Applying a Regional Strategic Environmental Assessment Approach to the Management of Offshore Oil and Gas Development

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Abstract

Strategic environmental assessment (EA) involves the evaluation of potential environmental effects of a policy, plan, or program. A strategic EA may be applied to assess the potential outcomes of a policy, plan, or program in a defined geographical area or for a specific industrial sector. Strategic EA is normally undertaken earlier in the overall planning of resource management than project-specific assessment, and therefore offers key benefits that may improve the quality of resource management generally and project-specific environmental assessment in particular. These benefits may include broader stakeholder engagement, earlier identification of sensitive areas, establishment of development or impact thresholds, and streamlining of project-specific EA and regulatory processes, among other potential benefits. This paper reviews current practice in regional EA (a form of strategic EA) in Canada, and explores how regional EA may be applied to improve the management of offshore oil and gas development.

Key Words: strategic environmental assessment, sectoral environmental assessment, regional environmental assessment, offshore oil and gas, environmental management.

Introduction

Offshore oil and gas exploration and production activities are regulated through processes that typically require the assessment of the potential environmental effects of the activities. The level of assessment is normally commensurate with the complexity of the proposed activities, the sensitivity of the environment, and the degree of public interest or concern. EAs undertaken at the project-specific stage are usually focused on the biophysical environment, but may also include consideration of socio-economic effects. Project-specific EAs are often undertaken by or on behalf of the proponent, and subject to review by the regulator. The extent and nature of public consultation and participation is usually dependent on the level of assessment.

While the project-specific EA process plays an important role in ensuring that potential adverse environmental effects of specific offshore oil and gas activities are minimized and positive effects enhanced, it is increasingly viewed as inadequate to consider regional-scale resource management issues of interest to all stakeholders. At the same time, EA practitioners, regulators, proponents, and other stakeholders are interested in improving both process efficiency and the quality of project-specific EA.

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Definitions

Simply defined, strategic EA is a "decision-aiding" process or tool which allows for the systematic evaluation of the environmental consequences of a policy, plan, or program (PPP), at the earliest appropriate stage in the planning process and on par with economic and social considerations (Sadler and Verheem 1996).

Sectoral and regional environmental assessments are often considered to be two distinct types of strategic EA. The World Bank offers the following definitions for each (World Bank 1999, Annexe A, p.2 and p.1, respectively):

> **Sectoral EA:** "*An instrument that: examines environmental issues and impacts associated with a particular strategy, policy, plan, or program, or with a series of projects for a specific sector (e.g., power, transport, or agriculture)* [also *e.g.*, offshore oil and gas]*; evaluates and compares the impacts against those of alternative options; assesses legal and institutional aspects relevant to the issues and impacts; and recommends broad measures to strengthen environmental management in the sector. Sectoral EA pays particular attention to potential cumulative impacts of multiple activities.*"
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> **Regional EA:** "*An instrument that examines environmental issues and impacts associated with a particular strategy, policy, plan, or program, or with a series of projects for a particular region (e.g., an urban area, a watershed, or a coastal zone); evaluates and compares the impacts against those of alternative options; assesses legal and institutional aspects relevant to the issues and impacts; and recommends broad measures to strengthen environmental management in the region. Regional EA pays particular attention to potential cumulative impacts of multiple activities.*"

Strategic EA is normally undertaken by or on behalf of a regulator or government department with jurisdiction over the region or resources that may be affected by the policy, plan, or program. A strategic EA may include public consultation or participation, and may involve industry input (*e.g.*, to identify relevant and likely activities and standard mitigation measures, and to provide existing baseline data).

Strategic EA as it may be applied to offshore oil and gas development would comprise both sectoral and regional characteristics. A strategic EA for offshore oil and gas may consider a full

range of offshore oil and gas activities within a defined area, from exploration through full development and production, or it may focus on one type of activity only, such as seismic and other geophysical surveys or exploration drilling.

Current Practice and Experience

Current practice and experience in Canada in recent years is focused on the Atlantic coast, where there have been initiatives in the offshore areas of Newfoundland and Labrador, and Nova Scotia.

For example, the Canada-Newfoundland Offshore Petroleum Board (C-NOPB) and Canada – Nova Scotia Offshore Petroleum Board (C-NSOPB) conducted a regional strategic assessment of the Laurentian Sub-basin (Jacques Whitford 2003). South of Newfoundland, the Laurentian Sub-basin is relatively unexplored at present but is thought to have petroleum resource potential. Exploration rights were issued in 1969 and 1971. Recent boundary clarification has renewed interest in this area. The C-NOPB and C-NSOPB intend to negotiate the conversion of existing federal exploratory permits into exploration licences. It is expected that exploration drilling (and, if successful, delineation drilling) may be proposed. It is also anticipated that seismic and other geo-scientific surveys will be undertaken in the area. The Boards required a strategic EA of the region as part of the permit conversion process, and in anticipation of interest in the area. The strategic EA of the Laurentian Sub-basin includes:

- a regulatory overview;
- generic description of seismic surveys and well drilling;
- review of past and potential exploration;
- description of the existing biophysical and socio-economic (fishery only) environment;
- assessment scope and methodology;
- environmental effects analyses, including cumulative environmental effects, on selected Valued Environmental Components (VECs); and
- environmental planning and management considerations.

Similarly, a strategic EA for potential exploration rights issuance for Eastern Sable Island Bank, Western Banquereau Bank, the Gully Trough, and the Eastern Scotian Slope has been conducted (C-NSOPB 2003). C-NSOPB has also conducted "generic" EAs, which have similar characteristics to strategic EAs, for exploration drilling off Nova Scotia (LGL Limited *et al.*, 2000) and for seismic exploration on the Scotian Shelf (LGL Limited and Malme 1998). C-NOPB has conducted a strategic EA for the northeast Newfoundland Shelf and Orphan Basin area (http://www.cnopb.nfnet.com/) (LGL Limited 2003).

There have been federal and provincial moratoria on petroleum-related activities on Canada's West Coast for over three decades. The Minister of Natural Resources Canada requested that an independent Expert Panel advise him regarding science issues around oil and gas development in the Queen Charlotte Basin, off the British Columbia coast. The regulatory framework that exists in Eastern Canada has not yet been established and the Minister is adopting this independent panel approach to what is in essence a strategic EA, with regional and sectoral elements.

The report, prepared by the Royal Society of Canada (2004), is one item of input to the public consultations that will be conducted in 2004 by a separate review panel, appointed by the Minister. The Expert Panel focused on the Queen Charlotte Basin as limited by the Minister's mandate. The Expert Panel took advice from a large number of people and organizations. The Expert Panel concluded that:

- provided an adequate regulatory regime is put in place, there are no science gaps that need to be filled before lifting the moratoria on oil and gas development; and
- the present restriction on tanker traffic in transit along the west coast of North America from entering the coastal zone should be maintained for the time being.

The Expert Panel's recommendations focused on the establishment of an advisory body, the conduct of baseline studies, the need for monitoring studies, actions respecting protected areas, and exclusion zones (*e.g.*, coast areas). This approach to strategic EA differs from the Eastern Canada experience where established Boards have already made the policy decision to allow development to proceed. In Eastern Canada, regional Ea is being employed to provide the basis for planning specific projects and development proposals.

Federal government departments in Canada are required to conduct strategic EAs of policies, plans, and programs, in accordance with the Cabinet Directive on the Environmental Assessment of Policy, Plan and Program Proposals. Additional information on the Cabinet Directive can be found at http://www.ceaa.gc.ca/016/index_e.htm. Individual federal government departments may have internal guidance documentation regarding the process and methods for departmental strategic EAs. The Cabinet Directive does not explicitly address regional EA. The Canadian Environmental Assessment Agency (2000) has prepared guidance material. No comparable guidelines or regulatory framework currently exists in Canada for the conduct of strategic regional EAs by provincial governments or proponents.

The federal Minister of the Environment established a multi-stakeholder Regulatory Advisory Committee (RAC) to provide advice to the Minister and the Canadian Environmental Assessment Agency with respect to the content and application of the *Canadian Environmental Assessment Act (CEAA)* and its regulations. In 2002, the RAC established a subcommittee to examine EA issues related to offshore oil and gas development. This subcommittee continues to explore a conceptual framework for regional EA as a possible tool to improve the quality and streamline the processes for assessment of offshore oil and gas activities in offshore regions of Canada (in the context of *CEAA*).

Offshore Oil and Gas Development – Issues Related to Environmental Assessment

As noted in the Introduction, there is growing recognition that project-specific EAs alone do not fully address the potential effects of offshore oil and gas activities within a region. The perceived shortcomings of project-specific EA include, among others:

- inadequate consideration of the appropriateness of opening an offshore area to hydrocarbon exploration;
- assessment relying on inadequate (regional) baseline data;

- inadequate consideration of the cumulative environmental effects of potential full-scale offshore oil and gas activity over time (*i.e.*, exploration and eventual development in the event that a significant discovery is made);
- inadequate consideration of the carrying capacity of the environment;
- loss of mitigation opportunities by assessment too late in the process to fully influence planning and project design;
- limited ability to address broader environmental and socio-economic considerations outside the control of the proponent; and
- inadequate public input into scoping and decision-making.

At the same time, EA practitioners, regulators, proponents, and other stakeholders are interested in improving both process efficiency and the quality of project-specific EA. In particular, aspects of project-specific EA that could be improved include, but are not necessarily limited to:

- scoping of the project and of the assessment;
- public participation;
- use of and access to existing baseline data;
- focus on uncertain or unknown environmental effects, rather than known and understood environmental effects;
- recognition of standard, proven effective mitigation measures;
- consideration of other projects and activities undertaken by other marine users and the cumulative environmental effects of these in combination with the project;
- access to relevant contextual information, such as development objectives and carrying capacities;
- use of previous EA documentation;
- redundancy in assessments of similar activities and/or for overlapping areas; and
- timeliness of the EA process.

Application of Regional EA – Considerations

Regional EA may be applied to improve the overall management of offshore oil and gas development by contributing to improved decision-making, better quality EA, and streamlined regulatory processes.

Principles

An effective regional EA for offshore oil and gas should follow these basic principles (*cf*. Davey *et al.*, 2001):

- early application, before calls for bids, licencing, or other similar decisions establishing oil and gas activity in an offshore area, or once exploration results have made development/production activity likely;
- appropriate regional scale, including clearly defined spatial and temporal boundaries for the assessment;
- fulsome scoping of issues to be considered in the assessment, through meaningful public participation;
- consideration of a realistic and comprehensive development scenario;

- consideration of the full range of other projects, activities, and environmental trends contributing to environmental effects within the region;
- consideration of environmental, social, and economic sustainability objectives for the region;
- use of sound accepted EA practices;
- documentation of areas, issues, effects, and mitigation that are well understood and those that are uncertain;
- specification of areas within or conditions under which development may or should not take place;
- specification of requirements for further assessment and/or mitigation; and
- meaningful public participation.

Benefits

Strategic EA conducted in accordance with these principles offers key benefits that may improve the quality of resource management generally and project-specific EA in particular.

A regional EA conducted early, in advance of calls for bids or licencing of offshore areas, can identify important areas that may be closed to or subject to restricted offshore activity (*e.g.*, for reasons of environmental sensitivity). Regional EA also can identify areas of potential marine user conflict that may warrant further consultation with affected stakeholders prior to decisions being made to allow oil and gas activity in the region. Thus, regional EA contributes to better, more informed, and timely decision-making.

Regional EA allows the consideration of offshore oil and gas activities in the context of the regional environmental setting and resource use, by examining a broad study area and identifying the full range of past, present, and/or future projects, activities, and environmental trends affecting the region of interest. This enables a more comprehensive assessment of potential cumulative environmental effects and perhaps the establishment of development thresholds compatible with the carrying capacity of the environment. Subsequent project-specific EAs could then consider project-level effects in a more strategic context (Davey *et al.*, 2001)[3].

Further, regional EAs would move some of the responsibility for cumulative environmental effects assessment further upstream in the planning process, and would clearly assign management responsibility for cumulative environmental effects that may result from multiple resource users. A project-specific proponent could refer to this when assessing cumulative environmental effects, and recommend mitigation as appropriate in the context of assigned management responsibility (Davey *et al*., 2001).

Regional EA can contribute to the compilation of a complete baseline dataset for the region, enabling more fulsome assessment at both the strategic and project-specific stages. Certainly,

[3] The 1997 Banff National Park Management Plan and planning process is an example of the types of outcomes that could be expected from a sectoral and/or regional EA. This process resulted in the establishment of thresholds for development size and type. In legal proceedings related to the Chateau Lake Louise project, the existence of strategic EA in the form of management plans was recognized by the Courts as an appropriate and valuable backdrop for project-specific EA being undertaken pursuant to the *Canadian Environmental Assessment Act* (Davey *et al*., 2001).

the availability of a regional baseline will improve the efficiency of any subsequent project-specific EA conducted within the same region.

Similarly, by documenting mitigation techniques relevant to the oil and gas activities being assessed, the regional EA can streamline subsequent project-specific EAs by providing a "tool-box" of mitigation techniques, the effectiveness of which would already have been assessed at the strategic stage. The regional EA may specify areas within, and conditions under which certain mitigative measures may be required (World Bank, 1996, 1993). This would also contribute to more streamlined project-specific EAs and increase planning certainty for proponents.

Regional EA also allows for the development of comprehensive planning of sector-wide mitigation, management, and monitoring measures and for identification of broad institutional, resource, and technological needs at an early stage (World Bank, 1993).

Regional EA will highlight those areas, issues, and effects that may be characterized by spatial or temporal variability, and thus may warrant a greater degree of scrutiny at the project-specific EA stage. Concurrently, the strategic EA will confirm areas, issues, and effects that are well understood and may be subject to standard permitting conditions or a lower level of assessment at the project-specific EA stage. Again, this contributes to improved EA quality, greater efficiency, and planning certainty. By virtue of its timing in the planning and management cycle, regional EA can prevent significant adverse environmental effects and unsustainable developments from proceeding (Davey *et al.*, 2001)

Assuming that regional EA includes effective and meaningful public participation, subsequent decision-making at both the strategic and project-specific stages will be more considerate and reflective of the interests of affected stakeholders in the region. In this regard, regional EA can contribute to aligning the interests of governments, proponents, other offshore resource users, and other stakeholders.

Regional EA offers an opportunity for stakeholders to raise and address policy-level issues, including consideration of alternatives, in a more appropriate venue – in terms of timing, scope, and context – than at the project-specific EA stage.

Challenges

The practical application of strategic EA may be constrained due in part to a number of challenges associated with strategic EA:

- strategic EAs are often multi-jurisdictional in nature;
- strategic EA requires a long-term, holistic perspective; and
- strategic EAs may involve substantial human and financial resources (Davey *et al.*, 2001).

In Canada, offshore oil and gas projects inevitably trigger an environmental assessment under *CEAA*. Recent amendments to *CEAA* have made small but important steps to at least acknowledging the importance of "regional studies" while undertaking a project-specific EA:

> *the results of a study of the environmental effects of possible future projects in a region, in which a federal authority participates, outside the scope of the Act, with other jurisdictions…may be taken into account in conducting an environmental assessment of a project in the region, particularly in considering any cumulative environmental effects that are likely to result from the project in combination with other projects or activities that have been or will be carried out* (Subsection 16.2, *CEAA*).

It remains, however, that there is no regulatory framework within which to undertake regional EA in Canada's offshore. Therefore, it is necessary for regulatory authorities to recognize the need (as has recently been done by both the C-NOPB and C-NSOPB) and make use of available tools to undertake such "regional studies." This would improve early decision-making (with improved stakeholder participation) and contribute to more efficient and effective project-specific environmental assessment. The absence of guidance for "regional studies" and the absence of both regulatory framework and guidance for regional EA constrain the ability to achieve the benefits offered by regional EA. The RAC initiative described above may offer some multi-stakeholder consensus and guidance on how this may be achieved.

While guidelines for strategic EAs exist, the roles and responsibilities for conducting regional EAs are generally not defined. In offshore areas, more than one regulator and/or government department usually share responsibilities for managing offshore resources (*e.g.*, in Canada, the offshore petroleum boards in Nova Scotia and Newfoundland, the National Energy Board, Fisheries and Oceans Canada, Environment Canada, provincial departments of labour, energy, and the environment, *etc.*). Therefore, there is a shared interest in the conduct and outcome of regional EA. Before a strategic EA can be conducted for any particular region, the specific roles and responsibilities of these parties must be defined, including the manner in which the EA will be funded and resourced. In addition, key aspects of the strategic EA must be agreed, including how the Terms of Reference will be established, the scope of the project and of the assessment, and the nature and extent of public participation.

In some areas, integrated resource management initiatives play a key role in ensuring that development decisions are made in consideration of a broad range of environmental, cultural, social, and economic factors. Such initiatives are typically of broader scope than, but may overlap spatially or temporally with, regional EA. Indeed, offshore oil and gas development may be but one component of an integrated resource management initiative (such as Canada's Oceans Strategy). Regional EA should, therefore, be coordinated with other resource management initiatives where they exist. However, as integrated resource management initiatives may have different objectives, involve different stakeholders, and address a broader range of issues, this may pose challenges to the timely and efficient application of regional EA.

The value of regional EA to improved decision-making and streamlining project-specific EA depends largely on the extent of stakeholder buy-in to the process. A lack of agreement among stakeholders regarding the scope, methods, outcomes, and application of results will diminish the credibility and ultimately dilute the benefits of regional EA. Therefore, it is very important that the scope, methods, outcomes, and application of a regional EA are clearly understood and well communicated at the outset; this may require substantial consultative efforts. To achieve this, it

may be necessary to have some level of independence in the design and implementation of regional EA, at least in the setting of Terms of Reference, and perhaps also in the execution. This is particularly true where the initiative is aimed at the policy, plan, or program level (*i.e.*, the opening up of an area for petroleum related activities).

In order for a regional EA to enable the streamlining of subsequent project-specific EA, particularly the exemption of certain activities, areas, issues, or effects from further detailed consideration, standards for regional EA must be defined at the outset. Specifically, the scope, methods, content, and/or findings of a regional EA, as well as the manner in which the results of the regional EA are applied at the project-specific EA stage, must be defined and accepted by the stakeholders of the project-specific EA process. This will require considerable consultation with stakeholders in each jurisdiction.

The regional EA, to aid in the streamlining of project-specific EA and to be helpful in the context of *CEAA*, should among other things:

- identify Valued Environmental Components on which to focus project-specific EA;
- outline historical trends for each VEC and relate these to other projects and activities that have been, are being, or will be carried out and that may overlap with specific projects to be assessed;
- establish thresholds for acceptable development with a view to providing a benchmark for cumulative environmental effects assessment; and
- outline mitigation and monitoring requirements and objectives that establish best practice and ensure effective impact management for future oil and gas development.

Recent amendment to *CEAA* has not only introduced the acknowledgement of "regional studies" but has also improved other tools such as class assessment. The revisions provide for the use of a class screening report to replace a screening where a project falls into a class defined by the class screening. Effective use of discretion afforded Responsible Authorities under subsection 16(3) of *CEAA* to limit the scope of assessment can enable the use of regional EA conclusions as a basis to focus project-specific EA. The use of class assessment, scope determination and regional EA can effectively streamline the project-specific EA process under *CEAA*.

Other Considerations

The challenges noted above diminish the appeal of regional EA, particularly in areas where jurisdictional or regulatory issues remain unresolved or existing processes are immature. In such cases, proponents may seek to realize similar benefits offered by regional EA by adopting an alternative approach to their own pre-project planning activity. In recent years, there have been several examples of "strategic impact assessment" undertaken by project proponents in the oil and gas sector; these assessments comprise high-level or strategic assessments of specific projects or development plans, encompassing environmental, economic, political, social, cultural, and regulatory considerations (Wagner and Jones 2004). In essence, these "strategic impact assessments" or "SIA" combine a full-scope environmental and socio-economic impact assessment with a political and regulatory risk assessment similar to those normally conducted by a proponent prior to entry into a new country of operation. A SIA may offer a proponent-driven alternative to regional EA, in that it may streamline subsequent regulatory processes by

proactively addressing a wide range of relevant issues. Thus, while not substituting for multi-stakeholder integrated resource management or strategic EA, a SIA may be regarded by many stakeholders as an improvement over standard project-specific EA. This may avoid project delays and regulatory intervention (Wagner and Jones 2004).

Conclusions

Regional EA offers the potential to improve decision-making and the quality of EA at both the strategic and project-specific stages, and may contribute to streamlined regulatory processes for offshore oil and gas activities under *CEAA*. However, in order for the benefits of regional EA to be fully realized, a multi-stakeholder consensus must be reached regarding the scope, methods, content, and application of regional EA. The RAC of the federal Minister of the Environment in Canada may prove to be a successful model for developing such a consensus. In the absence of such consensus, regional EA may continue to be applied, with some, but not the full range of consistent, predictable benefits. Recent amendments to *CEAA* and regulatory discretion to limit the scope of assessment under the *Act* offer some advancement towards regional EA as a tool for streamlining future offshore oil and gas approval process. This is particularly true where at least the political decision to proceed with oil and gas has already occurred. Otherwise, SIA may also be pursued by industry to meet that need.

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