

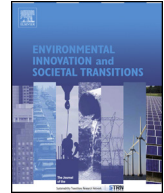


ELSEVIER

Contents lists available at ScienceDirect

Environmental Innovation and Societal Transitions

journal homepage: www.elsevier.com/locate/eist



Offshore oil and gas firms' involvement in offshore wind: Technological frames and undercurrents

Gard Hopsdal Hansen^{a,*}, Markus Steen^{b,c}

^a Department of Interdisciplinary Studies of Culture, Norwegian University of Science and Technology, NO-7040 Trondheim, Norway

^b Department of Geography, Norwegian University of Science and Technology, NO-7040 Trondheim, Norway

^c SINTEF Technology & Society, Department of Industrial Management, P.O. Box 4760 Sluppen, NO-7465 Trondheim, Norway

ARTICLE INFO

Article history:

Received 29 April 2014

Received in revised form 1 May 2015

Accepted 3 May 2015

Available online xxx

Keywords:

Actors and motivation

Niche–regime relationship

Offshore oil and gas

Offshore wind power

Qualitative research

ABSTRACT

It is commonly acknowledged that the actions and strategies of energy incumbents are important to understand sustainable energy transitions, but few studies have focused on why incumbent firms diversify into emerging sustainable energy sectors. This paper, which is based on a substantial empirical material, contributes to understand the dynamics between mature and emerging industry sectors by analysing the motivation of offshore oil and gas (O&G) sector firms' to engage in offshore wind (OW). At the surface, we find that O&G sector firms frame OW as an opportunity to exploit and develop existing resources in a new market, which they expect will grow significantly over the coming decades. Furthermore, we find that the frame O&G managers apply when assessing OW is influenced by something we term 'undercurrents', as a significant motivation behind some investments in OW is to attract and develop human resources for use in the O&G sector.

© 2015 Elsevier B.V. All rights reserved.

* Corresponding author. Tel.: +47 90965459; fax: +47 73591327.

E-mail address: gardhh@gmail.com (G.H. Hansen).

1. Introduction

At the COP17 climate negotiations in Durban on 6 December 2011 the executive director of the International Energy Agency (IEA), Maria van der Hoeven, announced that ‘The door to achieving our objectives [i.e. a two degree target] is rapidly closing . . . we need to act now!’ (IEA, 2011). The same morning, in his keynote speech to the World Petroleum Congress in Doha, Robert Dudley, representing BP, said ‘We need to discover a new Saudi Arabia every fifth year to cover the global demand for oil in 2030’ (Andreassen, 2011).

Despite the looming threats of climate change and future shortages of fossil fuels, transitions to more sustainable energy systems are slow. In 2011, fossil resources accounted for more than 80% of the world’s total primary energy supply (IEA, 2013). The energy system appears to be locked into historical and path-dependent technological development trajectories (Unruh, 2000). Fossil resources are produced and consumed within a complex socio-technical system, which despite climate concerns keeps expanding to meet an increasing global demand for energy. This system is dominated by incumbent actors who do not necessarily behave in ways that support new alternative technologies (Geels et al., 2008; Smink et al., 2013).

Nonetheless, several oil and gas (O&G) incumbents, including leaders such as BP, Statoil, and Shell, have been diversifying into various renewable energy technologies. The participation and strategic reorientation of such firms may significantly accelerate the breakthrough of environmental innovations (Geels et al., 2008). However, Pinkse and van den Buuse (2012) argue that the commitment and success of O&G incumbents with these initiatives has been limited from both a business perspective and a technology development perspective. Whereas much research has focused on why firms implement technologies and routines to make their core activity more environmentally sound (Arnolds and Hockerts, 2010; Bansal and Roth, 2000), less effort has gone into exploring why incumbent firms of the O&G regime diversify into emerging renewable energy niches.

Offshore wind is a niche where there currently are few incumbents but many start-ups, as well as incumbent firms from the onshore wind and offshore O&G sectors (Markard and Petersen, 2009; Steen and Hansen, 2014). The development of the offshore wind industry is increasingly shaped by diversifying O&G firms (both producers and suppliers). The relationship between O&G and offshore wind provides an interesting example of regime–niche interaction, as there is a collective expectation that the offshore O&G sector can make substantial contribution to offshore wind in terms of technological variety, organizational capabilities and industrial and financial capacity (EWEA, 2013). Approximately 150–200 Norwegian companies are involved in the offshore wind industry to some extent (Multiconsult, 2012), of which the majority have diversified from the offshore O&G sector (Hansen and Steen, 2011). Because Norway neither has a domestic offshore wind market, nor clear ambitions to develop one in the short-term future (Normann, 2014), Norwegian firms’ business activities are oriented mainly towards nearby offshore wind markets such as the UK, Germany, and Denmark.

This paper analyses the motivation behind Norwegian offshore O&G sector firms’ diversification into the offshore wind sector. By studying how incumbents from the O&G sector *frame* offshore wind, our aim is to contribute to an understanding of the dynamics between mature and emerging sectors, as well as the role played by incumbent actors in the development of new technologies. Drawing on Callon (1998), we understand ‘frame’ as the boundary between the elements and relations that actors take into account when they assess a certain technology, concept, or situation, and the elements and relations that are not taken into account – in other words, what a manager from the O&G sector sees when looking at offshore wind. Whereas Callon (1998) uses the concept ‘overflow’ to denote effects that escape framing, we extend this fluid vocabulary by introducing the concepts ‘surface’ and ‘undercurrents’ to discuss how frames contain elements that are not communicated but are nevertheless included in calculations.

In the next section, we discuss the role of actors in technological transitions, and in the multi-level perspective (MLP) in particular. Then we continue by elaborating the discussion on frames and how expectations and interests both shape and contribute to shaping frames. In Section 3, we describe our methodological approach and data. Section 4, in which we present and analyse our findings, consists of two main parts. The first part analyses motivations appearing at the surface of the frame that O&G managers apply. The second part goes beneath the surface to study the undercurrents influencing the

Download English Version:

<https://daneshyari.com/en/article/6559292>

Download Persian Version:

<https://daneshyari.com/article/6559292>

[Daneshyari.com](https://daneshyari.com)