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Ambition and ambiguity: Expectations and imaginaries developing offshore wind in China

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ABSTRACT

This paper investigates how future-orientation generates action in China's offshore wind industry. We might expect that, with an authoritarian government, China would be able to push through policies with ease. Using the sociology of expectations and sociotechnical imaginaries, this paper shows how the future is an important resource for not only coordinating government and industry actors but also calibrating and negotiating expectations of what can be achieved. On the one hand, sociotechnical imaginaries – as exemplified by government development targets – appear to spur action; on the other hand, local expectations modify the intended development targets. The paper describes a strategic waiting game in which the government is obscure about intentions and in which the industry, wanting a piece of a promising cake, is eager to get a head start. This paper finds that ambitiousness about the future, but ambiguity in implementation, is a strategy successfully employed by the government to ensure change. The paper shows how state intervention is productively managed so that it neither stifles nor exclusively drives offshore wind industry development in China.

1. Introduction

Since 2002, China has actively supported the development of large-scale renewable energy — particularly wind power. China's constant need for energy and energy security is a primary reason for the development; other reasons include the country's need for new industry and the mitigation of local pollution and climate impact (Ydersbond and Korsnes, 2016). In 2009, the Chinese government and relevant stakeholders met to plan the development of China's offshore wind industry (Korsnes, 2014a). In 2012, industry analysts at the Offshore Wind China conference registered a pipeline of 37,000 MW (MW) of offshore wind projects in China, suggesting a rather large development compared with the approximately 300 MW of offshore wind projects that were installed at the time. However, since the first turbine was installed in 2007, China's offshore wind industry has developed more slowly than expected. At the end of 2014, China had a total installed capacity of 670 MW (GWEC, Global Wind Statistics, 2015) — much less than the capacity set out in the government development plan, and at the same time the government announced that the intended 30,000 MW target planned installed by 2020 would be reduced to 10,000 MW (Smith, 2014). This paper aims at understanding better the relation between ambitious government goals and promises on the one hand and actual industry development on the other.

As has become evident since the open-door policy was introduced in 1978, China seeks to fast-forward progress to reach certain characteristics that will qualify them as 'developed.' The future can therefore be viewed as big business in China, where project developers and government officials attempt to look a bit further over the horizon to be one step ahead (Dodson, 2012). At any given time in China, an industry can gain momentum or remain stagnant. Thus, large margins of error are necessary in predictions of the future. This feature can be illustrated through a review of China's onshore wind industry during the early 2000s. At that point, it was still unclear whether the industry would take shape. Lewis (2003, p. 84) wrote that 'today with more wind projects cancelled than new projects sited, expectations are less optimistic. National targets for wind power in 2000 were not met, and it is even less likely that China will meet the target of 1500 MW by 2010.' Knowing that China installed 1266 MW in 2005 and 2599 MW the following year (Li et al., 2007), the expectations of professionals in 2003 proved erroneous only two years later. The comparison with the offshore wind industry of today is striking. This retrospection shows that, in spite of the divergence between government targets and other expectations of the future of the wind industry, the industry grew quickly. What role did government targets have in this development, and how did industry actors expect events to develop?

These questions highlight the various ways in which government involvement may influence industry development and innovation in China — a topic widely debated in research literature and media. This debate can roughly be grouped into, on the one hand, those who do not believe that innovation is occurring in Chinese firms in China, and that this is due to a cultural or systemic component or due to adverse government involvement (e.g., Baark, 2007; Gu et al., 2009; Serger, 2009). On the other hand, there are those who believe that innovation is happening but largely in private firms (i.e., in spite of adverse government involvement) (e.g., Breznitz and Murphree, 2011; Nee and Opper, 2012) or because the government can function as a 'state entrepreneur'

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that facilitates innovation (e.g., Shi et al., 2014; Sun, 2015). Thus, state intervention may on the one hand be perceived as beneficial in aligning development efforts; on the other hand, there is a risk that state intervention may inhibit innovation. By examining the interaction between industry and government future engagement, the paper draws attention to ways in which this tension may be productively managed.

This paper examines China's offshore wind industry, but one arguably cannot understand this industry without also involving China's onshore wind industry. Therefore, unless specified otherwise, in this paper 'wind' used alone refers to both onshore and offshore wind. Moreover, the paper draws an analytical difference between 'industry' and the 'government' as distinct but interdependent actors. Correspondingly, I employ literature on future-orientation and governance to denote a difference in expectation levels, namely 1) 'sociotechnical imaginaries' (Jasanoff and Kim, 2009) covering aspects of how governments employ the future as a resource for present-day change and 2) the 'sociology of expectations', theorising expectation processes connected to a specific technology and technology spokespeople. The role of the government is particularly relevant for two main reasons: first, renewable energy industries are dependent on government support globally (REN21, 2015); second, China has an authoritarian regime in which the role of government is prominent. Hence, we may ask, how does the capacity to imagine futures influence industry development in China? Is the Chinese government a sole influencer of how the future should look, or do industry actors also play a role?

The paper is structured as follows. Section 2 presents the concepts of the sociology of expectations and sociotechnical imaginaries, and Section 3 describes the method and data. Section 4 explores how expectations to China's offshore wind industry development were generated. Section 5 examines the way in which government induced imaginaries and local expectations occur in the offshore wind industry and illustrates the interrelation between sociotechnical imaginaries and expectations by describing a strategic waiting game that induces change despite uncertainty about the future. Section 6 concludes by highlighting the usefulness of thinking about China's future in terms of imaginaries that can manifest themselves as 'loose' plans.

2. Imaginaries and expectations

The literature on technology and future expectations is growing, and concepts span several disciplines. In addition to 'expectations' (Brown and Michael, 2003), there are 'visions' (Gjøen, 2001), 'promises' (van Lente, 2000), 'anticipation' (Gustafsson et al., 2014), 'imaginaries' (Jasanoff and Kim, 2009), 'foresight' (van Lente, 2012) and 'fantasies' (Sovacool and Ramana, 2015). Many of the concepts overlap, but I shall look in particular at the sociology of expectations and sociotechnical imaginaries. I aim at demonstrating how the two approaches can be useful analytical tools for highlighting different aspects of the future-orientation of offshore wind development in China.

The sociology of expectations explores the various dynamics of expectations relating to science, technology and society (Brown and Michael, 2003). Expectations and visions not only formulate but also constitute and accommodate a desired future (Borup et al., 2006). Expectations at once legitimise a technology, indicate a development direction and help coordinate interests that can materialise into technical and scientific activities and products (van Lente, 2012). Van Lente (2000) describes a dynamic of 'promise and requirement', implying that commitments become part of a shared agenda that requires action in itself. When promises are made, they subsequently become required achievements and, ultimately, necessary to complete or to continue working on the achievement; in other words, they become self-fulfilling prophecies (ibid.). This is not to say that any vision may become self-fulfilling on its own, but rather, there is often substantial and active work behind making the future and aligning expectations.

Although many visions fail to materialise (see, e.g., Geels and Smit, 2000), many visions do succeed. What characterises a successful vision, and how is it performed? Several researchers have addressed these questions. Berkhout (2006) describes expectations as bids for the future that offer a potentiality requiring endorsement from others to be actualised. In this manner, interpretive flexibility persists, increasing the likelihood of greater support and potentially becoming larger and more normative and collective visions located in 'art and literature, public and political discourses, statements and appeals from business, civil society and government' (ibid, p. 307). Skjølsvold (2014) stresses that futures are resources that spokespeople of a technology can draw on to reach goals. These futures are performative in two ways: They enrol and convince new actors, and they gradually transform the idea of what a technology could mean for the future and nest it with more purposes than were inherent to the initial idea. In this sense, an offshore wind turbine, for instance, is not only 'electricity' but also a 'sustainable lifestyle', a 'green' image that China can show the world, etc.

Expectations may also be contradictory and may fight to conquer the future to stay relevant (Bakker et al., 2011; Eames et al., 2006), which is not necessarily a weakness, as scenarios are malleable and can be used to build support from various quarters (Sovacool and Ramana, 2015). Moreover, as has been noted by several expectations scholars (e.g., Geels and Smit, 2000; Gjøen, 2001), some promises are set unrealistically high to generate interest and a protected 'space' for a technology. Though unrealistic, these promises are useful for the spokespeople of a technology, as they may impact the way people think about a topic (Berkhout, 2006). As Geels and Smit (2000, p. 883) put it, 'some future speculations do not strive for truth or accuracy, but are meant to influence specific social processes in technological developments.' These expectations are therefore part of strategic games, wherein the spokespeople risk that their 'bluff' will be called.

Expectations and visions are received and generated at different levels. Budde et al. (2012) show how governments typically refer to larger expectations of 'climate change' or related issues when making their decisions, whereas industry actors have more grounded expectations of the future of a specific technology. In addition, within governments there are competing expectations regarding what should be deemed the most suitable technology (Bakker et al., 2012). There is, therefore, a difference between collective and individual expectations (Konrad, 2006; Konrad et al., 2012). Individual expectations are limited to the individual, whereas collective expectations are taken for granted, depersonalised and universally accepted. Examples of collective expectations are 'progress' and 'development', and most people share a similar perception about what they mean for the future. In this way, collective expectations can be present in individual expectations and collective and individual expectations mutually inform each other (Gjøen, 2001). Bakker et al. (2012) note that the credibility of expectations depends on their similarity to the existing collective images. If the expectations are largely dissimilar, they will be regarded as incredible.

As expectations become taken for granted, they become able to mobilise a larger number of actors — even actors who do not necessarily benefit directly from the expectation (Konrad, 2006). Eames et al. (2006) use the word 'vision' to denote a coherent image of the future intended to generate long-term action, whereas expectations of such images are less formal and include more fragmented beliefs about the future. The authors find that the overarching vision of a 'hydrogen economy' is justified by a range of narratives, varying from concerns of democracy, independence, environment and power to views of governments, businesses and research communities. As the vision is brought down to a local level, however, each narrative is drawn upon to generate interest or disinterest, impacting the way in which the guiding vision is perceived. Local expectations, therefore, impact the guiding vision. A vision such as the 'hydrogen economy', which has become so popular that it can be equated with nationhood and is supported by research and development programmes, also generates expectations about the vision itself.