeholder participation, fairness and transparency in the OWF planning process (Ritchie, 2014) since it promotes stakeholders' meaningful involvement by effective participation methods at the appropriate time and leave enough time for consultation while the appropriate time and effective contact are not specified. Although MMO does not specify what is the form or indicator of "effective participation," it can be seen from the fact that MMO attempts to provide communication channels in various forms, such as providing electronic communications, online consultations enabling stakeholders to learn about the progress of OWF. Stakeholders are also invited to submit comments through public admission meetings, emails or letters (MMO, 2013).

It can be seen that MMO is attempting to increase participation opportunities for all stakeholders in administrative procedures (MMO, 2013), however, Gery (2005) mentioned that, in fact, the consultation stage where stakeholders are truly recognized is in EIA, which needs to include fishermen's negotiation and consent. In other words, it is challenging to confirm the extent and effectiveness of the participation of stakeholders in the "Screening" and "Scoping" stage, although the MMO emphasizes participation and negotiation in the planning process.

It is also confirmed by Schütte (2018) that fisheries do not get a proper hearing in the the planning process of OWF that power was exercised by people who were not directly affected by the decisions that were being taken, resulting in a low interest, which can be thereby identified as symbolic participation of the ladder of participation and the consult level of participation from IAP2 public participation spectrum.

According to Jami & Walsh (2014), with the degree of participation increases, it is more likely to accomplish a positive interaction with stakeholders and the intensity of opposition decrease. Although the level of participation in the UK remains at the level of symbolic participation, the case in the UK is still regarded as a successful experience for mitigating and preventing conflicts between OWE and fisheries (European MSP Platform, 2018). For example, Scotland succeeded in preventing conflicts due to fishermen participating in the early planning stage of OWF. At the same time, it is also confirmed by Breukers & Wolsink (2007) that involving in the planning process is unlikely to turn stakeholders who fundamentally reject OWF projects into supporters. Nevertheless, conditional supporters could receive an OWF project if they have an opportunity to influence the project.

4.4 Who are involved: the case of Taiwan

Fishery is regarded as an important stakeholder in offshore wind power (Lu, 2020). However, in the past, fishery stakeholders were generally represented by fishermen's associations, developers, and government departments taking fishermen's associations as a channel of contact and communication (Lu, 2020). Under the context of Taiwan, the stakeholders involved in fisheries can be divided into three main types: fisheries agency, fishermen's association, and fishermen that based on their different perspectives from the public sector, associations, and individuals.

4.4.1 Fisheries Agency, Council of Agriculture, Executive Yuan

Fisheries Agency is a tertiary agency under the central government as a central competent authority for fisheries affairs in Taiwan. There are four main responsibilities of the Fisheries Agency during developing offshore wind farms: First, providing the main economic fishery areas to the Bureau of Energy in Taiwan to prevent these areas from being designated as sites for OWF. Second, providing guidance measures for the transformation of commercial fisheries into sightseeing fisheries or aquaculture fisheries. Third, statutorily examining and approving the fishery impact assessment form developers. Finally, establishing the "Fisheries Compensation Standard for Offshore Wind Power" as the compensation measure (Executive Yuan, 2016)

According to (Lin & Tsai, 2021a), the Fisheries Agency tends to guide the transformation of fisheries which takes the development of offshore wind energy as an opportunity, and the "power development assistance funds" is provided as the funds for fisheries transforming toward a sustainable industry. Additionally, credible, and long-term catch data are highly relied for selecting sites of economic fisheries and the benchmarks of compensation, that is, the "Annual Report of Fishery Statistics" in Taiwanese context. However, the "Annual Report of Fishery Statistics" is considered unreliable data by fishermen and fishermen's associations (Interviewee 1, individual fisherman). In addition to failing to reflect the real situation of fishermen, the OWF sites and compensation measures established based on these distorted data are not trusted by fishermen and fishermen's associations.

Even though the Fisheries Agency take a responsibility for reporting the location of economic fisheries to the Energy Bureau to select sites of OWF, there is no opportunities for Fisheries Agency to provide corrected and updated information after the sites are planned by Energy Bureau due to the limitations of the existing legislative framework (Lu, 2020)

In the process of developing offshore wind farms, developers provide reports of the impact assessment of fishery, which was statutory examined and approved by the Fisheries Agency (Executive Yuan, 2015). In other words, the Fisheries Agency, as the legally responsible agency for fisheries, is mainly responsible for providing fishery impact assessments for offshore wind power development. Moreover, the Fisheries Agency regards the results of fishery compensation negotiations as the standard for assessing addressing the OWF impacts of fishery (Executive Yuan, 2015). According to the review principle of the Fisheries Agency, if the developer and the fishermen's association complete the fishery compensation agreement, it is deemed to solve the economic impact of fishery and the competent authority, which is Fisheries Agency, issues a permit letter. In other words, local fishermen receive notice of the OWF development case through the fishermen's association, which do not to obtain first-hand information, and it could lead to the view of opaque on OWF process for fishermen.

> *The developers almost always negotiate with the fishermen's association. The fishermen were always notice after the negotiation has been completed. (OWF project) is all set by default (Interviewee 2, individual fisherman).*

In addition, the Fisheries Agency appoints local fishermen's associations as fishermen's representatives, but the fishermen's associations only need to agree with a "majority decision" the issue of under-representation of the fishermen's associations are mentioned in the next section. Therefore, the affected fishermen by offshore wind energy have less power in procedure. Moreover, since the Fisheries Agency is the competent authority for fisheries, it appoints local fishermen's associations as fishermen's representatives. Therefore, the main objects of negotiation with developers are fishermen's associations, which are mentioned in the next section.

4.4.2 Fishermen's Association

According to Article 1 of the Fishery Association Law, the purpose of the establishment of the fishermen's association is to "operate for such tenets as safeguarding fishermen's rights and interests, enhancing fishermen's knowledge and skills, increasing fishermen's profits from production, improving fishermen's livelihood, promoting the modernization of fisheries, and seeking development of fisheries." Therefore, it can be seen from its purpose that a fishermen's association is expected to be the first-line executive agency that entrusted by the government to conduct fishery management and communicate with fishermen. Wu (2020) further pointed out that fishermen obtain Up to one-half of the offshore wind power related information comes from fishermen's

associations, and the other half comes from relatives, friends, and neighbors while almost all fishermen are members of fishermen's associations. The difference in membership of category A and category B is indicated in Table 7.

In addition, "The Fishermen Association Act" mentions:

> *Any national of the Republic of China*[2] *attaining the age of majority whose household registered in the district of a fishermen association, if meeting one of the following requirements, may join the regional fishermen association in the district as member of category A or B after passing qualification screening.*

Therefore, any individual who is fill the requirement of members of category A and B from The Fishermen Association Act, that the person is able to become a member of fishermen's association. It can be seen from Table 7 that the membership of fishermen's association includes the fishermen whose livelihood highly rely on fishing and the individual who may not fishing, which leads to a result that the membership of fishermen's association is complex and hard to specified the fishermen who is actual affected by OWF.

Table 7. Membership categories of fishermen association in the "The Fishermen Association Act"

Members of category A		**Members of category B**	
i	Distant water fishermen	i.	Owners of fishing vessel or fish farm hiring others to engage in fisheries operation.
ii	Offshore fishermen		
iii	Coastal fishermen	ii.	People engaging in the work of fisheries improvement and promotion now, who had graduated from fishery vocational school or had published fisheries books or invention.
iv	Shallow sea culture fishermen		
v	Pond culture fishermen		
vi	Lake and river marsh fishermen		
		iii.	Part-time fishermen that engage in the labor work of fisheries but not qualified as member of category A.

In most of the development process, as the designated fishermen's representative, the Fishery Association negotiates compensation with developers (Lu, 2020; Lin & Tsai, 2021a), this has caused subsequent conflicts between stakeholders. We can learn from the interviews that the actual negotiation situation is that before informing the local

[2] Taiwan has been officially referred to the Republic of China (ROC) since 1949, and the ROC is presented in the official documents instead of Taiwan. By here, owing to an Act is quoted, it remains the Republic of China.

fishermen, the developers are first reached a consensus with the three magnates of the fishermen's association, that is chair of board of directors, standing supervisor, and secretary general, and then informed the local fishermen (Wu, 2020). In other words, the developer obtains a consensus on the compensation with the Fishery Association is equivalent to obtain a development permit from the Fisheries Agency of central government.

In addition, the situation was also mentioned by all the interviewees that the developers only negotiated with the fishermen's association and did not directly face the fishermen. The interviewees 2 often mentioned that the directors and supervisors of the fishermen's association do not operate fisheries themselves and cannot fight for the fishermen's rights and interests from the perspective of fishermen. The political wrestling among them also makes fishermen suspicious of participating in the election of fishermen's associations. Therefore, in practice, fishermen believe that they cannot use the fishermen's association as a mechanism to protect their rights and interests.

4.4.3 Fishermen

At present, the main fishing methods of fishery along the west coast include gill net, trawl net and pole and lines fishing while gillnet fishing is the majority, followed by pole and lines fishing, therefore, the first two fishing methods are discussed (Wu, 2020). On the one hand, gillnets fishing can be divided into drift gill nets, bottom gill nets and middle gill nets, which are mostly used in the subdued topography and sandy terrain on the west coast of Taiwan. Drift gill nets catch fish of a certain size by the net floating with the sea. The bottom gillnet is slightly shorter and is anchored to the seabed, while the middle gillnet is somewhere in between. The length of gillnets is limited to 2.5 kilometers, while the distance between wind turbines is mostly within 1 km, which is believed that the operation of gillnet fishing vessels is affected by the offshore wind farms. On the other hand, pole and lines fishing boats catch fish by one or several fishing lines to fish high-priced species around the reef or shipwreck area. However, the catch of pole and lines fishing is not high, and it is not suitable for all fish species, so most of the fishermen of pole and lines fishing are part-time.

The proportion of subsistence income from fisheries depends on the different fishing methods. For example, there is a huge different from gillnet fishing and pole and lines fishing. According to Wu (2020), more than 80% of fishermen on the western coast rely on gillnets fishing for their livelihoods. In contrast, only 40% of fishermen rely on pole and lines fishing for their livelihoods. In other words, the fishermen of pole and lines fishing have multiple sources of income, which do not rely solely from fishing

while gillnets mainly rely on income from fishing for their livelihoods. The source of income does not rely solely on fishing income, and gillnets fishermen mainly rely on fishing income for their livelihood.

Fishermen under the same fishing association may hold different positions on offshore wind farms since the extent to which individual fishermen are affected by wind turbines varies greatly due to differences in the location, fishing methods, and fish species caught. Among them, gillnet fishing is the most affected, because the base of the wind turbines like obstacles in the seabed, which prevents gillnet fishing boats from getting off the net. In contrast to the fierce opposition from gillnet fishermen, most fishermen of pole and lines fishing support offshore wind power because they expect the base of offshore wind turbines to become a new artificial reef and gather more fish (Wu, 2020).

The pros and cons of fishermen on offshore wind farms involve long-standing resource competition between different fishing methods. For the gillnet fishermen, a reef preferred by pole and lines fishermen is an obstacle that entangles their nets; for pole and lines fisherman, the bottom gillnets are discarded could entangle the fishing line, it may also destroy the benthic ecology of fish foraging (Lin & Tsai, 2021b).

In response to the opposition of gillnet fishermen, the Fisheries Agency and the developers jointly hope that through the opportunity of constructing offshore wind farms, they can help guide gillnet fishermen to transform into a sustainable fishing method, such as pole and lines fishing is usually considered as the more sustainable method and transform into a wind turbine guard ship (Lin & Tsai, 2021b). However, the opportunity of being a wind turbine guard is provided by the Fisheries Agency and developers, and the fishermen's association acts as a monopolistic intermediary, which limits the opportunities for fishermen to transform.

> *... (Fisheries Agency) guides you transforming as pole and lines fishing or wind turbine guard ships, but the opportunity is taken away by the fishermen's association, who is the intermediary, and the fishing boats that have a better relationship with the fishermen's association will be assigned as a work guard ship... (Interviewee 1, individua fisherman)*

In general, in the process of offshore wind power development, fishermen need to negotiate with the Fisheries Agency or the developers through the fishermen's association. However, the fishermen questioned the representativeness of the fishermen's association and did not trust the data of the Fishery Agency because the

data was submitted through Fishermen's association who do not actually engage in fishing.

4.5 When are the stakeholders involved: Taiwan

"When" are stakeholders participating in the OWF process in Taiwanese context is analyzed in this chapter by firstly start with the legislative framework of offshore wind energy development process. After a complete legal framework is presented, the opportunities and timing of stakeholder participation is pointed out, which followed by discussing the opportunities in detail of stakeholders participating in this process.

4.5.1 Legislative framework of offshore wind farm planning in Taiwan

The enactment of the plan "Thousands of onshore and offshore wind turbines" brings the inception of offshore wind energy in Taiwan and resulting in "Operation Points for Offshore Wind Power Planning and Site Application" enactment in 2015, not only represent a milestone in large-scale commercial development but also provided a legal framework for the planning process of offshore wind farms (Lu, 2020). The current legal framework for developing offshore wind power is an executive order of the legislative framework in Taiwan, which is supervised by the Bureau of Energy which is an agency affiliated with the Ministry of Economic Affairs. This executive order is set up for determining the main progress and principles of setting offshore wind turbines for public sectors and private sectors.

In addition, the relevant laws and regulations of coastal waters are Coastal Management Law. According to Article 2 of the Coastal Management Law, the "coastal waters" within an average high tide line 3 miles toward the sea are included in coastal management, that is, there is no applicable law for 3 to 12 sea miles of maritime space, where all current offshore wind farms in Taiwan and the of potential offshore wind farms located.

According to "Operation Points for Offshore Wind Power Planning and Site Application", before a developer is granted the right to start with the construction of an offshore wind farm, the application has to pass four steps, see Table 8 and Figure 3.

Table 8. The stages which developers undertake for developing OWF.
Adapted from 'Operation Points for Offshore Wind Power Planning and Site Application' by Bureau of Energy, Ministry of Economic Affairs (2015)

Steps	**Step Description**
Step 1 - Apply for connection with Taipower	- Since Taiwan's electricity is a state-owned enterprise, private developers need to connect the power grid with Taipower's grid, so that Taipower can receive the electricity sold by the private sector.
Step 2 - Agreement for selling electricity	- Taipower grants a price contract with the developer for selling electricity.

Step 3
- Statutory consenting process
	- Developers selected the site within the offshore wind power potential site announced by the Bureau of Energy.
	- Statutory consents:
	  - Statutorily required environmental impact assessment
	  - Statutorily examined and approved with local government
	  - Statutorily examined and approved with relevant agencies, which usually content local agencies of fishery, shipping, etc.

Step 4 - agreement of developing	- If all statutory consents are satisfied, the Bureau of Energy is obliged to grant an approval of the seabed to the developer.

Figure 3 depicts the different steps of the permission process of offshore wind farms in Taiwan. Since the plan approval procedure represents the main opportunity for extensive stakeholder participation, a detailed description of the procedure is given in the following section when focusing on the analysis of stakeholder participation.

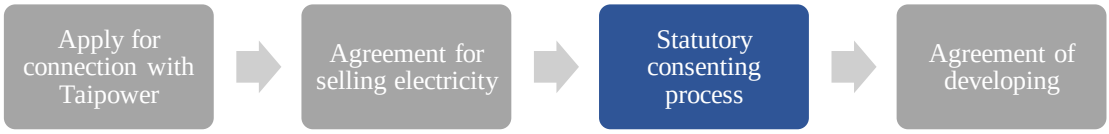

Figure 3. Overview of the permission process of OWF in Taiwan

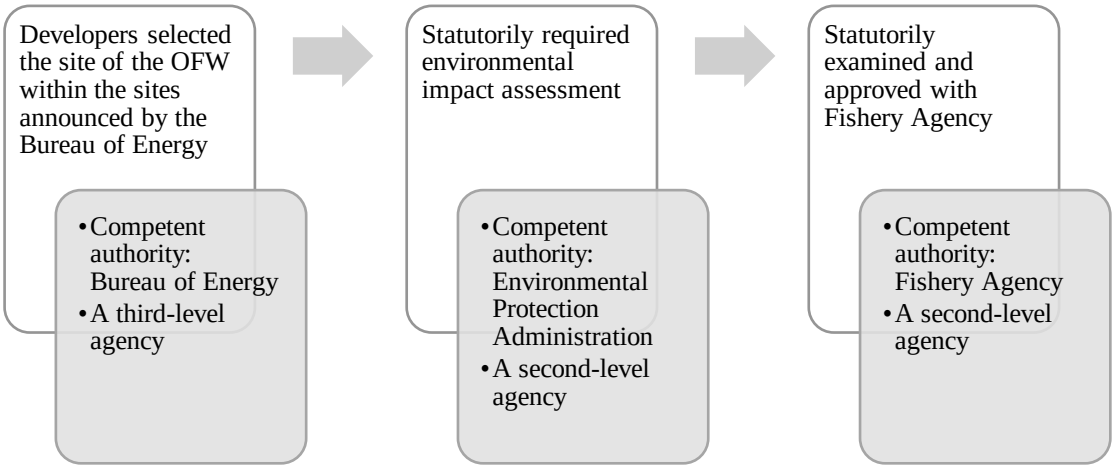

Figure 4. Overview of the statutory consenting process of OWF in Taiwan

The current legal framework for the development of offshore wind power all relies on the "Main progress and principles of sites selection setting turbines to the Taiwan offshore waters" to set up the main progress and principles of sites selection setting turbines to the Taiwan offshore waters. However, the act is supervised by the Energy Ministry of Economic Affairs the Bureau, which is a three-level unit in the government system, that is, to obtain the development permit for offshore wind power plants is mainly authorized by the Energy Bureau, supplemented by the consent of other departments, such as the fisheries and shipping departments, see Figure 4 and Figure 5. It can be said that the responsible unit for coordinating with different departments is the developer applying for the development license, not the coordination within the government.

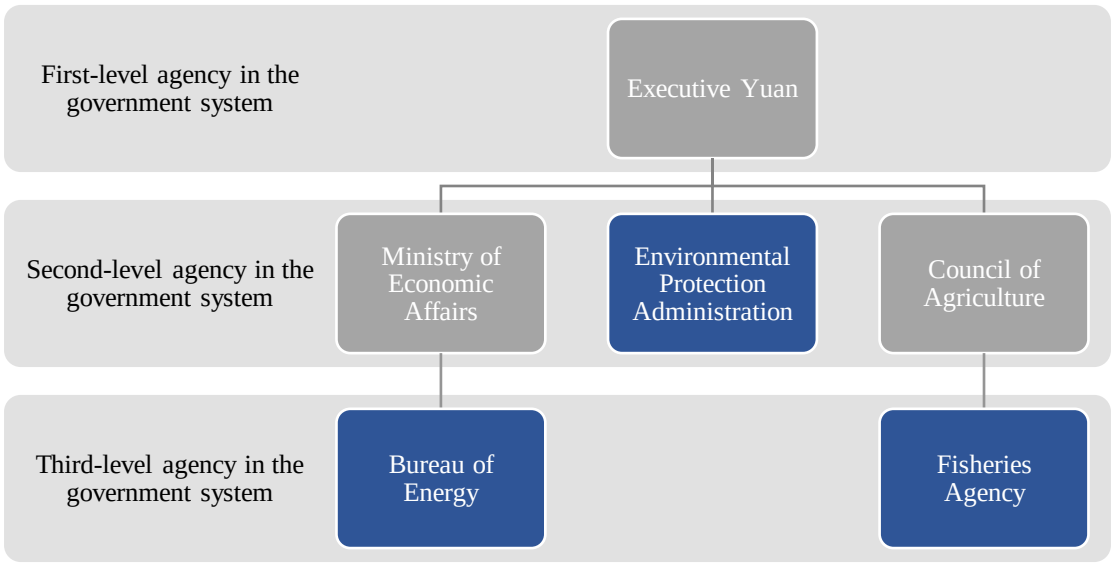

Figure 5. The authority agencies level of statutory consenting process of OWF in Taiwan

4.5.2 The participation of OWF: Environmental Impact Assessment

The opportunities for fishery participating in offshore wind power including three stages, namely environmental impact assessment and fishermen's compensation after the environmental impact assessment is passed. Moreover, environmental impact assessment can be seen as the official opportunity for fishermen to participating in the OWF process (Lu, 2020).

The environmental impact assessment process in Taiwan refers to assessing the environmental impact of the development project at the planning stage. The purpose of EIA is to "prevent and reduce the negative impact of development activities on the environment in order to achieve environmental protection." The "environment" mainly classifies the "social environment, natural environment, economy, culture, and ecology." The above definition of environment also affects the composition of the members of the environmental impact assessment review committee (Environmental Protection Administration, 2004).

The Environmental Protection Agency chairs the Environmental Impact Assessment Committee, which consists of twenty-one members, of which seven of them are representatives of government ministries, from the Executive Yuan Agriculture Committee, the Ministry of Health and Welfare, the National Development Commission, the Ministry of Science and Technology, and the Ministry of Interior. The other 14 are the members represented by scholars and experts recommended by government departments and non-governmental organizations, and finally selected the experts based on different professional backgrounds by a selection committee convened of Environmental Protection Agency. According to the definition of the environment in the Environmental Impact Assessment Law, the members' expertise background should include the natural environment, culture, and socio-economic aspects. Take the EIA committee of the Eleventh Offshore Wind Power Development Case as an example; the committee's expertise includes environmental engineering, public health, marine science, geology, atmosphere, ecology, economy, land administration, and cultural assets.

After the EIA committee is determined, the EIA process is formally carried out, including several stages. First, the development project and the environmental assessment information is published on the government website for 15 days. Second, the developer holds a public briefing meeting at the location of the development project and finally prepare the environmental assessment document, which refers to the "environmental impact statement (EIS)", which must include the purpose and content

of the development activity; the related projects and current environmental conditions that may be affected by the scope of the development activity; the prediction of the environmental impact that may be caused by the development activity; and the environmental protection countermeasures and alternative plans. The “environmental impact statement” is written by the developer, who usually hires an environmental consulting company to perform environmental investigation and evaluation.

In other words, in addition to the current environmental investigation of the development site, there are four aims of the “environmental impact statement” for developers. First, predict and estimate the various environmental risks of the development project; Second, propose executable mitigation strategies for impact; Third, estimate for the future scenario. The Fourth is to build a mechanism for environmental monitoring.

After the environmental impact statement is completed by the developer, the statement is sent to the Environmental Protection Bureau. The contractors of the Environmental Protection Bureau conduct a formal review to check the completeness of the itinerary and documents. After that, developers pay fees and enter the environmental impact assessment process. After the experts and scholars have reached a conclusion at the preliminary review meeting, they send their recommendations to the EIA conference for resolution.

The EIA process is that after receiving the environmental impact statement, the committee of EIA first presides a public hearing at the affected area of the development project. The content of the development is explained, and local voice is collected, which becomes the reference basis for the EIA committee examining the environmental impact statement.

In general, it can be seen as eight stages for developing an OWF project. See table 9. There are three opportunities for the public and stakeholders who are not included in the EIA to participate in the process, includes public briefing (stage 2), public hearing (Stage 4), and EIA preliminary review meeting (Stage 5), which are further discussed in the next section about how the stakeholder is participating in these three stages.

Table 9. The stages of processing OWF project in Taiwan (Author, 2021).

Stages	Process
Stage 1	Developers produce the "environmental impact statement" for assessing the environmental and social impact.
Stage 2	The developer holds a public briefing at the local area. In the case of offshore wind farms, it refers to the town near the offshore area.
Stage 3	The developer completes the environmental impact statement and submits it to the EIA committee of Environmental Protection Bureau
Stage 4	Before the preliminary review meeting, the EIA committee holds a local public hearing to collect opinions from the public and local stakeholders.
Stage 5	The EIA committee holds a preliminary review meeting and invited stakeholders with application and registration in advance for joining.
Stage 6	After the preliminary review meeting, the EIA committee reply to the developer with suggestions that contains local opinions.
Stage 7	The developer produced a revised version of the environmental impact statement and handed it back to the EIA committee.
Stage 8	The EIA committee held an environmental impact assessment meeting and made a final decision.

4.6 How do stakeholders involve: Taiwan

This section pays attention to the form of the participation process. The public briefing (stage 2 of Table 9), public hearing (Stage 4 of Table 9), and EIA preliminary review meeting (Stage 5 of Table 9) are discussed in this section about how the stakeholder involve in these three stages. However, since the interviewees of this study have no direct experience in participating in the offshore wind energy development, the data is analyzed in this chapter comes from Lu (2020), anthropological research on the process of developing offshore wind farms.

4.6.1 Public briefing

According to Article 15 of Operational Guidelines for Environmental Impact Assessment of Development Project:

> *"Before producing the environmental impact statement, the developer shall hold a public hearing for providing local people expressing their opinions. Accordingly, the developer shall publish the meeting time, place, and the main content of the statement on the designated website ten days before the meeting. In addition, the information of development project shall be notified to local governments, relevant departments, and development activities areas in hard copy. The situation of the public briefing*

and residents' opinions and the developer's response should be compiled in the manual."

The public hearings are held at a community center of the area, the developer first explains the development project through a briefing, and then the public and local stakeholders express their opinions of the project. However, according to interviewee 3 from a self-organized fishermen organization, as the most seriously affected stakeholder, the fishermen did not receive the notice of the public hearings, but it was not until the environmental impact assessment case was passed and the turbine started constructing that they discovered that their OWF was located in the fishermen's economic fishery site. It can be said that the distrust of local stakeholders in developers stems from the opacity of progress,

Residents' distrust of developers stems from their opacity to progress. According to Lu (2020), the "Ocean Zhunan" OWF project is a typical case. Before the case passed the EIA, only the fishermen's association had expressed opinions on the case. In contrast, local people and fishermen did not know about the planning progress and content of the project. Moreover, two years after obtaining the environmental impact assessment permit, the developer and the fishermen's association negotiated compensation for the fishermen.

Local stakeholders feel opaque and deceived about the OWF process because although statutory regulations require developers to announce development projects and publicly invite the local stakeholders to participate in public hearings through the website and local administrative centers, local stakeholders are not actively involved notified. The regulations do not mention the representative norms of public hearings, resulting in the people participating in the public hearing that are not local stakeholders or cannot represent stakeholders. In contrast, the regulations do not define what is meant by local stakeholders.

In the public hearing, the developer needs to read out the pre-prepared materials in order to comply with the statutory procedures. Although this is in compliance with the legal procedures, it could also cause distrust of the locals and stakeholders because the content does not directly respond to the demands of the people while the stakeholder cannot trace how the opinions on the scene were incorporated into the environmental impact statement (Lu, 2020).

Mr. Chen (a local fishermen) yelled "No" and "Resolutely opposed" several times during the meeting. The order of the venue began to be a little chaotic. Even though the developer still read the entire briefing page by page, almost no audience in the venue was attentive to the lecture. Some people quietly read the briefing papers obtained from the entrance, while the people sitting at the back of the venue mostly talked privately. (Lu, 2020, p.108)

It can be seen from the above cases that the fishermen do not understand the EIA process; it cannot be assessed that how the opinions of residents and affected fishermen on the development project being influence into EIA process, and there is no guiding principle for responding to the residents' opinions in the environmental impact statement from the regulations. It can be said that the legal framework does not provide for proper attention to the extent of how local opinions are considered.

4.6.2 Public hearing

The executive agency of the public hearing is the Environmental Protection Administration, which proposed the pilot project of "Opinion expression meeting and on-site investigation" in 2016. Owing to the aim of the pilot project is to increase the level of local stakeholders' participation in the EIA process, the EIA committee should hold a public hearing at the site of the project before the preliminary review meeting since the past EIA conferences were held in the capital, Taipei city, while the local stakeholders bear the cost of time and money and commute to the place of the EIA meeting if they want to participate in the EIA conferences. Moreover, the conferences are mostly held during the weekdays, which intensifies the cost of non-capital residents' participation in meetings and may reduce their willingness to participate.

The EIA committee chaired the public hearings responsible for reviewing the OWF project and inviting local stakeholders to express their opinions on the project. After the public hearings, the EIA committee instructs the developers to respond to the stakeholders' opinions, which is taken as a reference basis for the formal review.

The public hearing focuses on how much the OWF development project affects the livelihoods of fishermen. As for how to mitigate these impacts depends on whether the developer succeeds in reaching a consensus on compensation with the fishermen's association. Compared to the public briefings are held by developers, the public hearings are implemented by the EIA committee responsible for supervision. There is an opportunity for local stakeholders' opinions to be included by EIA committees while it is not clear to what extent the opinions are considered. In other words, all opinions of

local stakeholders need to pass through intermediaries, such as developers or EIA committees, before they can be seen in the EIA process, and their opinions could be transferred, twisted, or ignored when they include in the EIA process by the intermediaries.

In addition, because the EIA process highly follows the requirements of the bureaucracy, it must meet all written requirements. For example, the EIA schedule is strictly limited. Specifically, according to Article 13 of the Environmental Impact Assessment Law, the competent authority of the EIA must reach a conclusion of the review within 60 days, while cases under special circumstances can be extended for 60 days more as maximum. In other words, the time of the EIA process is strongly regulated for developers.

It is found by Lu (2020) that the time limit as an effective strategy for stakeholders directly influences the EIA process, which influences the development project of offshore wind power, because the number of public briefings and public hearings is the only evidence for the EIA committee to test the representativeness and appropriateness of stakeholders' involvement and public communication. Suppose the number of signatures presented in the environmental impact statement is insufficient. In that case, it may be regarded as the main points that need to be corrected and supplemented, therefore delaying the EIA process. It can be said that the time for the EIA committee to accept an EIA case is limit. Accordingly, stakeholders' actions that do not enter the venue, do not sign, or leave the venue collectively in advance can hinder the pre-set process of public briefings and public hearings, thereby increasing the uncertainty of timely completion on the OWF development process by preventing the meeting from proceeding and delaying the EIA process.

4.6.3 EIA preliminary review meeting

The EIA meeting is usually held in the conference room of the EPA's office building. People who are not EPA employees have to show the conference inform when they enter the gate before obtaining a pass for entering the building. Therefore, unless they apply to become observers during the opening time for registration, other stakeholders are not able to join the conference of the EIA preliminary review meeting if they do not register in advance (Lu, 2020).

During the meeting, an EPA employee first makes briefings to define the scope of the EIA project of OWF. For example, local stakeholders' concerns about the impact of OWF on their livelihoods at local public hearings are all converted into categories that

can be summarized, including “wind turbine spacing,” “fishery impact,” “ecological impact.” In contrast, the “financial compensation” which is most relevant to fishermen is not recognized as being within the scope of the discussion of the EIA preliminary review meeting because it is the topic discussed in the next procedure, that is, the developers obtain permission from the fishery agency. However, gillnet fishermen’s worries about OWF not only come from the impact of wind turbine construction on the fishing site ecology but also from the comprehensive impact of the offshore wind energy industry on their occupational sustainability, for example, losing control of the use of sea areas, and the policy dominated by renewable energy puts the gillnet fishery at a disadvantage in policy planning. These worries are all classified as the issue of fisheries compensation, which is excluded from the EIA process. Therefore, fishermen need to translate their worries into a language that can be classified so that their opinions can be considered by the EIA committee during the meeting.

According to Lu (2020), EIA’s limitation on stakeholder participation comes from the “EIA Operating Guidelines,” which is the principle of EIA examination. The environmental factors listed in the “EIA Operating Guidelines” have become the reviewing standards of the EIA committee, and the data for evaluating the environmental factors need to comply with the investigation, prediction, and evaluation method stipulated in the guidelines. It can be said that because technical methods dominate the EIA committee and the EIA review standards, the value and ideology of local stakeholders cannot be scientifically quantified in a short time. Therefore, although stakeholders can participate in the environmental impact assessment process, their opinions have to comply with the specifications of the EIA process and reviewing methods to be accepted by the EIA committee.

Therefore, the fisheries stakeholder participation of OWF process can be thereby identified as symbolic participation of the ladder of participation and the consult level of participation from IAP2 public participation spectrum since actual participants are experts and politicians who make presentations; the public or the fisheries stakeholder who are not involved in the official process could voice their views but have no direct influence.

5. Discussion

5.1 Who are involved?

A significant issue for stakeholder participation in the OWE development process is "who" participates and "who" manages stakeholders to participate. This section is mainly divided into two parts for discussion. The first part is supervision, implementation, and participating agencies; the second part is stakeholders who participate on behalf of fishery stakeholders. It can be seen from chapter 4 that different kinds of institutions manage the responsibility of planning and implementing the participation process, defining stakeholders in Taiwan and the UK.

In the UK, MMO is designated as the competent authority of OWE, which defines stakeholders and executes the process of participation with developers. Therefore, the planning process of OWF in The UK has the characteristics of consistency, completeness, and uniformity, which helps simplify the means for stakeholders to participate. Because they only need to contact MMO for the latest OWF information and provide opinions, rather than contacting different administrative agencies, which helps increase interest for stakeholder involvement. It can be said that MMO is a platform for planning, execution, and supervision participation to ensure that local stakeholders have complete opportunities during the OWF process. However, in this process, the primary purpose of MMO is still to develop OWF. Even though MMO simplifies the process of participation, it still has the shadow of OWE dominance that could strengthen the status of OWE development and potentially weaken the status of fisheries, which is discussed in section 5.3.

In addition, the process of participation in The UK is guided by FLOWW, which includes developers, MMO, fisheries departments, and fishery representatives as members. FLOWW can be regarded as a third-party organization aiming to improve the process of participating in the OWF, such as appointing a fisheries representative during the consultation process. The UK's ambition to increase stakeholder participants can be seen from the establish of FLOWW. Nevertheless, the FIR proposed by FLOWW is employed for developers; in other words, although fishers negotiate with FIR, they still cannot change the decisive advantage of the OWE department.

Three related actors were involved in the participation process of OWE in Taiwan. First, the stakeholders are identified by the OWF planning authority, Bureau of Energy; Second, the OWF planning process is supervised by the EPA. Finally, the implementation of stakeholder participation is executed by developers. This situation

leads to a result. The EPA ensures the involvement of stakeholders through the administrative procedures presented in EIS in writing, which the developers submit.

Consequently, since the EPA is not a stakeholder of OWE, the developers may be committed to achieving so-called “procedural needs” participation. It is difficult to confirm the effect of participation by writing, even though the EPA holds local public hearings as a review reference. Additionally, since developers are regarded as the main body of development, coordination, and implementation participation, they have also been criticized for having the advantage of OWE dominance.

As for the stakeholders, compared with the UK through FIR to identify the affected fishermen, contact and negotiate with local stakeholders, the representatives of the fishery negotiations in Taiwan are mainly fishermen’s associations, Because the legal representative of fishermen is the fisherman’s association. Developers need to obtain the consensus of the fishermen’s association in order to confirm the fishery’s consent in the administrative process, although the fishermen’s association does not fully represent the fishermen affected by offshore wind power. Therefore, locally affected fishermen can only express their opinions at the public briefing held by the developer, or the public hearing held by the EIA committee, which does not directly affect the OWF project’s content, thereby limiting the effect of substantial participation.

5.2 When are stakeholders involved?

From the analysis results in chapter 4, it can be identified that the legal framework is a suitable field to discuss the when are the stakeholders involved, because it has the endorsement from the public power, and the timing and opportunities for participation are specified by the law.

Compared with a single legal framework of marine spatial planning as a guide in the UK, which designating the MMO as the executive agency, the OWF development is led by the Operation Points for Offshore Wind Power Planning and Site Application. which is introduced by the Bureau of Energy in Taiwan.

The development of offshore wind power in the UK is under the jurisdiction of the MMO. The MMO’s guidelines emphasize early participation, which helps avoid major conflicts of interest. Therefore, developers have to contact the stakeholders mentioned by the MMO, which also helps stakeholders be informed so that they can participate in the entire offshore wind power process. However, according to Lu (2020), the timing of stakeholders participated in the OWF process is exclusively regulated at the “Public

Participation Statement" stage, which is submitted by developers, which led to results that although there are opportunities for participation throughout the OWF developing process, the effectiveness of participation has not been clearly defined. Stakeholders' opinions are mainly being adopted at the "Public Participation Statement" stage.

Taiwan's offshore wind power development is under the development of the Energy Administration, and the participation space for stakeholders is only at the EIA stage before they have the opportunity to participate through the developer's public briefing and EIA's public hearing. In other words, the stakeholder participation stage is under the jurisdiction of the Environmental Protection Agency, as shown in figure 4. It can be seen that the opportunities for stakeholder participation, whether it is the public briefing held by the developer or the public hearing held by the EIA committee The meeting, or the EIA preliminary review meeting, is in line with the participation of stakeholders in the EIA process.

It is worth noting that participation in the EIA process is universal in Taiwan, that is, non-OWE development projects such as the development of factories, infrastructure, also need to be reviewed by EIA process, including stakeholders' participation of development projects. Therefore, Taiwan has not established a participation mechanism for OWF development but follows the participation mechanism of Taiwan's general development case.

This has led to several results. First, the EIA committee from the EPA, as a third-party review unit, has the opportunity to avoid the dominant advantage of OWE and recognize the disadvantaged position of fishermen and give them the opportunity to participate effectively. Second, although the dominant advantage of OWE can be avoided at the under the EIA examining, however, at the practical level, EIA is still inevitably dominated by technocrats. Third, since EIA committee and the progress is dominated by technocrats and based on data for review, it highlights the disadvantages of the fishery in the OWF case, which is that the basic data of the fishery and the value of fishermen are difficult to quantify.

At the same time, although the EPA as a third-party agency is able to break away from the implications of OWE's dominance, the EPA also has its authority restrictions. First, EPA does not have the authority to coordinate other government departments but examine the developers, for example, to coordinate differences between the Bureau of Energy and the Fisheries Agency. Secondly, since the scope of EIA review focuses on environmental and social impacts, the agency responsible for confirming the mitigation

of fishery impacts does not fall within the scope of EIA reviewing. Specifically, participating in OWF development and negotiating compensation are respectively under the jurisdiction of the Environmental Protection Agency and the Fisheries Agency. However, for fishermen, whether it is participating in the OWF development process or participating in the compensation of OWF, it is all the affairs of OWF. Therefore, the incoherent planning process and cross-departmental jurisdiction have caused fishermen to contact different departments if they want to involve in the OWF process, which may increase the cost of participation and reduce the interest to participate.

Although the process details are different in these two cases, the same timing for participation is that the developers have to obtain a consent statement as "stakeholder participation." It can be said that both cases agree with the necessity and the legitimacy of procedural participation and demonstrate the ambition of stakeholders to participate in the OWF process, although the actual implementation still has its limits.

5.3 How do stakeholders involve?

In the participation methods of Taiwan and the UK, it can be seen from chapter 4 that compared with Taiwan, the OWF process in The UK has more opportunities for local fishermen to participate; emphasizes the intensive consultation in the early stage; and the inclusiveness of participation methods, such as written and informal discussions. However, even local fishermen provided information and opinions of fisheries to OWF, the final decision was made by MMO, and fishermen's opinions have no direct impact on the recommendation. Therefore, it can be categorized as symbolic participation of the ladder of participation from Arnstein. On the other hand, the way of participation in Taiwan is through bureaucratic procedures, such as the environmental impact statement (EIS) or EIA reviewing, and do not directly affect the OWF results because the final decision is made by the EIA committee, which can also be categorized as symbolic participation.

Several factors are leading to this result. First of all, their participation is limited to the statutory consent process. Although stakeholders are consulted, the process of OWF for the two countries does not delegate decision-making power to fisheries stakeholders. In addition, even though The UK has more participation opportunities than Taiwan, the results of the actual impact on the development case are similar, that is, the fishery stakeholders are limited in the process of influencing the OWF. Second, there are differences in planning priorities and the resulting differences in power status. An obvious example is a difference in the degree of acceptance of the opinions from

developers, fisheries, and technocrats. In the context of The UK that “everyone is welcome to participate in the OWF process, provided that there is a place to contribute.” In contrast, Taiwan’s OWF process restricts the participation of stakeholders with decision-making power, such as fishermen’s associations. The opinions of other stakeholders are mostly indirect opinions, such as being adopted through SE or EIA.

In addition, it can be seen in both The UK and Taiwan that after entering the development stage, such as EIA, the opportunities for fundamentally changes the plan are limited. However, this is usually the stage where fishermen are most interested in the planning process because it is more evident for them to be affected by OWF (Flannery et al., 2018). Lu (2020), who studies offshore wind power and fishermen in Taiwan, believes that fishermen’s participation and negotiation often only extend the planning process and rarely change the overall direction of the OWF project. Specifically, blocking or extending the EIA process does not stop developers from changing the sites of the OWF. This coincides with the case of The UK that in the consultation process between the developer and the fisherman, an agreement can only be reached when it is beneficial or has no disadvantage for the developer. For example, the fisherman can only reach an agreement on the proposed layout of the turbine instead of changing the overall location of the OWF (Gary et al., 2005).

It can be said that the participation of OWE in The UK has been noticed that the intensive participation during the process has been concealed by the politically favored OWE, which has weakened the influence of other stakeholders. Flannery et al. (2008) also noted that even with a large number of consulting stages, the use of digital maps, GIS, and data portals which based on science and technology encouraging the development of OWE and the dominant form of technocratic governance (Boucquey et al. 2016; Smith & Brennan 2012). In other words, the developer has the initiative in the OWF development process, and the role of the fishermen in the process tends to “advise” and “adjust” the developer’s decision, rather than having the same status as the developers (Trouillet et al. 2019).

As mentioned earlier, the participation of fishery stakeholders is hindered by the strong preference of the OWE sector, resulting in a high degree of symbolic participation by fishery stakeholders. Finally, it can be said that the UK has a more comprehensive and earlier stakeholder participation than Taiwan’s OWF policy. However, neither of these two planning systems have been able to translate their ambitions of participation into reality. The politically supported OWE department overthrew all The UK and

Taiwanese fishery stakeholders so that they could only get symbolic participation opportunities.

Moreover, it can be seen from Table 10 that there are opportunities for informal consultations since the early stages and the identification of local fishermen's representatives through FIR in the UK practice, which could be seen as the significant factor for mitigating and preventing the conflict. In contrast, the representativeness of the fishermen's associations involved in the negotiation and consultation and the opportunity and timing of participating in the OWF process is found as the root cause of the conflict between Taiwanese fisheries and OWE.

Table 10. The comparison of fisheries stakeholder involves in OWF process between the practice in the UK and Taiwan (Author, 2021).

	The UK	**Taiwan**
Who	(a) Supervision & implementation agency: - MMO (b) Fisheries stakeholders: - Fishermen's federation - Producers' Organizations and Fishermen's Associations - FLOWW, FIR and CFLO - Individual Fishermen	(a) Supervision & implementation agency: - Bureau of Energy - EIA - Fisheries Agency (b) Fisheries stakeholders: - Fishermen's Association - Individual Fishermen
When	(a) Screening: informal discussions (b) Scoping: informal discussions (c) EIA: formal agreement (d) ES & Consent Application: no participation	(a) Apply for connection with Taipower: no participation (b) Agreement for selling electricity: no participation (c) Statutory consenting process: EIA (d) Agreement of developing: no participation
How	Symbolic Participation: Fishery consultation in various of participation methods, such as written and informal discussions	Symbolic Participation: formal discussions in public briefing, public hearing, and EIA preliminary review meeting

6. Conclusion

This research investigated how fisheries stakeholder involvement plays a role in the planning process of the offshore wind farm in Taiwan, and the research is:

How does fisheries stakeholder participation play a role in the planning process of offshore wind farms in Taiwan and the UK, thereby impacting, avoiding, solving, or mitigating conflict?

Based on the conducted analysis of Taiwan and the UK planning process of offshore wind farms, giving prominence to the insight of stakeholder participation in both processes, the primary research question can be answered in the subsequent section.

First, a single planning agency to govern the development of offshore wind energy, that is, the UK's OWF planning process, helps stakeholders identify the approach of participation. Particularly, jurisdiction can be easily confirmed, so there is an opportunity to involve stakeholders in the early and mid-stages of offshore wind power development. At the same time, it allows stakeholders to have a single window for contact, which helps to improve convenience and reduce costs. In contrast, OWE development process in Taiwan is under the jurisdiction of different departments, which leads to the difficulty for stakeholders' opinions to be heard and increases the costs because they need to contact various agencies to provide a view on different topics. Additionally, since the scope of jurisdiction of each agency is limited, the process of stakeholder participation has to actively define the stage of the problem before they have the opportunity to participate effectively.

However, a major issue is that since a single authority governing offshore wind power has the dominant potential to promote offshore wind power, the effectiveness of stakeholder participation may be reduced, while the OWF development stages being authorized by different agencies could provide an opportunity for the OWF participation process to escape from the possibility of being dominated by OWE.

Second, FLOWW provides guidance for identifying the critical fisheries stakeholders. Due to the different sites of OWF lead to the different affected regions, a prerequisite is to determine local stakeholders. In the case of Taiwan, when local fishery stakeholders are under-represented, conflicts between offshore wind energy and fishery may have occurred.

Finally, the UK approach offers far more participation opportunities than Taiwan's OWF process and various ways for stakeholders to be involved. Nevertheless, in practice, both planning processes are dominated by technocrats since the participating process is based on digital data and practical information, which leads to the underestimation of value for fisheries stakeholder participation.

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Appendix I – Code book

Theme	Definition	Sub-theme	Statement focuses
***Who* are involved?**	Statements about fisheries stakeholders that are entitled to involve in the OWF planning process	Fisheries Agency	a governmental agency for fisheries business
		Fishermen's Association	an official organization for representing Fishermen
		Fishermen	People whose livelihood rely on fishery
		Bureau of Energy	a governmental agency for energy business and promoting OWE
		Environmental Protection Administration	a governmental agency for assessing environmental impact
***When are* stakeholders involved?**	Statements about timing and opportunities of stakeholder participation	Legislative framework	Laws, acts, and statutory guidance mentions OWE or OWF
		Participation in OWF	Laws, acts, and statutory guidance of OWF mention considering fishery impact or stakeholder participation or consultation.
		Participation in EIA	Laws, acts, and statutory guidance of EIA mention considering stakeholder opinion or consultation.
***How* do stakeholders involve?**	Statements about the forms and level of participation	Public briefing	The form of holding public briefing, and the level of stakeholders' opinion is considered at this stage.
		Public hearing	The form of holding public hearing, and the level of stakeholders' opinion is considered at this stage.
		EIA preliminary review	The form of holding EIA preliminary review, and the level of stakeholders' opinion is considered at this stage.

Appendix II – Interview questionnaire

Introduction

- Introduce the interviewer, the introduction of research and how the interview process.
- Ask the interviewee for recording permission.
- Ask whether the interviewee wants to be anonymized.
- Ask whether the interviewee wants to see the transcript.
- Explain that the interview process can withdraw answers and stop recording.

General questions

- What is your age, gender, and education?
- How long have you been in fisheries, and at what age have you involved in this industry?
- Does your family also engage in fisheries?
- What is your current fishing method, and has it changed?
- What is the proportion of fishing in entire livelihoods?
- Are you a member of the fishermen's association?
- How would you describe the planning process for offshore wind farms in your village?

Stakeholder participation

Who are involved?

- Who is involved in the OWF planning process and what are their role during this process?
- Who decides which stakeholders are to be involved?
- How do you view the other fishery stakeholder in terms of OWF process?

When are the stakeholders involved?

- When did you know about the OWF projects and how did you know?
- When do to express your opinion during the OWF program process? Who's with you?
- Do you know any other opportunities to participate in the OWF process?

How do stakeholders involve?

- How do these participation mechanisms work?
- How do stakeholders participate in the OWF process?
- How do stakeholders express their opinions?
- How are these opinions recorded? Who determines the extent to which these opinions are adopted?
- What way for stakeholders to obtain the relevant information?
- The extent of influence of the fishermen's association? (Only if the interviewee or data state that fishermen's association do influence the OWF process)
- How do the fishermen's association exert their influence? (Only if the interviewee or data state that fishermen's association do influence the OWF process)

Final words

- Ask the interviewee for another potential interviewee
- Ask whether the interviewee would like to get a copy of the final thesis
- Thank the interviewee for the interview