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Advancing strategic environmental assessment in the offshore oil and gas sector: Lessons from Norway, Canada, and the United Kingdom

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ABSTRACT

Abstract: Strategic environmental assessment (SEA) for offshore oil and gas planning and development is utilized in select international jurisdictions, but the sector has received limited attention in the SEA literature. While the potential benefits of and rationale for SEA are well argued, there have been few empirical studies of SEA processes for the offshore sector. Hence, little is known about the efficacy of SEA offshore, in particular its influence on planning and development decisions. This paper examines SEA practice and influence in three international offshore systems: Norway, Atlantic Canada and the United Kingdom, with the intent to identify the challenges, lessons and opportunities for advancing SEA in offshore planning and impact assessment. Results demonstrate that SEA can help inform and improve the efficacy and efficiency of project-based assessment in the offshore sector, however weak coordination between higher and lower tiers limit SEA's ability to influence planning and development decisions in a broad regional environmental and socioeconomic context.

1. Introduction

The shift from managing individual projects to more regional and integrative approaches has begun to take root internationally in environmental management. This is also the case in environmental assessment (EA), which has been subject to much criticism for its focus on individual project actions (see Cashmore et al., 2008; Harriman Gunn and Noble, 2009a). The constraints of project-based EA are widely recognized and include inadequate consideration of cumulative effects and development thresholds (Duinker and Greig, 2006); insufficient regional baseline data to detect environmental change (Dubé, 2003); loss of mitigation opportunities because assessment occurred too late in the development sequence (Vicente and Partidário, 2006); and limited public influence over the direction of development activity (O'Faircheallaigh, 2010). As a result, there is now a collective understanding that EA must go beyond the evaluation of site-specific project impacts to consider the broader policy and regional planning context in which development projects operate (Noble and Harriman, 2008; Partidário, 2000).

The need for a strategic approach to EA is especially recognized in the context of offshore hydrocarbon planning and development (see BSStRPA, 2008; Davey et al., 2000; Horvath and Barnes, 2004; Kinn, 1999). Offshore hydrocarbon projects operate in a large network of infrastructure; the risks to marine environments are often high on a global scale (Campagna et al., 2011; Wagner and Armstrong, 2010); and by their very nature such projects require regional and strategic coordination (Salter and Ford, 2001; Spiridonov, 2006; WWF, 2005). Public attention has typically been less concerned with offshore versus onshore energy developments (see Haggett, 2011). But, with recent spill events in the Gulf of Mexico drawing international attention to the offshore sector (see Amos, 2011), there is a growing international debate about the risks and benefits of offshore hydrocarbon activity and the need for improved planning and impact assessment processes.

Recognition of the limits of project-based EA in proactively planning and managing oil and gas activities in offshore environments has been instrumental to the adoption of regional and Strategic Environmental Assessment (SEA) systems (Environment Canada, 2004; Horvath and Barnes, 2004). There are now various forms of SEA for offshore energy planning and impact assessment ongoing internationally (see Hasle et al., 2009; Wagner and Jones, 2004). However, while the potential benefits of and rationale for SEA are well argued (CCME, 2009; Environment Canada, 2004; Harriman Gunn and Noble, 2009a; Johnson et al., 2011), there have been few empirical investigations of SEA in the offshore oil and gas sector with a view to understanding the efficacy of SEA and, in particular, its influence on planning and development. The majority of research on SEA in general, and in the energy sector in particular, has focused on terrestrial systems (see Jackson and Dixon, 2006; Jay, 2010; Marshall and Fischer, 2006; Noble, 2002; Noble, 2008). There has been very little

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consolidation of international experiences with SEA offshore, and thus few opportunities for transferable learning.

There is a need for a better understanding of the nature and efficacy of SEA in the offshore energy sector and its role in planning and development decisions. This is particularly important for emerging energy frontiers, such as Canada's western Arctic, where planning for offshore hydrocarbon development continues to occur on a project-by-project basis (Voutier et al., 2008). As international attention turns to the Arctic to meet global energy demands, there is increased recognition of the need to advance upstream impact assessment and decision-making to plan for energy development prior to ramping-up individual energy projects (see Arctic Council, 2009; IGC, 2004; WWF, 2005). However, as Ketilson (2011) explains, both industry and government remain sceptical about SEA offshore, noting its 'unproven benefits'.

This paper examines international experiences with SEA in the offshore oil and gas sector and the lessons emerging from practice. Based on SEA offshore in Norway, Atlantic Canada and the United Kingdom (UK), our objective is to identify common lessons and opportunities to advance the efficacy of SEA as a means to influence offshore hydrocarbon planning and development decisions. We use the term 'SEA' to be inclusive of both legislated and informal SEA, including regional EAs and both single and multi-sector strategic planning and assessment frameworks. In the sections that follow we first introduce SEA in three international offshore systems, followed by an analysis of SEA practice and its influence on offshore oil and gas development decisions. We conclude with a discussion of the lessons emerging and the implications for advancing SEA for offshore planning and assessment.

2. International systems of SEA offshore

We identified three internationally recognized cases that are distinct in both the nature and context in which SEA operates in the offshore environment: Norway, Atlantic Canada and the UK. In doing so, our aim was to derive common lessons and challenges that may transcend regional context. Norway's offshore system provides a circumpolar context, focused on an integrated regional planning model; Atlantic Canada is sector-based, with SEA operating under a non-legislated federal directive; the UK offshore sector is mature, with SEA legislated under the EU Directive (2001/42/EC). Environmental assessment offshore in each of the three jurisdictions is well documented. For example, Hasle et al. (2009), Ottersen et al. (2011), and the Norwegian Petroleum Directorate (NPD, 2009) detail Norway's offshore regulatory framework. In Atlantic Canada and the UK, the offshore system and associated EA and licensing regulations are described on the respective websites of the responsible authorities, including the Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB) in Atlantic Canada (see http://www.cnlopb.nl.ca/), and the Department of Energy and Climate Change (DECC) in the UK (see http://offshore-sea.org.uk). Below we provide a brief overview of each regulatory system so as to provide context before presenting our analysis of SEA and its role and influence in each of the offshore regions.

2.1. Offshore Norway

Norway's offshore oil and gas reserves are beneath the North, Norwegian and Barents seas. Before offshore areas are made available for licensing preliminary EAs, and in some cases regional EAs (REAs), are carried out by the Ministry of Petroleum and Energy. Regional EAs were introduced under the *Petroleum Act* in 1997 in an effort to move away from piecemeal assessment and obtain timelier, efficient, and comprehensive assessment results (Kinn, 1999; Salter and Ford, 2001). Regional EAs have been completed in both the North Sea and Norwegian Sea. Companies proposing to operate in an offshore area also required to conduct a Plan for Development and Operation (PDO), which includes a site specific EA (see Bjørnbom et al., 2010). In 2006, Norwegian Parliament introduced an additional framework, an Integrated Management Plan (IMP), to capture all sectors in the offshore environment including oil and gas, fisheries, and shipping. Introduced first to the Barents Sea, similar plans for the Norwegian Sea commenced in 2009, with an IMP for the North Sea in the development phase (NPD, 2009). Several sector-specific assessments in the Barents Sea were completed between 2002 and 2005, led by the relevant ministries responsible for oil and gas, shipping, and fisheries. Aggregate results have been used to inform IMP development by assessing total impact, identifying knowledge gaps and conflict areas, and establishing ecosystem-based management for existing and new activities in the region. The Goliat project, discovered in 2000, approximately 50 km southeast of Snøhvit, was the first oil development project approved in the Barents Sea in the area subject to the IMP.

2.2. Offshore Atlantic Canada

In Atlantic Canada, oil and gas activity occurs offshore the provinces of Newfoundland and Labrador, and Nova Scotia. An independent joint federal-provincial petroleum board has been established in each province to manage hydrocarbon activity. The C-NLOPB, for example, is responsible for oil and gas activity offshore Newfoundland and Labrador and reports to both the federal and provincial governments. Offshore petroleum activities that require authorization by the C-NLOPB are also subject to EA pursuant to the federal *Canadian Environmental Assessment Act*. For proposed petroleum exploration and production, the C-NLOPB is designated as the federal authority and typically the lead responsible authority for EA authorization. In 2002, the C-NLOPB adopted a policy decision to start conducting SEAs to assess offshore regions prior to opening areas for development. This policy decision eventually became a requirement under the federal Cabinet Directive on SEA. The objectives of SEA under the C-NLOPB are to inform licensing in prospective offshore areas

Table 1
Criteria for international reviews of SEA offshore.

Criteria	Description
Structural Requirements	Institutional Foundation for SEA
1. Objectives and purpose	• Clear provisions or requirements to undertake SEA; clear purposes and objectives
Procedure	*Process components concerning the various methodological and process elements of SEA, i.e. the practice*
2. Timing	• Early enough to address deliberations on purposes and guide initial review of plans, policies or programs
3. Participation	• Opportunity for meaningful participation and deliberations; ability to influence decision making
4. Tiering and coordination	• Assessment undertaken within a tiered system of EA, planning and decision making; defined linkages between subsequent activities
5. Alternatives	• Comparative evaluation of potentially reasonable alternatives or scenarios
6. Cumulative effects	• Consideration of cumulative effects
Output and Results	*Influence SEA has on decision making and project-based EA, including learning and process improvement*
7. System-wide learning	• Opportunity for learning and system improvement through review framework; monitoring and adaptation; cyclical feedback
8. Influence on decision making	• Demonstrate influence to downstream initiatives and activities