

## Leveraging External and Domestic Niches:

### The Protective Space in Taiwan's Wind Power Development from Onshore to Offshore

陳 奕均\*

Yi-chun CHEN

#### 1. Introduction

Wind power is a renewable energy (RE) with a long history. In recent years, the deploying of wind power has gradually shifted from onshore towards offshore. Taiwanese government announced energy transition policy in 2016, which declared the phase-out of nuclear power and an increase in RE to 20% in its power generation by 2025. Given this policy, a total of 5.5GW capacity of offshore wind power (OSW) will be installed. This attracted the major wind power players like Ørsted to invest in Taiwan, taking Taiwan as their ticket to the OSW development in Asia-Pacific region. According to the allocated capacity which needs to finish grid connection by 2025, foreign developers obtained around 80 percent of the OSW capacity.

The diffusion of Taiwan's wind power starts after 2006, not until 2015 did it surpassed by solar PV in the installed capacity. However, the diffusion of onshore wind power did not bring the complete formation of the supply chain to sustain it. The market has been occupied by only two developers: state-owned utility Taipower and a Germany developer Infravest. In the current OSW development, the government asked the developers to promise an incorporation of local supply chain into the OSW development. Although Taiwan's wind power industry failed in supporting its onshore wind power deployment in the past, the foreign OSW developers said they have confidence in Taiwanese local suppliers.

In sustainable transition studies, RE can be defined as developing in a niche, i.e. a protective space, to keep it from the competition of mainstream technologies. This paper hence adopted the concept of the niche as a protective space for wind power, to analyze the niche formation in Taiwan, and how it affects the development of wind power from onshore towards offshore.

#### 2. Methods and analytical framework

We used a qualitative research methodology. We compiled the qualitative and quantitative facts, mainly from governmental, academic documents and mass media, to formulate historical events regarding the actors and RE development in order to build the “storylines” for analysis.

Regarding analytical framework, we referenced to Smith and Raven (2012)'s elaboration on

---

\* 京都大学経済研究所附属 先端政策分析研究センター Research Center for Advanced Policy Studies, Institute of Economic Research, Kyoto University  
〒606-8501 京都市左京区吉田本町 E-mail: chen-yichun@kier.kyoto-u.ac.jp

the “protective space” which indicated three functions: shield, nurture and empower. We firstly go through the history of wind power in Taiwan, and then indicate the involved actors, their networks and narratives used, and finally analyze the formation and functions of the protective space and how it affects the development of wind power in Taiwan.

### **3. Results**

The functions of the protective space in Taiwan’s wind power development have been provided by the government, and private sector within the local niche (Taiwan) and from the external niches as well. Although in the early years, the Taiwanese government took wind power as the more economic RE which should be diffused first, the policies and overall planning for wind power failed to support the building of a supply chain or a national champion turbine manufacturer to sustain Taiwan’s wind power diffusion. However, the process of wind power diffusion brought the knowledge of wind power which includes physical technology and institutions such as feed-in tariff (FIT), while also provides the room for the initial formation of the supply chain. The functions of shield, nurture and empower were provided by the niche. At the same time, Taiwanese firms which invested and located in China participated in the growth of China’s wind power industry, like Swancor, leveraging the China’s wind power niche as a space for shielding and nurturing, taking on wind-power technology developing and having the chance to contact the major international suppliers. When it turns to a more friendly environment in the Taiwan niche (i.e. energy transition, promotion of OSW), these overseas Taiwanese firms flowed back to Taiwan, and they cooperated with the achievements from the local niche, with the leading of foreign developers who brought the experience, knowledge and international network to foster the ongoing OSW development in Taiwan.

### **4. Conclusions**

This paper applied the concept of a “protective space” (niche) as the research framework to analyze the development of onshore and offshore wind power in Taiwan. It shows that besides leveraging the local (Taiwan) niche, Taiwan also utilized the external niche to make up for the deficiency during its formation. Finally, this combines with local niche and the foreign investments to proceed the upgrading of technology and mature the niche for facilitating a future OSW diffusion. This paper addressed the “spatial narrowness” issue in sustainable transition studies through investigating the case of Taiwan’s wind power development. The results can provide implications for those countries which do not have a large-scale domestic market, or enough technological capability to sustain industry building; or which face the ill-functioning of domestic niches, in their developing RE, especially in wind power.