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Legal system for the development of marine renewable energy in China

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ABSTRACT

At present, there is no specific legal basis for the development and utilisation of marine renewable energy, nor legal protection for the developers in China. The consequence is that the Chinese Government is unable to provide institutional support for the substantive development of marine renewable energy, resulting in slow development of China's marine energy industry. This paper provides an institutional framework for the establishment of relevant laws in China and legislative proposals in legal perspective, for the better development of marine renewable energy. The Chinese Government should optimise the administrative management system, strengthen financial regulation such as tax and emphasise sustainable development.

1. Introduction

As the biggest developing country in the world, China fully recognises the significance and urgency of addressing climate change issues and has made great efforts on its own initiative in this direction [1]. In recognition of the importance of marine resource exploration, China has set its priorities in its National 12th Five-Year Plan to:

‘develop marine economy, adhere to the coordination of land and ocean, draft and implement marine developing strategy, improve the capabilities of marine development, control and integrated management, scientifically plan for the development of marine economy, develop the marine industries, such as the offshore oil and gas, transport, and fisheries, reasonably develop and exploit marine resources, strengthen the construction of the fishing ports, protect the ecological environment of the islands, coastal areas and the ocean, secure the safety of sea lanes, and safeguard China's maritime rights and interests.’

Marine renewable energy has become the focus of national research and development because of its abundant, renewable, and non-polluting characteristics. In accordance with Article 2 of the *Interim Measures of Marine Renewable Energy Funds Management*, marine renewable energy is defined as “including tidal energy, tidal current energy, wave energy, ocean thermal energy, and salinity gradient energy.” However, the legislation in relation to the exploration of marine renewable energy, however, remains negligible. There is no specific legal basis for the development and utilisation of marine renewable energy, nor legal protection for the developers. The consequence is that the Chinese Government is unable to provide institu-

tional support for the substantive development of marine renewable energy, resulting in slow development of China's marine energy industry. It has, therefore, become a major priority to establish a legal system suitable to complement China's marine energy development. The objectives of this paper are as the following: Firstly, providing a review in relation to the legal system for the development of marine renewable energy from various State practices. Secondly, exploring the prospects and legislation regarding the exploration of marine renewable energy in China. Thirdly, discussing the legislation defects and provides suggestions for further development.

2. Recent development from other State practices

The drafting of marine renewable energy policies and roadmaps is based on the reserves of marine renewable energy of each State [2]. The experience of the United Kingdom confirms that the development of marine renewable energy needs an integrated management organ, then gradually relevant legislation, along with the development of the industry and finally, a rational industrial plan to provide guidance to the industry [3]. In the United Kingdom, the development of tidal energy is very promising and the world's first grid-connected tidal energy converter has been built in Northern Ireland, to exploit the marine tidal energy. Data shows, however, that the economic output of this project is not as optimal as might have been indicated or expected and the wellbeing of local residents and the local ecology have apparently been threatened [4]. In order to develop this industry in an environmentally friendly way, apart from requiring a stringent environmental assessment in the application process, the transparency of these projects' approval process should also be increased, by letting

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more scholars with specific technical knowledge, coastal residents and other communities and organisations, take part in the process. Public participation should be used as an effective tool in promoting the environmentally friendly development of the marine renewable energy industry [5].

The practice of Canada shows that public participation is helpful to the environmentally friendly development of a marine renewable energy industry. Despite the promotion of national energy security and employment opportunities, the marine renewable energy industry can have an adverse effect on the marine environment [6]. In the United States, the issues of renewable energy and new energy are mainly regulated by comprehensive Acts, supplemented by appropriate sub-Acts, in which there will be sub-Acts specifically regulating renewable energy, in order to ensure their specification and completion [7]. Various legal initiatives are designed to transfer the policy of purely pursuing oil and natural gas supplies, to the policy of saving energy. It is also intended to improve the efficiency of energy and develop renewable energy, through the rules of taxes and tax credits. In addition, all types of tax incentives and the five-year accelerated depreciation scheme were designed for the development of renewable energy [8].

Based on the above brief review, it is fair to suggest that reform needs to be based on current economic development conditions and the need for the conservation of energy and the development of low-carbon methods. It is also necessary to consider establishing a vertical management structure, for the development of renewable energy industry. Due to the involvement of a large number of departments with regard to the marine renewable energy industry, it is recommended that the administrative power of this structure needs to be expanded, so as to coordinate the respective major departments and also with each of the coastal provinces, plus creating positive institutional circumstances, for the development of a marine renewable energy industry [9].

The flexible use of economic instruments and incentives is advantageous to the development of a marine renewable energy industry. Since this industry is an emerging industry, as well as a high-risk and high-investment industry, the government should establish favourable policies to encourage capital and technology investment in the industry [10]. It can be seen from State practice that various economic and fiscal instruments have been applied to encourage the development of marine renewable energy, such as tax incentives, production subsidies, investment subsidies and incentives, quotas, green pricing and so on and the independent or combined use of these measures have proved to be effective [2].

3. Prospects of China's marine renewable energy

According to statistics, China's coastline is as long as 18,000 km and the sea area comprises 4,790,000 square kilometres. Thus, China has abundant marine renewable energy resources. In recent years, the Chinese Government has paid more attention to the development of marine renewable energy and has established a renewable energy target until 2015, in the '12th Five Year Plan' [11].

In the recent national marine renewable energy planning, the '12th Five Year Plan of National Marine Economy Development', which was issued by the State Council on 16 September 2012, requires the vigorous development of offshore wind and marine energy. In April 2013, State Oceanic Administration issued the, '12th Five Year Plan for the National Development of Marine Industry', indicates the following aspects: Firstly, draw up marine renewable energy development plan to make full use of national special funds for marine renewable energy. Secondly, launch a demonstration of a new type wave power generation project and build a wave -power generation project, with significant output. Thirdly, explore the initial use of ocean thermal energy and biomass energy. Fourthly, develop offshore wind power, promote the layout of wind power station advancing to the deep water and distant

shore gradually; and carry out activities with non-governmental organisations, such as the International Maritime Organisation.

As can be seen, in recent years, China has a new understanding of the importance of the value of marine renewable energy. Technology, capital and human resources are injected into the development of marine renewable energy. The legal environment of marine energy development has been gradually improving. The establishment of a legal system supporting China's marine renewable energy has now become the focus of present energy legislation work [12]. China is now vigorously developing marine renewable energy, so one might expect it would be taking this opportunity to accelerate the establishment of a matching legal system, in order to provide an institutional guarantee for the development of marine renewable energy [13].

4. Legislation regarding the exploration of marine renewable energy

The Chinese Government has supported the development of a renewable energy industry via a number of measures, such as laying down specific plans, providing industrial guidance and technical support, standardising the electricity price, proposing fiscal subsidies, stimulating economic incentives and other forms of institutional support [14].

4.1. The establishment of a development plan

After the oil crisis in the 1970s, in order to cope with the difficulties which emerged, the Chinese Government formulated an energy development policy, namely, the 'adaption to local conditions, adoption of a multi-energy complementary system, comprehensive utilisation and being cost-effective'. In August 2007, the National Development and Reform Commission issued the, 'Long-term Development Plan of Renewable Energy', which called for the use of renewable energy, in order to improve the energy consumption structure and promote the renewable energy power generation industry. In 2009, the revised, 'Renewable Energy Law of People's Republic of China', formulated plans for the development and utilisation of renewable energy and made comprehensive arrangements for the development and utilisation of marine energy [15]. In August 2012, the Chinese Government issued the, '12th Five Year Plan for Renewable Energy'. Its primary goal was that in 2015, 20% of the total electricity generation would come from renewable energy sources. The plan recommends upgrading the level of using marine renewable energy, through improvements in technology.

4.2. Industry guidance, support and incentives

In accordance with the national renewable energy development and utilisation plan, state and local authorities are responsible for directing the development of the renewable energy industry, giving priority to energy development and utilisation in the fields of science and technology, providing funds to support its technical research, promoting renewable energy development and utilisation and reducing its production costs.

The standard electricity price for renewable-energy power generation is determined by the appropriate state price department, according to specific situations. This is determined in accordance with the general principle of reasonableness and economy, in terms of energy development and utilisation. The price will be adjusted according to the development of renewable energy. In 2006, the National Development and Reform Commission issued, the 'Pilot Scheme of Renewable Energy Power Generation Prices and Cost-Sharing Management', which requires that, the price is principally based on, 'Renewable Energy Law' and the renewable energy electricity generation price is adjusted by government-determined prices and government-guided prices.

In March 2012, the Ministry of Finance, the National Development

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