



Strategic planning to reduce conflicts for offshore wind development in Taiwan: A social marketing perspective



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ABSTRACT

This study aims to improve the current inefficiency and ineffectiveness of communications among stakeholders when planning and constructing offshore wind farms (OWFs). An analysis using a social marketing approach with segmentation techniques is used to identify the target market based on stakeholders' perceptions. The empirical results identify three stakeholder segments: (1) impact-attend group; (2) comprehensive group; and (3) benefit-attend group. The results suggest that communication should be implemented to alter stakeholders' attitudes toward the construction of OWFs. Furthermore, based on the results of segmentation, target markets are identified to plan the communication strategies for reducing the conflicts among stakeholders of OWF construction. The results also indicated that in the planning phase of construction for OWFs, effective stakeholder participation and policy communication can enhance the perception of benefits to reduce conflict with local communities and ocean users.

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1. Introduction

Social marketing is a managerial approach to improving traditional top-down and one-way communication. Because stakeholders are deemed customers of social marketing in a decision-making process for environmental policy, this study aims to conduct an analysis by using a social marketing approach with segmentation techniques to identify the target market by their perceptions. Based on the analysis, communicating strategies can be provided for reducing the conflicts over OWP development in the western coastal waters of Taiwan.

Renewable energy development programs are important environmental policies for helping us to reduce carbon emissions and solve the climate crisis (IPCC, 2011). Offshore wind power (OWP) is one type of marine renewable energy that has been in development since the 1990s in European countries. In Taiwan, the government began developing wind energy in 2000. It intends to install more than 3000 MW of wind energy capacity in the coastal waters of Taiwan by 2030. Recently, OWP development was one of the major subjects focused on by the Taiwan government. OWP is only beginning to be developed in Taiwan; however, due to natural

conditions, western Taiwan is suitable for developing OWP, so the related developers have proposed their development projects along the western coast of Taiwan. Although offshore wind power is a renewable energy strategy for mitigating the impacts of climate change, wind farm turbine construction and operation may influence fish behavior and their habitats. Some potential impacts include noise, electromagnetic fields (EMFs), habitat change, release of contaminants, environment change (i.e., sediment transport, deposition, turbidity, currents and waves) (Nienhuis and Dunlop, 2011). Moreover, Berkenhagen et al. (2010) mentioned that the potential impacts on fishing activities also exist, such as decreasing the fishing areas and influencing the navigation of fishing vessels. Gray et al. (2005) noted that controversy over offshore wind farms highlights three core conflict issues: the adequacy of stakeholder consultation processes; the right to compensation for loss of livelihood; and a lack of adequate data showing that policy decision makers recognize stakeholders' perceptions. They also mentioned that offshore wind farm development would be better managed if extensive stakeholder consultations were incorporated in the process. Additionally, an increasing number of utilities and users of marine spaces and resources are placing further pressure upon traditional ocean users and generating potential conflicts (Maes, 2008; Harte et al., 2010; Alexander et al., 2013; Yates et al., 2015). These potential conflicts are exacerbated by offshore wind farm construction and lead to opposition from traditional ocean users (e.g., fishers and aquaculture farmers) in the western

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coastal areas of Taiwan; thus, traditional ocean users are important stakeholders in this case.

The Not-In-My-Backyard (NIMBY) syndrome generally occurs when renewable energy development (Devine-Wright, 2013) and public and stakeholders' attitudes and perceptions are direct and indirect influences on the success of wind power projects (Wolsink, 2000; Devine-Wright, 2005). Some researchers have analyzed public and stakeholders' attitudes toward marine renewable power further to identify the critical factors for marine renewable power development (Haggett, 2011; Alexander et al., 2013); thus, stakeholders' perceptions of offshore wind farm construction are critical information for policy makers. As mentioned above, stakeholders play important roles in decisionmaking in environment and natural resource management (Grimble and Wellard, 1997; Reed, 2008). Savage et al. (1991) reported that stakeholders can be classified into four types: (1) the supportive or idea stakeholder supports organizational goals and actions; (2) the marginal stakeholder is generally not concerned about issues; (3) non-supportive stakeholders have high threat potential and offer minimal cooperation; and (4) mixed-blessing stakeholder scan potentially threaten or cooperate. Achieving consensus for policy decisionmaking is challenging when different types of stakeholders are involved in a decision process.

Furthermore, environmental communication is "the planned and strategic use of communication processes to support effective policy-making and project implementation geared toward environmental sustainability" (OECD, 1999). Thus, communication skills and processes would influence the efficiency and effectiveness of the execution of environmental policies. Governments generally conduct a top-down and one-way communicating process; the government only announces policies to the public, not really communicating with stakeholders. To improve the traditional top-down communication approach, Altman and Petkus (1994) suggested that social marketing principles can be applied to the public policy process, facilitating the efforts of governmental policy-makers and non-governmental stakeholders to articulate their policy desires and encouraging the adoption and acceptance of particular environmental policies. Moreover, market segmentation is an essential element of marketing strategies in business and industry (Wedel, 2000). As mentioned previously, it is difficult to achieve consensus for a policy decision if different stakeholders are involved; hence, the social marketing approach with segmentation technique can be used to identify target stakeholders who should be involved in the communication or consultation process. Stakeholders are deemed customers of social marketing in a decision-making process for environmental policy, and stakeholders' perceptions are critical information for policy makers. Thus, based on their perceptions, the cluster analysis statistical method can be applied to segment stakeholders into several groups for planning social marketing-based communication strategies. In addition to offering communication strategies for each target stakeholder group, we further provide integration strategies for reducing conflicts surrounding the implementation of OWP projects. Cluster analysis is a commonly used segmenting technique; it is based on customers' demographic characteristics, psychographic characteristics, desired benefits from product/services, and past behaviors (Wedel and Kamakura, 2000).

In Taiwan, the Taiwan government has already publicly announced an offshore wind power-intensive program, and three major developers are involved in related development projects. Potential impacts exist to the environment, people's lives, economic activities, and ocean use rights; these have led to some conflict between wind farm advocates and other stakeholders. The government should identify solutions for ocean use conflicts, possibly even creating opportunities for OWP development and original ocean users to co-exist. In summary, this study aims to resolve

conflicts arising from offshore wind farm siting and construction and to segment stakeholders by their perceptions to facilitate comprehensive marketing strategies to enhance consensus and resolve user conflicts. To this end, a questionnaire survey is conducted employing a market segmenting technique to plan strategies to resolve user conflicts. It is hoped that the empirical results of this study can provide useful information for government agency decisionmaking about the OWF siting and planning and for stakeholders to recognize the functions of multiple uses for ocean and coastal areas.

2. Wind power development in Taiwan

2.1. From onshore to offshore

In Taiwan, over 99% of the energy supply relies on imports; to enhance energy self-sufficiency, therefore, wind power energy is an important power-generating method. Because Taiwan has an abundance of potential wind power resources, the Taiwan government announced in 2000 the "Ten Year Project for Wind Power Energy Development," and the Taiwan Power Company (TPC) has been developing wind power energy since 2000. Thereafter, to accelerate the development of green energy, the "Sustainable Energy Policy Program" was publicly announced in 2008, and the "Renewable Energy Development Act" was put into force in 2009 by the Taiwan government. Additionally, a task office for promoting wind power development called "Thousand Wind Turbines Promotion (TWTP)" was set up by the Bureau of Energy (BOE). Two targets of the TWTP plan are that (1) onshore turbines will be increased to 450 with 1200 MW of wind energy capacity by 2020 and (2) offshore turbines will be increased to 600 turbines with 3000 MW of wind energy capacity in coastal waters by 2030 (Fig. 1). In May 2014, 314 onshore wind turbines had been installed in coastal areas of Taiwan, with 630.3 MW total wind energy capacity (BOE, 2014). In terms of offshore wind power development, the Taiwan Ministry of Economic Affairs (MOEA) publicly announced the "Incentive Program of Offshore Wind Power Demonstration System" in 2012; thus, Taiwanese wind power energy started to extend from onshore to offshore.

The BOE announced three developers involved in the incentive program in 2013: Taiwan Generations Corporation (TGC), Formosa Wind Power Corporation Limited (FWPC) and Taiwan Power Company (TPC). Because the natural conditions in western Taiwan have the potential and are suitable for the development

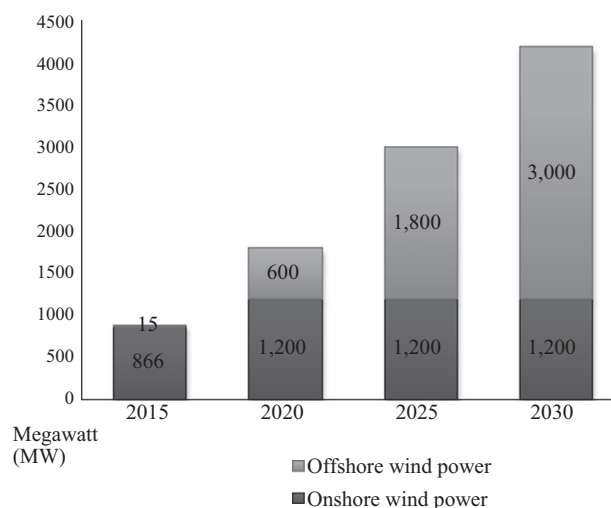


Fig. 1. Policy goals of OWP in Taiwan.

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