

**BEST PRACTICES FOR STRATEGIC ENVIRONMENTAL ASSESSMENT  
AND APPLICATION TO THE ONTARIO LONG-TERM ENERGY PLAN**

by

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**Best Practices for Strategic Environmental Assessment  
and Application to the Ontario Long-Term Energy Plan**

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**Master of Applied Science  
Environmental Applied Science and Management  
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**ABSTRACT**

Research shows that project-level Environmental Assessment (EA) in Ontario is failing to achieve the goals that it was designed to meet, including protection and management of the environment. The practice of Strategic Environmental Assessment (SEA) is emerging internationally and an increasing number of countries and organizations are carrying out SEA either formally or informally. Although there is a considerable amount of debate in terms of standardized SEA methodology, SEA is seen as a proactive tool for incorporating sustainability objectives within Policies, Plans and Programmes (PPPs) and addressing cumulative and long-term effects of multiple projects and policy decisions.

The energy sector is globally a large impact generator in terms of resource exploration, production, consumption and waste disposal. Energy development and policy in Ontario have great implications for sustainable development. Project-level EA is the process followed for developing energy infrastructure. However, decisions regarding energy supply are strategic in nature and cannot be adequately addressed through project-level EA. Therefore, SEA is an important tool used to deal with such decisions in the early stages of the assessment process and can help decision makers make informed choices regarding the long-term sustainability of strategic energy initiatives. This study focuses on identifying best practices criteria for carrying out SEA and investigating the extent to which the Ontario Long-Term Energy Plan conforms to SEA best practices.

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## List of Acronyms

BLNG	Browse Basin Liquefied Natural Gas
CEA Agency	Canadian Environmental Assessment Agency
DECC	Department of Energy and Climate Change
DSP	Demand/Supply Plan
EA	Environmental Assessment
EA Act	<i>Environmental Assessment Act</i>
ECSTF	Electricity Conservation and Supply Task Force
EIA	Environmental Impact Assessment
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act</i>
FIT	Feed-in Tariff
IESO	Independent Electricity System Operator
IPSP	Integrated Power Supply Plan
LNG	Liquefied Natural Gas
LTEP	Long-Term Energy Plan
MNES	Matters of national environmental significance
MOE	Ministry of the Environment
MRP	Masters Research Project
NEPA	<i>National Environmental Policy Act</i>
OECD	Organization for Economic Co-operation and Development
OEERA	Offshore Energy Environmental Research Association
OEFC	Ontario Electricity Financial Corporation
OESA	Ontario Electrical Safety Association
OPA	Ontario Power Authority
OPG	Ontario Power Generation
PPP	Plans, Policies and Programmes
RMA	<i>Resource Management Act</i>
SEA	Strategic Environmental Assessment
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environmental Programme

## **1. Introduction**

Environmental Assessment (EA) is a well-known process and a regulatory requirement that is widely carried out to predict the environmental effects of proposed projects and initiatives before they commence.

EA has become a commonly accepted practice undertaken by private and public proponents of various projects including mining, transportation, energy, waste etc. However, project-level EAs as currently practiced, have been unable to respond to the increasing complexity of regional, provincial and national policies and have been unable to provide a strategic direction and sound decision-making (Miller, 2008).

It is widely recognized that project-level EA is failing to protect the environment because of broad policy implications of individual projects are not being considered. This is concerning due to the long-term effects of projects, including cumulative effects, and the irretrievable commitment of resources. The concept of Strategic Environmental Assessment (SEA) emerged as a result of the recognition that project-level EAs typically occur too late to be fully effective. SEA tends to respond to the limitations of EA as traditionally applied to individual projects (Sadler et al., 2011; Mulvihill et al., 2013). Thus the rationale for carrying out a SEA of plans, policies and programmes (PPPs) is intended to ensure that environmental considerations are taken into account at the highest levels of decision-making. In addition, SEA scholars and practitioners suggest that, whereas EA is primarily concerned with how a proposed development should take place in order to minimize adverse environmental effects, SEA can have a real influence on the choice of alternative developments during the earlier stages of decision-making (Runhaar and Driessen, 2007). Specifically, SEA is a proactive approach to ensuring that environmental and sustainability considerations are taken into account during early stages of decision-making (Tetlow and Hanusch, 2012).

Energy planning and energy development have significant implications for sustainable development. EA is a commonly accepted practice undertaken for developing energy infrastructure and decisions about energy have typically been made through EAs on a project-by-project basis. However, as a result of the shortcomings of project-level EA and due to the social, environmental and economic impacts associated with energy generation and supply, it is

recognized that the energy sector is an “ideal candidate” for SEA and that SEA can help decision makers make informed choices with respect to long-term sustainability of PPPs of energy initiatives (Jay, 2010; White and Noble, 2013).

## **1.1 SEA and Energy Policy Development in Ontario**

Energy policy in Ontario plays a critical role in the sustainable development of the Province. SEA is argued to provide a sound basis for informed decision-making towards sustainability (White and Noble, 2013). Therefore, it is necessary that decisions with respect to energy policy take into consideration strategic decision-making and SEA of PPPs. During the first half of the 20th century, Ontario’s energy policy was focused on promoting large-scale, capital intensive power generating means (McKay, 1983). The centralized power of Ontario Hydro during those years and up to 1999 made strategic decision-making and specifically SEA difficult to achieve. At the beginning of the 21<sup>st</sup> century, energy policy in Ontario began to experience a slow shift towards more decentralized decision-making, with a focus on renewable energy development and conservation strategies through the introduction of the *Green Energy and Green Economy Act* 2009 and the 2010 Ontario Long-Term Energy Plan (LTEP) and the updated 2013 Long-Term Energy Plan (LTEP) (collectively referred to as the LTEPs).

## **1.2 Research Objectives**

The purpose of this Masters Research Project (MRP) is to identify best practices criteria for carrying out SEA and to investigate the extent to which the LTEPs conform to SEA best practices. A screening approach was undertaken to identify if SEA ‘best practices’ were considered in the development of the LTEPs. Based on the results of the screening, the strengths and weakness of the LTEPs are discussed and recommendations with respect to application of SEA of energy sector PPPs in Ontario are made.

The two research questions that this MRP seeks to answer are as follows:

- 1) What are best practices criteria for Strategic Environmental Assessment?*
- 2) Have SEA best practices criteria been incorporated in the Ontario Long-Term Energy Plans?*

In order to answer these two questions, the following research objectives must be accomplished:

- 1) Identify best practices criteria for SEA based on i) SEA directives and guidelines established by nations that have extensive SEA experience, ii) good practice guidance from SEA scholars and practitioners and international development agencies and iii) based on case studies where SEA best practices have been applied;
- 2) Screen the Ontario LTEPs against the established SEA best practices principles;
- 3) Evaluate the strengths and weaknesses of the Ontario LTEPs with respect to application of SEA best practices; and,
- 4) Identify future SEA consideration for Ontario's energy sector and determine if SEA is a practice and achievable tool in real political decision-making.

## **2. Literature Review**

### **2.1 Strategic Environmental Assessment and Environmental Impact Assessment**

Strategic Environmental Assessment (SEA) is the systematic and comprehensive process for evaluating environmental effects of strategic actions - policies, plans and programmes (PPPs) (Pintér et al., 2004). Furthermore, Sadler and Varheem (1996) provide a similar but more thorough definition of SEA, as follows:

*“A systematic process for evaluating the environmental consequences of proposed policy, plan or program initiatives in order to ensure that they are fully included and appropriately addressed at the earliest stage of the decision-making on par with economic and social considerations.”*

The rationale for SEA is to ensure that environmental considerations are taken into account and to inform higher-levels of decisions making, including the development of PPPs (Sadler et al., 2011). A commonly accepted objective of SEA is to analyse and evaluate potentially significant environmental effects of a proposed PPP initiative on the environment in order to support informed decision-making. In addition, strategic actions are those meant to avoid major environmental errors at the project implementation stage. Therefore, the goal of SEA is that if the policy or plan is environmentally sound following SEA, the projects arising from it will likely be as well.

In contrast, Environmental Impact Assessment (EIA), also referred to as project-level EA throughout this MRP, is the comprehensive and systematic process for identifying, analyzing and evaluating the environmental effects of proposed projects (Noble, 2006). As such, EIA is intended to identify and predict impacts of proposed development, identify ways to mitigate adverse effects, assess the potential impacts of alternatives and enhance potentially positive impacts of projects. According to the World Bank, EIA is the most widely practiced environmental management tool in the world (Noble, 2009).

Aside from the mention of PPPs, it is difficult to distinguish the SEA and EA processes (Bidstrup and Hansen, 2014). However, the key elements of SEA that are not addressed through project-level EA are the inclusion of what is referred to as strategic elements – i.e., the assessment of strategic “Alternatives To” and cumulative impacts (Bidstrup and Hansen, 2014).

Furthermore, the definitions do not address the power relations inherent in the project-level EA process. The significance of politics and power dynamics has long been recognized in project-level EA (Cashmore and Richardson, 2013). Both project-level EA and SEA are political in nature. SEA takes on an objective approach that attempts to separate politics from decision-making. However, in reality this is not possible because debates at the highest level of decision-making are highly political.

## **2.2 Development of Environmental Impact Assessment and Strategic Environmental Assessment**

The term ‘environmental impact assessment’ originated from the *National Environmental Policy Act (NEPA)* of 1969 in the United States. This legislation is recognized as the pioneer of contemporary environmental assessment. Since *NEPA*, EIA has been adopted throughout the world and is applied in over 100 countries (Noble, 2006). Canada was the first to follow the US by formally implementing EIA in 1973 as a guidelines order through the federal Environmental Assessment and Review Process. It was not until 1992 that federal EA legislation came into force through the introduction of the *Canadian Environmental Assessment Act*. In 1995, the Federal Environmental Assessment Review Office procedural guidelines were released for assessing policy, plan, and program proposals. Australia formally adopted EIA in 1974 through its *Environmental Protection Act*. In Europe, France was the first country to introduce EIA in 1976 and it was not until 1985 that EIA was formally adopted through the European Directive 85/337 EEC.

The origins of SEA also date back to the 1969 *NEPA* in the United States which included provisions for the environmental assessment of policies and plans. However, SEA did not gain recognition until after a number of high-profile international developments, namely the World Bank’s recommendation in 1999 for environmental assessment of policy, the World Commission of Environment and Development’s report – *Our Common Future* (1987) and the United Nation’s Earth Summit held in 1992 in Rio de Janeiro. SEA has been evidenced in practice only within the last decade and a half (Noble, 2006).

SEA is much less advanced than EIA and only a few nations have formal provisions for SEA systems. SEAs are being practiced in many countries even without formal legislation. In the US, provisions for SEA fall under *NEPA* of 1969, where SEA is broadly interpreted to be

programmatic environmental assessment or area-wide EIA. In Canada, SEA is a policy requirement within federal departments under the 1999 *Directive on the Environmental Assessment of Policy, Plan and Program Proposals*. In the European Union, formal SEA requirements were adopted as part of the European SEA Directive 2001/42/EC. Other countries using, or experimenting with SEA implementation, include New Zealand, Australia, South Africa and China, to name a few.

### **2.2.1 Environmental Impact Assessment and Strategic Environmental Assessment in Ontario**

In Ontario, the *Environmental Assessment Act (EA Act)* was proclaimed in force in 1976 and is the key legislation for carrying out EA in Ontario (Government of Ontario, 1990). The *EA Act* requires proponents to consider a reasonable range of alternatives, assess the potential impacts of these alternatives and identify a preferred alternative. The *EA Act* also requires proponents to seek public input as part of the EA process in a traceable and rational manner (Lindgren and Dunn, 2010). As a result of the *EA Act*, there are further regulations, a Code of Practice, and guidance documents that have been developed based on the legislative requirements for the preparation and review of EAs for various types of undertakings (e.g., transit projects, energy projects etc.).

Further, Section 3(a) of the *EA Act* states that “*The Act applies to an enterprise or activity or a proposal, plan or program in respect of an enterprise or activity by or on behalf of Her Majesty in right of Ontario...*”. This statement shows that the Ontario EA legislation provides for SEA of proposals, plans and programs. However, there is a lack of further regulation and guidance specific to SEA in Ontario and as a result, SEAs are carried out informally and on an ad-hoc basis.

### **2.3 Deficiencies with Environmental Impact Assessment**

Since the introduction of the Ontario *EA Act* in 1975, EA at the project level has become commonly accepted practice undertaken by private and public proponents of various projects including mining, transportation, energy, waste etc. However, project-level EAs as currently practiced, have been unable to respond to the increasing complexity of regional, provincial and

national policies and have been unable to provide a strategic direction and sound decision-making.

In his 2007-2008 Annual Report (Miller, 2008), the Environmental Commissioner of Ontario, Gord Miller criticized the EA process and concluded that “the Ontario EA process is broken” and important environmental decisions are not being made in a transparent manner (Lindgren and Dunn, 2010). As well, the Commissioner of Ontario (Miller, 2008) expressed the concern that the EA process in Ontario is not achieving the goals that it was designed to meet, including “protection, conservation and wise management of the environment”. Moreover, project-level EAs have been unable to reduce the rate of environmental degradation through new project developments.

In large measure, this shortcoming happens because EIAs do not tend to focus on the “big picture” issues associated with policies and plans that guide the projects being assessed (Pintér et al., 2004). For example, project-level EA does not take into consideration broad environmental objectives or broad range of alternatives (e.g. various types of energy supply) and because these considerations generally occur at a higher, more strategic level of decision-making. Wood and Dejeddour (1992) suggest that those alternatives of a wider nature are generally not adequately integrated into project planning. This is a key concern because approved projects are typically associated with long-term environmental, social and economic impacts and irretrievable commitment of resources.

Although project-level EA is widely used and accepted as a useful tool in decision-making, Sadler and Verheem (1996) recognize that EIA takes a reactive approach to development proposals rather than proactively anticipating them in advance:

*"At this [EIA] stage, the prior questions of whether, where and what type of development should take place are either decided or largely pre-empted by earlier policy making processes. Often, these decisions will have occurred with little or no environmental analysis. This foreclosure of the range of choice is partially countered by provisions to addressing project justification and alternatives in EIA. In reality, however, prior policy, technological and location options are not open to serious re-examination; neither is project-by-project EIA an effective way of doing so. Far preferable is the use of SEA to incorporate environmental considerations and alternatives directly into policy, plan and programme design." (Sadler and Verheem, 1996)*

Further, project-level EA is concerned about the potential impacts of a proposed development, and identifying ways to mitigate those impacts so that they are accepted. However, project-level EA does not typically question whether a proposed project is the most appropriate form of development and it does not take into consideration the direct and indirect environmental effects of past, present and reasonably foreseeable actions (i.e., the cumulative effects of several developments) on the broader environment (Gunn and Noble, 2009). Lindgren and Dunn (2010) suggest that the limited consideration of cumulative effects of EAs in Ontario, is because many undertakings subject to the *EA Act* are being streamlined through the approved Class EA process rather than individual EAs. However, cumulative effects assessment is not a requirement of the Ontario *EA Act* and as a result the Ministry of the Environment does not require proponents to carry out cumulative effects analysis and nor does it deny approval of projects with an inadequate examination of cumulative effects.

As a result, the concept of SEA emerged as a recognition that the EA process tends to occur too late to be fully effective (Mulvihill et al., 2013). Some of these key differences between project-level EA and SEA as identified by the United Nations Environment Programme (UNEP) (2002) are illustrated in Table 1.

**Table 1. Comparison Between EIA and SEA**

<b>Environmental Impact Assessment</b>	<b>Strategic Environmental Assessment</b>
Occurs near the end of decision-making cycle: aims to minimise impacts	Occurs at the earlier stages of decision-making cycle: aims to prevent impacts
Reactive approach to development proposals	Pro-active approach to development proposals
Limited number of feasible “alternatives to” considered	Broad range of “alternatives to” considered
Emphasis on minimizing and mitigating impacts	Emphasis on meeting environmental objectives
Limited consideration of cumulative effects	Cumulative effects assessment is key
Identifies specific impacts on the environment	Identifies environmental implications and issues of sustainable development

#### **2.4 Need for and Benefits of Strategic Environmental Assessment**

The introduction of SEA has been a logical development of EIA and it responds partially to the limitations of EIA as traditionally applied only to specific projects or specific actions. By

excluding the assessment of PPPs, EIA on its own does not cover the environmental implications of government initiatives (Sadler et al., 2011). Benevides et al. (2008) recognize that two of the overall benefits expected from effective SEA are the facilitation of better informed, more credible and more broadly beneficial strategic initiatives, and a clearer, firmer and more timely guidance for subsequent undertakings.

SEA implementation presents many potential environmental, social and economic benefits with respect to the development of PPPs. As well, the use of SEA can fill the gaps left by project-level EA for a number of reasons (Pinter et al., 2004; Tetlow and Hanusch, 2012; Sadler et al., 2011). First, projects are typically guided by underlying policies, therefore, conducting SEA at the policy level can eliminate the need to address issues at the project level (Pinter et al., 2004).

Second, key assumptions about the need for specific projects and the availability of alternatives to these projects are embedded in higher level PPPs. Such assumptions are typically considered beyond the scope of project-level EAs (Mulvihill et al., 2013).

Third, project-level EAs are limited to specific projects and sites and, unlike SEAs which take a systematic and comprehensive approach, project-level EAs are unable to address systemic sustainability concerns. SEAs focus on PPPs and strategic direction can influence economic growth and can have potentially significant implications for the use of land, resources and ecosystems. Thus, SEA can play a significant role in enhancing the integration of environmental concerns in policy and planning processes, thereby helping to achieve sustainable decision-making (Partidario, 2003; Pinter et al., 2004, Sadler et al., 2011). Partidario (2003) suggests that a more integrated system of planning means that environmental and sustainability criteria are incorporated through the planning process, for example, in the assessment of policy alternatives and in the identification of suitable locations for development. Thus, SEA can be applied as a means of promoting environmentally sound and sustainable development by shifting from the EIA approach of minimizing impacts to a more positive approach of preventing environmental impacts altogether.

Fourth, project-level EAs have limitations in addressing cumulative effects because cumulative effects can occur at different scales (sub-regional, regional, national and transboundary). Project-level EA does not effectively address the concern of gradual environmental degradation

emanating from a range of activities and multiple stresses, and the interaction of multiple projects, programme and policy decisions. Thus, SEA can more effectively address potential cumulative and long-term effects of proposed PPPs by evaluating the effects of land and resources use of multiple undertakings under different future scenarios and to examine alternative development options (Sadler et al., 2011; Cooper and Sheate, 2004).

## **2.5 Strategic Environmental Assessment Challenges**

The implementation of SEA presents substantial challenges for proponents that would engage in SEAs because there is no clear guidance on a process and methodology for carrying out SEA. This is because of the differences in legislative requirements for SEA and the lack of standardized methods for carrying out SEA. For example, the Canadian Environmental Assessment Agency (CEA Agency) reports that *“the overarching challenge to the implementation and practice of SEA is lack of awareness of requirements, processes and the significance attached to SEA from a central agencies perspective”* (Government of Canada, 2004). Compounding this lack of awareness is a lack of tools, standards and best practices from which to draw guidance and support. Noble (2009) suggests that a major challenge to SEA is that there is no tiered system of assessment and there is typically a lack of commitment to ensure that the results of SEA are carried forward in the decision-making process. At the practitioner’s level there is a lack of existing guidance to help SEA practitioners identify the best SEA methods and designs that may be useful for specific applications (Noble et al., 2012). These weaknesses signify that even though SEA may exist in name, unless there are set methodologies, frameworks and best practices criteria set in place, the true goals of SEA may not be achieved in reality.

Another issue, identified by Ehrhardt and Nilsson (N/A) as the most critical constraint for SEA, is the political reluctance to submit PPPs for assessment. This reluctance has been due to the conflicts between a government’s political objectives and the environmental priorities set out by the SEA. This political resistance is fundamental to the exercise of political power which, at the policy level, governments are generally unwilling to relinquish (Flyvbjerg, 1998). Further, Dalal-Clayton and Sadler (2005) suggest that one of the constraints of SEA is the *“little interest by many government agencies in subjecting policy planning proposals to assessment, reinforced by fear of losing control, power and influence by opening up such progress”*.

One of the strengths of SEA is the aim to include greater public involvement at the policy level. However, a challenge to public consultation as part of SEA is the difficulty in identifying the proper role of the public and stakeholders as part of a meaningful consultation process and effective involvement (Stinchcombe and Gibson, 2001). In addition, competing viewpoints among public and stakeholders present a difficulty in the integration of public input into SEA. Thus, competing viewpoints must be weighed against one another and SEA practitioners would have to attempt to resolve any conflicts and ensure sufficient input into PPPs.

## **2.6 Strategic Environmental Assessment Good Practice Guidance**

The concept of effectiveness of SEA includes criteria that are both substantive (i.e., whether it achieves its goals and purposes) and procedural (i.e., whether it is undertaken according to established principles and provisions) (Benevides et al., 2008). For the purposes of this study, the focus is on best practices with respect to the process aspects of SEA. The following sections of this MRP explore common good practices SEA process criteria based on the SEA systems of selected nations, guidelines from SEA scholars and international development agencies and best practices identified through four selected SEA case studies.

### **2.6.1 Strategic Environmental Assessment Directives and Guidelines in Selected Nations**

An increasing number of countries and international organizations undertake SEA either formally or informally (Sadler et al., 2011). The type of provision for SEA varies between different nations. Generally SEA-type provisions are included in environmental assessment law, other planning regulations, separate administrative decrees or policy directives or equivalent processes of policy appraisal and plans of evaluation (e.g. UK). While most SEAs undertaken around the world are considered formal SEAs, informal or ad-hoc SEA is an important component of SEA practice. In some instances, establishing SEA as a new process is a challenge, but existing policy-making can benefit by adopting SEA-type methods and principles into a policy development process so that the net effect is integration of SEA with the planning process in an informal way that is acceptable to policy-makers (McGimpsey and Morgan, 2013). For the purposes of this project, the SEA systems (formal and informal) of the European Union, Canada, Australia and New Zealand are examined in terms of their established SEA provisions and

practices. These countries are recognized as leaders in SEA implementation, concepts and/or integration of SEA principles in policy-making (Chaker et al., 2006; Hayashi, 2007).

#### *2.6.1.1 Strategic Environmental Assessment in the European Union*

The SEA Directive 2001/42/EC is the European Union's (EU) Directive for carrying out an environmental assessment for a wide range of public plans and programmes (e.g. land use, transportation, waste, energy agriculture, etc.) (UK Government, 2005). The SEA Directive requires that all EU member states follow the requirements of the SEA Directive as of July 2004. Some EU member states already had some sort of SEA legislation in place, or similar tools to SEA, before the SEA EU Directive was put in place in 2004. However, the SEA Directive and its subsequent transposition into national law lead to an approximate doubling of the number of countries that had SEA provisions at the time (Sadler et al., 2011).

The SEA Directive applies to a wide range of public plans and programmes. However, the SEA Directive does not apply to policies. There have been some discussions to extend the scope of the SEA Directive to include policies, which is considered a significant deficiency of the Directive since policies set the conditions for all downstream activities, as expressed in plans, programmes, and better address issues such as climate change and biodiversity (Tetlow and Hanusch, 2012; Jay 2010).

The SEA Directive prescribes a number of principles that are incorporated as part of the SEA process (Government of Ireland, 2004). These criteria are presented in Table 2.

**Table 2. The EU SEA Directive Requirements For SEA**

<b>Item #</b>	<b>SEA Requirement</b>	<b>Description/How SEA is Considered in the SEA Directive</b>
1.	Screening of Plans and Programmes	Determine if SEA is required by answering the question: <i>Is the plan likely to have significant environmental effects on the environment?</i>
2.	Scoping	Identify other relevant plans, programmes and environmental protection objectives.
3.	Collecting Baseline Information	Obtain existing environmental data for the study area.
4.	Develop SEA objectives	Broad policy objectives for the study area; and relevant environmental policy objectives for the purpose of providing a means by which the environmental performance of the plan or programme and alternatives can be assessed.
5.	Develop Strategic Alternatives	Identify a number of alternative development strategies which are capable of fulfilling the established SEA objectives.
6.	Evaluate Alternatives	Evaluate each strategic alternative against the broad policy and environmental policy objectives with a view of establishing the most sustainable option.
7.	Select Preferred Strategy	Identify the preferred strategy (or combination of strategies), including the reasons for the choice and how the strategy relates to the SEA objectives.
8.	Assessment of Significant Environmental Effects	Undertake Environmental Assessment of the preferred strategy to identify if implementation would result in any significant environmental effects (i.e., biodiversity, air, cultural heritage etc.).
9.	Mitigation of Adverse Effects	Modify the preferred strategy to eliminate, reduce or offset significant adverse effects.
10.	Monitoring of Significant Environmental Effects	Propose measures to monitor the environmental effects of the plan/programme implementation.
11.	Cumulative Effects Assessment	Examine the relationship and effects of the proposed plan/programme with other relevant plans and programmes.
12.	Consultation	Early and effective consultation with the general public, stakeholders and environmental authorities on the plan/programme and environmental report.
13.	Sustainable Development	Promotion of sustainable development is included in the objectives of the SEA Directive.

### 2.6.1.2 *Strategic Environmental Assessment in Canada*

SEA in Canada includes a number of non-statutory processes. In 1990, Canada was the first country to introduce a formal system of SEA for government PPPs, separate from project-level EA. The policy requirements for SEA were established in the 1990 *Cabinet Directive on the Environmental Assessment of Policy, Plan and Program Proposals*. This process, however, applied only to federal decision-making and thus far there is no SEA legislation at the national level and no formal SEA provisions exist at the provincial or territorial level in Canada. Other strategic processes, however, have been or are being introduced. For example, Alberta has introduced a Regional Strategic Environmental Assessment (RSEA) as a tool for cumulative effects management and similar approaches and elements are in place in other jurisdictions (Sadler et al., 2011).

In theory, Canada has been committed to assessing the potential environmental implications of Federal policies since 1984, through the Environmental Assessment Review Process Guideline Order that defined a “proposal” to include “any initiative, undertaking or activity for which the Government of Canada has a decision-making responsibility” (Noble, 2002). However, SEA in Canada began in 1990 when the Federal Government’s Cabinet directed its respective departments to consider environmental concerns at the strategic level of decision-making. The Cabinet Directive was revised in 1999 to strengthen the role of SEA by clarifying obligations of the Federal Departments and Agencies and linking environmental assessment to the implementation of sustainable development strategies. In 1999, the CEA Agency published the guidelines for implementing the Cabinet Directive. Further amendments were introduced in the 2004 Cabinet Directive on the Environmental Assessment of Policy, Plan and Program to strengthen transparency and departmental accountability, specifically in public reporting of the results of SEA (Sadler et al., 2011). The guidelines for implementing the Cabinet Directive were further updated in 2010 to link SEA with the Federal Sustainable Development Strategy to ensure that the government’s broad environmental objectives are taken into account during the development of public policies and strategic decisions (Government of Canada, 2010).

The general SEA process guidelines based on good practices within federal departments and agencies have been presented by the CEA Agency (Government of Canada, 2010) and are summarized in Table 3.

**Table 3. Cabinet's Directive SEA Process**

Item #	SEA Requirement	Description/ How SEA is Considered in The Federal Directive
<p><b>1. Conducting a Preliminary Scan:</b></p> <p>If the preliminary scan identifies a potential for environmental effects, or if there is a high level of uncertainty or risk associated with the outcome, an analysis of the environmental effects should be conducted through SEA.</p>		
<p><b>2. Analyzing Environmental Effects Through a Strategic Environmental Assessment</b></p>		
2.1.	Scope and Nature of Potential Effects	Analysis of scope and nature of environmental effects (including cumulative effects) that could arise from implementing the PPP and how they could affect the Federal Sustainable Development Strategy's goals and targets.
2.2	Mitigation or Enhancement Opportunities	Analysis should consider the need for mitigation measures that could reduce or eliminate potential adverse environmental consequences of the PPP and/or opportunities, where potential environmental benefits can be enhanced.
2.3	Scope and Nature of Residual Effects	Description of the potential environmental effects that may remain after taking into account mitigation measures and enhancement measures.
2.4	Follow-up	The SEA should consider the need for follow-up measures to monitor environmental effects of the PPP, or to ensure that implementation of the proposal supports the Federal Sustainable Development Strategy's goals and targets.
2.5	Public and Stakeholder Consultation	Identification of concerns related to the environmental effects among those likely to be most affected, and among other stakeholders and members of the public.
<p><b>3.0 Reporting on the Results of the Strategic Environmental Assessment</b></p>		

In addition, the CEA Agency identified seven core principles for SEA (see Table 4) providing guidance to federal departments and agencies in conducting SEA (Government of Canada, 2004).

**Table 4. Guiding Principles for SEA in Canada**

<b>Item #</b>	<b>SEA Guiding Principle</b>	<b>Description</b>
1.	Early Integration	Consideration of environmental effects should begin early in the conceptual or planning stages of the proposal, before irreversible decisions are made.
2.	Examine alternatives	Evaluate and compare different options for the policy, plan or program in order to help identify how modifications or changes to the PPP can reduce environmental risk
3.	Flexibility	Departments and agencies are encouraged to adapt and refine analytical methodologies and decision-making tools appropriate to their circumstances.
4.	Self-assessment	Departments are responsible for applying SEAs and determining how their SEAs should be conducted, how they carry them out and how they report their own results
5.	Appropriate level of analysis	The scope of the analysis of potential environmental effect should be commensurate with the level of anticipated effects.
6.	Accountability	SEA should be part of an open and accountable decision-making process within the Federal Government.
7.	Use of existing mechanisms	Departments and agencies should use existing mechanisms to conduct any analysis of environmental effects, involve the public if required, evaluate performance and report the results

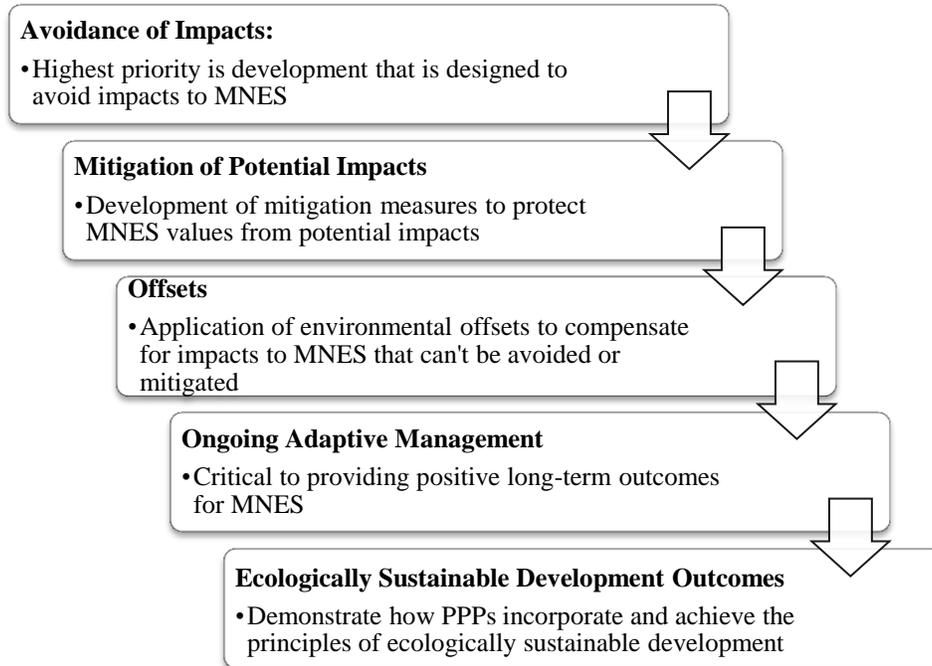
Some of the strengths of the SEA system in Canada are that it applies to policies, plans and programmes and that it includes provision for the assessment of cumulative effects assessment. Some of the weaknesses are that there is no process in place that includes public consultation with respect to screening, environmental effects assessment or monitoring of the SEA, and there are no formal provisions for conducting a SEA review (Hayashi, 2007). In addition, due to the lack of a SEA process in Canada, the flexible approach to SEA has resulted in marginal compliance with provisions and weakness in process implementation and poor follow-up (Tetlow and Hanusch, 2012).

### 2.6.1.3 Strategic Environmental Assessment in Australia

The *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)* is the central environmental legislation in Australia. The *EPBC Act* provides the legal framework for the protection and management of matters of national environmental significance (MNES) in relation to world and national heritage places, nationally threatened plants and animals, migratory species and internationally important wetlands (Australian Government, 2013).

Section 146 of the *EPBC Act* (Part 10) provides for strategic assessments of new potential actions under a policy, programme or plan. A strategic assessment should happen early in the assessment process and may examine the potential cumulative impacts of actions in accordance with one or more policies, programmes or plans (Benevides et al., 2008). Strategic assessments may include but are not limited to regional-scale development plans and policies; district structure plans; local environmental plans; large-scale industrial developments; fire, vegetation or pest management policies, plans or programmes; water extraction/use policies; and infrastructure plans and policies (Australian Government, 2011). In addition, the *EPBC Act* requires strategic assessment of all fisheries managed by the Federal Government and all fisheries involved in the export industry (Benevides et al., 2008).

Strategic assessments under the *EPBC Act* seek to maximise conservation of MNES by taking a landscape level approach, in the context of the Australian Government *EPBC Act*, rather than undertaking an assessment at a site level (Australian Government, 2011). The key principles to achieving positive outcomes for MNES using strategic assessment as suggested by the Australian Government (2011) are outlined in Figure 1.



**Figure 1. Key Principles of Strategic Assessment of MNES**

Other key components of the strategic assessment process as identified by the Australian Government (2011) in the *Guide to Undertaking Strategic Assessments, Environment Protection and Biodiversity Conservation Act 1999* are identified in Table 5.

**Table 5. Australian’s Requirements For SEA under the *EPCB Act***

<b>Item #</b>	<b>SEA Requirement</b>	<b>Description/How SEA is Considered in <i>EPCB Act</i></b>
1.	Scoping	Scoping of the assessment to determine key issues, desired outcomes and constraints.
2.	Agreement	Strategic assessment agreement between the minister and the assessment partner to conduct the assessment.
3.	Preparation of the draft plan, policy or program	Preparation of the draft PPP document that is subject to a strategic assessment.
4.	Draft strategic assessment report	Draft report should present an analysis of the potential impacts and outcomes of the policy, plan or program on MNES.
5.	Public consultation	Organizing public meetings or forums to enable the public to be involved in the process and a minimum 28 day public comment period for the draft strategic assessment report.
6.	Final Report	Submission of final documents to the minister for consideration to endorse the PPP.
7.	Endorsement and Implementation	Establish a process for ensuring that commitments made in the PPP are met.
8.	Compliance	The PPP must include adequate monitoring, reporting and enforcement provision to demonstrate that the PPP commitments to protect and manage matters of national significance will be met.

Most of the SEA-type assessments that have been conducted in Australia have been *ad hoc* in nature with no systematic process. The focus of SEA-type assessments in Australia has been related to ocean and marine regional plans, fisheries assessment, petroleum exploration and the preparation of strategic assessment of activities in the Great Barrier Reef Marine World Heritage Area. Even though these SEA-type assessments have not used SEA terminology, they have been recognized as good examples of mainstream SEAs (Sadler et al., 2012).

The strengths of the SEA system in Australia include provisions for application to policies as well as plans and programmes and mandatory SEA for fisheries management. The weaknesses are the restricted nature of scope of SEA application (e.g. it does not apply to forests), the lack of transparency and the fact that too much discretion is left to the Minister of the Environment (Benevides et al., 2008). In addition, since SEA is only mandatory for MNES, less attention is given to the environmental protection of general areas and general development in areas not identified as MNES.

#### 2.6.1.4 *Strategic Environmental Assessment in New Zealand*

New Zealand does not have a specific legislative requirement for SEA and the term is not found in any legislation. The trend in New Zealand has been to integrate general principles of EA into planning laws rather than to explicitly introduce SEA under legislation or a policy directive. Thus, requirements for SEA tend to be implicit rather than explicit (Sadler et al., 2011). Elements of SEA are reflected in the *Resource Management Act (RMA)* (1991 and amended in 2005) which requires an assessment of environmental effects for all regional as well as district plans, policies and programmes in relation to managing air, land and water resources (Government of New Zealand, 2013). In addition, a principle objective of the *RMA* is that of sustainable management (McGimpsey and Morgan, 2013). Most SEA practitioners agree that the *RMA* provides possibilities for SEA, rather than a direct mandate for the use of SEA (McGimpsey and Morgan, 2013).

Unlike many other SEA programmes in other countries, the New Zealand approach to SEA is motivated by its “environment first” values toward development and changes in its regions are guided by a central policy as part of the *RMA*. As part of the *RMA*, all development requires an application which must have an EA attached. These applications are called “resource consents” and include land use consent, subdivision consent, water, permit discharge permit and coastal permit (Therivel, 2010). Resource consents apply to all policies, plans and application, therefore the EA and SEA processes are integrated (Therivel, 2010). As such, environmental impacts are naturally considered as part of any application process, which is seen as a proactive response to development and environment (Therivel, 2010). This approach is part of a “trickle down” process of making decisions regarding development in the area where it happens (i.e., by local authorities) and with approval to be decided by those that are affected. In addition, the principles

of sustainable management and development are core to this approach and are evident in policy guidance (Therivel, 2010). Sadler et al. (2011) suggest that certain components of SEA can be identified in the *RMA* (see Table 6).

**Table 6. New Zealand's Requirements for SEA under the RMA**

Item #	SEA Requirement	Description/How SEA is Considered in RMA
1.	Sustainable Management	(Section 5 of RMA) <ul style="list-style-type: none"> <li>• Sustaining the potential of natural and physical resources to meet the reasonably foreseeable needs of future generations.</li> <li>• Safeguarding the life support capacity of air, water, soil and ecosystems.</li> <li>• Avoiding, remedying or mitigating any adverse effects of activities on the environment.</li> </ul>
2.	Consideration of Alternatives	(Section 32 of RMA) <ul style="list-style-type: none"> <li>• Requirements to consider alternatives and evaluate proposed actions.</li> </ul>
3.	Evaluation of proposed policies, plans and standards before they are adopted	(Section 32 of RMA) <ul style="list-style-type: none"> <li>• The extent to which each proposed objective (i.e., policy, plan or standard) is the most appropriate way to achieve the purpose of the RMA.</li> <li>• Whether, having regard to their efficiency and effectiveness, proposed policies and rules are the most appropriate way for achieving objectives.</li> <li>• Examine the benefits, costs of policies, rules or other methods.</li> <li>• The risk of acting or not acting if there is insufficient information about the subject matter of the policies, rules or other methods.</li> </ul>
4.	Monitoring	(Section 35 of RMA) <ul style="list-style-type: none"> <li>• Requirements for environmental monitoring.</li> </ul>
5.	Consultation	(First Schedule of RMA) <ul style="list-style-type: none"> <li>• Requirements for public participation in policy and plan development.</li> </ul>

New Zealand's integrated approach to SEA shows a connection between EA and the policy development process and that SEA components engraved in the RMA have the potential to be an integral part of policy development. However, given the absence of specific SEA requirements, implementation of SEA relies on the knowledge and skills of planning communities and, without legislative requirements, SEA does not hold a prominent place in the policy and planning process.

Benevides et al. (2008) suggest that the strengths of the New Zealand SEA system include its objective-led approach to integrated environmental management with clear sets of goals, highly developed environmental consciousness in society, transparency and public participation as part of decision-making. Its weaknesses include lack of a structure in evaluation of options, weak enforcement, limited consideration of alternatives and the reactive-nature of the SEA process.

### **2.6.2 Good Practice SEA Guidance from SEA Scholars and Practitioners and International Development Agencies**

Having observed SEA requirements in several jurisdictions, the study reviews theoretically optimal SEA best practices criteria as suggested by scholars in the SEA field and international development agencies.

Widely accepted SEA process criteria for SEA good practice have been developed by SEA scholars and practitioners (Therivel and Partidario, 1996; Partidario 2000, 2003 and 2012; Wood and Dejedour, 1992; Noble 2002, 2009; Gibson et al., 2010; Therivel, 2004; Benevides et al., 2008; White and Noble, 2013 and Sadler 1998). The common SEA process criteria described by these scholars and practitioners are identified in Table 7. Agreement among SEA scholars and practitioner in terms of the best practices SEA process criteria is high.

**Table 7. SEA Process Criteria Identified by Scholars and Practitioners**

<b>Item #</b>	<b>SEA Process Criteria</b>	<b>Description</b>
1.	Screening / Identifying the Need	Justification of the need for SEA application and a clear statement of SEA purpose.
2.	Scoping	Identification of the key issues to be addressed and the objectives, including environmental/ sustainability objectives, targets and /or indicators which will contribute to meeting sustainable development goals. Identification of relevant policies, plans and programmes.
3.	Environmental Baseline	Description of the existing environmental conditions, identify valued ecosystem components for assessment purposes and relevant environmental and sustainability issues and constraints.
4.	Consideration and Evaluation of Alternatives	Identification of various alternatives to achieve the objectives, including a “do nothing” option; conduct a comparative evaluation of the alternatives and scenarios.
5.	Identification of Preferred Alternative	Identify the preferred alternative (or combination of alternatives), including the reasons for the choice and how the alternative relates to the SEA objectives.
6.	Impact Assessment	Predict and evaluate possible environmental consequences of strategic alternatives, identify impact significance and establish measures to mitigate impacts; review of sustainability criteria and principles.
7.	Cumulative Effects	Consideration of the effects of the preferred alternative with other relevant plans and programmes. Strategic level assessments have the advantage of being at the scale needed for effective consideration of cumulative effects.
8.	Consultation and Transparency	Identify the parties to be consulted and the means for conducting meaningful participation; Transparency and accountability in assessment process.
9.	Monitoring and Follow-up	Identification of procedures for monitoring and follow-up of the effectiveness of the SEA process outcomes and verification of achievement of SEA objectives.
10.	Sustainable Development Consideration	Consideration of sustainable development goals when establishing the need for SEA and identifying its objectives.

In addition, an authoritative set of SEA performance criteria has been published by the International Association of Impact Assessment (IAIA, 2002) which states that a good-quality SEA process must be:

- Integrated
  - Ensures an appropriate environmental assessment of all strategic decisions relevant to the achievement of sustainable development.
  - Addresses the interrelationships of biophysical, social and economic aspects.
- Sustainability-led
  - Facilitates identification of development options and alternative proposals that are more sustainable.
- Focused
  - Provides sufficient, reliable and usable information for development planning and decision-making and concentrates on key issues of sustainable development.
- Accountable
  - Is the responsibility of the leading agencies for the strategic decision to be taken.
  - Is carried out with professionalism, rigor, fairness, impartiality and balance.
  - Documents and justifies how sustainability issues were taken into account in decision-making.
- Participative
  - Informs and involves interested and affected public and government bodies throughout the decision-making process.
  - Explicitly addresses their inputs and concerns in documentation and decision-making.
- Iterative
  - Ensures availability of the assessment results early enough to influence the decision-making process and inspire future planning.
  - Provides sufficient information on the actual impacts of implementing a strategic decision.

SEA good practice guidance has also been developed as a result of the contributions by international development cooperation agencies such as the World Bank, the United Nations Environment Programme (UNEP), the United Nations Economic Commission for Europe (UNECE) and the Organization for Economic Co-operation and Development (OECD). These criteria are unique and critical for SEA as opposed to project-level EA.

The OECD is an intergovernmental economic organization in which the 34 member countries discuss and develop key policy recommendations that often serve as the basis for international standards and practices. In 2006, the OECD's Development Assistance Committee Environment SEA Task Team developed a guidance document for the application of SEA - *Applying Strategic Environmental Assessment: Good Practice Guidance for Development Co-operation* (OECD, 2006). The OECD guidance document (OECD, 2006) suggested that to be influential and to help improve policy planning and decision-making, a good-quality SEA process should integrate key principles, which include:

- SEA is iterative, flexible and customized to context.
- Analysis of the potential effects and risks of the proposed PPP, and its alternatives, against a framework of sustainability objectives, principles and criteria.
- Justification for the selection of preferred options and for the acceptance of significant trade-offs.
- Identification of environmental and other opportunities and constraints.
- Addressing the linkages and trade-offs between environmental, social and economic considerations.
- Early involvement of public members and key stakeholders.
- Transparency of SEA process, and communication of results.
- Encourage formal reviews of the SEA process after completion, and monitor PPP outputs.
- Identify “windows of opportunity” to initiate SEA during cycles of the decision-making process.
- Adaptive and sustained approach as strategies and policy-making take shape and are implemented.

Further, based on practical experience and review of SEA guidelines and procedures developed by many countries and agencies, the OECD suggests that good practice SEA involves four stages, as follows:

1. Establishing the context for SEA, including:
  - Screening
  - Setting Objectives
  - Identifying Stakeholders
2. Implementing the SEA, including:
  - Scoping (in dialogue with stakeholders)
  - Collecting baseline data
  - Identifying alternatives
  - Identifying how to enhance opportunities and mitigate impacts
  - Quality assurance and,
  - Reporting
3. Informing and influencing decision-making, including:
  - Making recommendations (in dialogue with stakeholders)
4. Monitoring and evaluation, including:
  - Monitoring decisions taken on PPPs
  - Monitoring implementation of PPPs
  - Evaluation of both SEA and PPPs

During the early and later 1990s, the World Bank's approach to SEA was recognized as being "ad hoc" as only a few sector-specific and regional EAs were carried out and many of these were not recognized as being strategic in nature (Benevides et al., 2008). In 2001, the World Bank approved its Environment Strategy, which stated that SEA is part of a systematic approach to ensuring that environmental matters are considered early in the development planning process. By the year 2006, the World Bank had developed and made available an online SEA Toolkit, which included information on how to prepare assessments and on sector-specific good practices (World Bank, 2007). As part of its Toolkit, the World Bank had identified key elements for carrying out SEA (see Table 8).

**Table 8. SEA Process Criteria Identified by the World Bank**

Item #	SEA Process Criteria	Description
1.	Institutional Requirements for Conducting SEA	Minimum organizational and institutional conditions must be in place in order to successfully carry out an SEA.
2.	Analysis of Alternatives	Assessment of development alternatives at the national and sector levels before specific projects are identified.
3.	Cumulative and Indirectly Induced Effects	Analysis of cumulative (i.e., the effects of several projects and development trends in a region) and indirectly induced effects of PPPs (i.e., the environmental second round effects influenced by a specific PPP).
4.	Public Participation	A meaningful, rigorous and comprehensive participation process must provide an opportunity for stakeholders to voice their needs and influence decisions accordingly.
5.	Capacity Building <sup>1</sup>	Capabilities for carrying out SEA can be strengthened and developed at the following levels: <ul style="list-style-type: none"> <li>• Enhancing the skills of SEA practitioners ;</li> <li>• Improving the quality of SEA review ;</li> <li>• Improving environmental management systems; and,</li> <li>• Promoting informed participation and dialogue to create opportunities for incorporating environmental considerations in the formulation and implementation of PPPs.</li> </ul>
6.	Tailoring the Message <sup>2</sup>	SEA aims to influence policy making. This requires focusing on the “target audience” which includes policy makers and policy constituencies or interested and affected groups.

SEA guidance on application and use of procedures and methods of good practice SEA are also presented in the UNEP’s 2004 publication - *Environmental Impact Assessment and Strategic Environmental Assessment: Towards an Integrated Approach* (Abaza et al., 2004). Abaza et al. (2004) identify SEA process good practice criteria as shown in Table 9.

1. Even though the World Bank identified ‘Capacity Building’ as a SEA criterion, ‘Capacity Building’ was not carried forward because it is not a typical SEA process criteria. It is rather a qualitative descriptor of capabilities associated with conducting SEA.

2. Even though the World Bank identified ‘Tailoring the Message’ as a SEA criterion, ‘Tailoring the Message’ was not carried forward because it is not a typical SEA process criteria.

**Table 9. SEA Process Criteria Identified by UNEP**

<b>Item #</b>	<b>SEA Process Criteria</b>	<b>Description</b>
1.	Proposal	Establish the need for and objectives of the proposed action (i.e., policy, plan or programme).
2.	Screening	Case-by case screening to determine which proposals have potentially significant environmental effects and if a full SEA is required.
3.	Scoping	Identify the important issues and impacts that need to be examined.
4.	Information	Assemble environmental information which is a baseline characterisation of the existing environment.
5.	Consideration of Alternatives To	Identify and compare different ‘Alternatives To’ that meet the objectives of the proposal and summarize their economic, social and environmental aspects. Alternatives should include a “do nothing” alternative and best practicable environmental option.
6.	Impact Analysis	Identify, predict and evaluate the effects of the proposal and the main alternatives.
7.	Significance	Determine the importance of residual impacts and if appropriate, relate these to other benefits and costs.
8.	Mitigation	Identify measures to avoid, reduce and offset the main impacts identified.
9.	Reporting	Describe the environmental impacts of the proposal and how they are to be addressed. Make the SEA report available to the public.
10.	Review of quality	Check the information is adequate for the purpose of decision-making.
11.	Decision-making	Approve, reject or modify the proposal, with reasons for the decision.
12.	Monitoring	Check to see if the implementation of the proposal is environmentally sound and in accordance with approvals. Cumulative effects monitoring may be appropriate for plans or programmes that lead to environmental changes at a regional-scale.

The United Nations Economic Commission for Europe’s (UNECE) *SEA Protocol to the Espoo Convention* was adopted in 2003 during the Ministerial Environment for Europe Conference in Kiev. Thirty eight States and the European Community signed the Protocol. The SEA Protocol

required its parties to evaluate the environmental consequences of their proposed plans and programmes at the earliest stages, recognizing that it is to be undertaken much earlier in the decision-making process than EIA, and it is therefore seen as a key tool for sustainable development. The protocol entered into force in July 2010 (UNECE, 2007). The SEA Protocol prescribed the requirements with respect to proposed plans and programmes and key SEA criteria are identified in Table 10.

**Table 10. SEA Process Criteria Identified by UNECE**

Item #	SEA Process Criteria	Description
1.	Screening	<p>Determine whether plans and programmes are likely to have significant environmental, including health, effects including consideration of the following criteria:</p> <ul style="list-style-type: none"> <li>• Promoting sustainable development.</li> <li>• The effects and risks to the environment, including health effects.</li> <li>• The transboundary nature of effects.</li> <li>• The effects to valuable or vulnerable areas including landscapes with a recognized national or international protection status.</li> </ul>
2.	Scoping	<p>Establish arrangements for the determination of the relevant information to be included in the environmental report in consultation with relevant authorities and the public.</p>
3.	Environmental Report	<p>Identify, describe and evaluate the likely significant environmental, including health, effects of implementing the plan or programme and its reasonable alternatives and the interests of the public.</p>
4.	Public Participation	<p>Ensure early, timely and effective opportunities for public participation, when all options are open, in the strategic environmental assessment of plans and programmes.</p>
5.	Consultation with Environmental and Health Authorities	<p>Identify the authorities to be consulted which, by reason of their specific environmental or health responsibilities, are likely to be concerned by the environmental, including health, effects of the implementation of the plan or programme.</p>
6.	Transboundary Consultations	<p>Identify if implementation of a plan or programme is likely to have significant transboundary environmental, including health effects. The proponent shall as early as possible before the adoption of the plan or programme notify the affected party.</p>
7.	Monitoring	<p>Monitor the significant environmental effects, including health, effects of the implementation of the adopted plans and programmes. Monitoring results should be made available to the public and regulatory authorities.</p>

The good practices guidelines articulated by scholars and confirmed in the international agencies' protocols, suggest a reasonable convergence of elements for SEA best practices. The following section seeks confirmation of SEA best practices in SEA practice.

### 2.6.3 SEA Case Studies

Four SEA case studies in the electricity sector were analysed to identify best practices applied as part of the SEA process in each case study. The case studies include the following:

**Table 11. Selected SEA Case Studies**

<b>Case Study</b>	<b>Purpose</b>	<b>Scale and Proponent</b>	<b>SEA Requirement</b>
The Bay of Fundy Tidal Energy SEA (Nova Scotia, Canada)	To address a range of marine renewable energy technologies in the Bay of Fundy.	Regional (i.e., the Bay of Fundy); Nova Scotia Department of Energy	n/a Nova Scotia Department of Energy's decision to address marine renewable energy through an SEA process is both innovative in the Canadian context and also in line with developments in other parts of the world.
UK Offshore Energy SEA (United Kingdom)	Future Leasing for Offshore Wind Farms and Licensing for Offshore Oil and Gas and Gas Storage.	Regional; Department of Energy and Climate Change	EU SEA Directive 2001/42/CE
Finspang Municipal Energy Plan (Finspang, Sweden)	Energy plan for the Municipality of Finspang.	Municipal; Municipality of Finspang	EU SEA Directive 2001/42/CE;
Browse Liquefied Natural Gas (BLNG) Precinct (State of Western Australia, Australia)	To establish a single, commercially viable gas processing location on the west Kimberley coast.	Provincial/Regional-type SEA (Browse Basin gas fields in the State of Western Australia); Department of State Development, Government of Western Australia	<i>Western Australia Environmental Protection Act 1986 and Environment Protection and Biodiversity Conservation Act 1999</i>

### 2.6.3.1 *The Bay of Fundy Tidal Energy SEA (Nova Scotia, Canada)*

The Offshore Energy Environmental Research Association (OEERA) was commissioned by the Nova Scotia Department of Energy to carry out a SEA focusing on tidal energy development in the Bay of Fundy. The SEA of the Fundy Tidal Initiative was completed in 2008 as a means of addressing the province's Renewable Energy Standards that call for 500MW of additional renewable electricity generation capacity by 2013. Tidal power options for the Bay of Fundy were first investigated the 1959 report *Investigation of the International Passamaquoddy Tidal Power Project* produced by both the Canadian and US federal governments. However, the project did not proceed at the time because the results from the cost-benefit analysis for the project concluded that the project would be beneficial to the US but not to Canada.

The Bay of Fundy is an important environmental, biological, and socio-economic resource to Nova Scotia, and development must take place responsibly. The objective of the SEA was to assess the social, economic and environmental effects of the project and to inform decisions as to whether, when and under what conditions pilot and commercial projects in the waters of the Bay of Fundy should be allowed and under what conditions renewable energy developments are in the public interest over the long-term (OEERA, 2008). The Bay of Fundy SEA was a government-commissioned SEA which represents the willingness to proceed in a way that ensures environmental and social concerns are addressed (Oldreive, 2013).

The Bay of Fundy SEA was regional in scope and was carried out in accordance with the Canada Federal SEA Cabinet Directive. The results of the SEA generated 29 recommendations for the province of Nova Scotia that would be used as a strategic guidance for the development of marine renewable energy in the Bay of Fundy (OEERA, 2008).

Furthermore, Table 12 presents the SEA process criteria considered as part of the Bay of Fundy SEA.

**Table 12. SEA Process Criteria used in the Bay of Fundy SEA**

<b>Item #</b>	<b>SEA Process Criteria</b>	<b>Description</b>
1.	Addressing the Need	Examination of Nova Scotia and New Brunswick’s current energy demand and supply situation, policies, programs and renewable energy goals.
2.	Description of the Existing Environment	Description of the baseline environment, including the physical and biological components in the Bay of Fundy. Description of fisheries and aquaculture, species at risk, ecological reserves, tourism and recreation, marine and coastal historic resources and marine transportation in the Bay of Fundy.
3.	Alternatives (Methods) Evaluation	Examination of potential locations and properties of high renewable energy potential locations, the types of ocean renewable energy technologies, and potential pilot and commercial development scenarios.
4.	Impact Assessment and Mitigation	Assessment of the potential interactions between renewable tidal in-stream technologies and the biophysical and socio-economic environment. SEA also included assessment of the contribution of ocean renewable energy to economic development in Nova Scotia and New Brunswick and to community economic development in coastal areas.
5.	Cumulative Effects Assessment	Cumulative effects assessment, including effects of energy extraction, the effects of other developments, and the effects of other ecosystem changes.
6.	Consideration of Sustainability	The SEA concluded that any decision-making on development of marine renewable energy in the Bay of Fundy should be guided by ten sustainability principles established for the project. The purpose of these principles is to ensure that renewable energy developments respect ecological integrity and make positive contributions to the social, economic and cultural well-being of Nova Scotia as a whole and of rural communities in particular.
7.	Public and Stakeholder Engagement	A comprehensive public and stakeholder consultation program, including community forums, a stakeholder roundtable group meetings and aboriginal engagement.
8.	Monitoring	Monitoring to be conducted as part of the siting of demonstration projects. Development should be supported by an effective and transparent research and monitoring program. Monitoring of environmental effects must include marine habitat and species in the Upper Bay of Fundy.

The Bay of Fundy experience with SEA has resulted in the Province of Nova Scotia using SEAs as a more formal environmental decision-making process with specific goals and objectives identified. This approach seeks to be proactive rather than reactive by focusing on strategic and high-level goals and objectives before decisions are made about specific projects. Another strength of this SEA was that it incorporated an assessment of the cumulative impacts (Oldreive, 2013). One of the weaker sides of this SEA was that even though the SEA examined the implementation of alternative energy technologies (i.e., Alternative Methods), it did not include an examination of strategic “Alternatives To” the proposed plan (White and Noble, 2013).

#### 2.6.3.2 UK Offshore Energy SEA (United Kingdom)

The United Kingdom (UK) Department of Energy and Climate Change (DECC) conducted a SEA of a draft plan/program for further development of previously approved offshore wind leasing and offshore oil and gas licensing in the UK Renewable Energy Zone and the territorial waters of England and Wales (DECC, 2009). The SEA was completed in 2009. The DECC completed seven SEAs for offshore oil and gas exploration and offshore wind in this area since 1999.

The UK Offshore Energy SEA was a regional/territorial in scope and was conducted in accordance with the SEA Directive 2001/42/EC and specifically the *Environmental Assessment of Plans and Programmes Regulations 2004* (the SEA Regulations), which apply to any relevant plan or programme which relates either solely to the whole or any part of England, or to England and any other part of the UK.

The proposed draft plan/programme included components with respect to:

- Offshore wind energy - to enable further rounds of offshore wind farm leasing in the UK Renewable Energy Zone and the territorial waters of England and Wales with the objective of achieving some 25GW of additional generation capacity by 2020.
- Offshore oils and gas - to hold further seaward rounds of oil and gas licensing in UK waters.
- Gas storage - to include future licensing for the underground storage of combustible gas in depleted and other offshore oil and/or gas fields in UK waters (DECC, 2009).

As such, the objectives of the SEA were to:

- Examine the environmental implications of a draft plan/programme for licensing for offshore oil and gas, including gas storage, and leasing for offshore wind. This includes consideration of the implications of alternatives to the plan/programme and the potential spatial interactions with other users of the sea.
- Inform the UK Government's decisions on the draft plan/programme.
- Engage in public and stakeholder consultation in regard to the proposed plan.

Table 13 identifies the SEA processes criteria that were considered and carried out.

**Table 13. SEA Process Criteria used in the UK Offshore Energy SEA**

<b>Item #</b>	<b>SEA Process Criteria</b>	<b>Description</b>
1.	Need and Objectives	Identification of the objectives of the draft plan/programme including economic enhancement, carbon emission reductions and security of energy supply, but without compromising ecosystem function, heritage conservation and human health.
2.	Alternatives To	Assessment of Alternatives To the SEA for future offshore wind leasing, oil and gas licensing and gas storage, including the 'do nothing' option, proceeding with a leasing and licensing programme and restricting the areas offered for leasing temporally or spatially.
3.	Scoping	Identification of the principal purposes of scoping for the SEA process. Identification of stakeholder issues and concerns which should be considered in the SEA
4.	SEA Objectives	SEA objectives were developed as part of the scoping of the SEA. Fifteen objectives and respective indicators were identified for the SEA and were reviewed and agreed upon with the established stakeholder Steering Group.
5.	Stakeholder and Public Consultation	An extensive consultation program was put in place and carried out including establishment of a SEA Steering Group, public engagement, stakeholder workshops and communication with regulatory agencies.
6.	Environmental Baseline	Description of the existing environmental conditions including biodiversity, habitats, geology and coastal morphology, seascape, air quality, climate, human health, cultural heritage and conservation.
7.	Environmental Effects Assessment and Mitigation	Detailed examination of the likely significant effects on the environment, including short, medium and long-term effects. Identification of avoidance/mitigation measures of any identified adverse effects.
8.	Cumulative Effects	Examination of the effects of activities associated with the draft SEA and that have the potential to act incrementally with those from other wind farm and oil and gas existing or new activities, or to act cumulatively with those of other human activities (e.g., fishing and shipping).
9.	Transboundary Effects	Assessment of the potential transboundary effects of activities associated with the SEA to waters of UK's neighbouring states, including underwater noise, marine discharges, atmospheric emissions, displacement of fishing activity, disruption of migratory species, vessel collisions, oil spills.
10.	Monitoring	Description of a program for monitoring significant environmental effects of the plan/programme in accordance with the SEA Regulations, including SEA objectives.

### 2.6.3.3 *Finspang Municipal Energy Plan (Sweden)*

The Swedish municipality of Finspang was initiated a SEA for a local energy plan in 2005. The SEA was carried out as a formal process under the EU SEA Directive 2001/42/CE but was also an academic-led SEA. The academic project, led by researchers at the Linköping University (in Sweden), was carried out to propose new tools for SEA in municipal energy planning and then to apply those tools to the Finspang's energy plan (White and Noble, 2013). In addition, the Swedish Government under its *National Environmental Quality Objectives* had a requirement that each municipality would produce an up-to-date energy plan (Martesson et al., 2005). The objective of the SEA was to identify the likely significant environmental effects of the development and implementation of the Finspang energy plan.

The energy planning process implemented in the municipality of Finspang included key process criteria of SEA (see Table 14).

**Table 14. SEA Process Criteria used in the Finspang Municipal Energy Plan**

<b>Item #</b>	<b>SEA Process Criteria</b>	<b>Description</b>
1.	Objectives	The Finspang energy plan identified the overall and environmental objectives of the plan.
2.	Baseline Characterisation	The current energy system was documented in terms of energy sources, conversion plans, energy use for different purposes and annual energy use in different sectors of the municipality. Other information about the municipality was obtained, including demographic data, industry structure and development plans.
3.	Formulation of Alternatives To	A scenario approach was used to identify alternatives. Numerous actions and strategies were considered, including a “no action” scenario (i.e., ‘do nothing’ alternative).
4.	Effects Assessment and Mitigation Measures	The SEA included quantitative and qualitative assessment of environmental impacts. The environmental categories and indicators considered were based on the requirements of the Swedish National Environmental Objectives legislation including: biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage and landscapes.
5.	Public and Stakeholder Consultation	Numerous workshops and panels were held with the public, stakeholders and agencies.
6.	Monitoring	Monitoring focused on the SEA process rather than the environmental impacts of the energy plan. Monitoring also focused on the scope and quality of environmental effects assessment.

Some of the weaknesses of the Finspang energy plan are that the plan focused on environmental impacts only and did not consider evaluation of cumulative effects or sustainability principles as part of the development of the plan.

*2.6.3.4 Browse Liquefied Natural Gas Precinct (State of Western Australia, Australia)*

In February 2008, the Australian Government Environment Minister signed an agreement with the Western Australian Government to undertake a Strategic Environmental Assessment to assess the impacts of the proposed actions and activities of the Browse Basin Liquefied Natural Gas (BLNG) Precinct plan.

The BLNG Precinct plan aims to establish a single, commercially viable gas processing location on the coast of Kimberley region of Western Australia, with suitable land tenure, governance principles, and strategic approvals in place, to attract and facilitate a minimum of two liquefied natural gas projects and to commercialise gas from the Browse Basin (Government of Western Australia, 2012). The BLNG Precinct would consist of LNG processing facilities and associated infrastructure, and would be located in the vicinity of James Price Point, approximately 60 kilometres north of Broome, on the west Kimberley coast of Western Australia. The BLNG Precinct would provide a location for processing gas and associated products from the Browse Basin with a liquefied natural gas production capacity of up to 50 million tonnes per annum (Government of Western Australia, 2012).

The BLNG Precinct plan is subject to SEA under the provisions of *Environment Protection and Biodiversity Conservation Act (EPBC Act) 1999*, based on the possibility that implementation of proposed actions under the Precinct Plan may adversely affect matters of national environmental significance (MNES). In addition, the SEA is appropriate under the *EPBC Act* as there is more than one future proponent for actions/projects to be developed as a result of the plan.

The BLNG Precinct plan must also meet the requirements of the Western Australian *Environmental Protection Act 1986*. Under Section 38 of the *Environmental Protection Act*, the proponent is to carry out an environmental assessment of strategic proposals to identify future proposal(s) that are likely to have a significant effect on the environment (Government of Western Australia, 2012).

Based on a review of the BLNG Precinct plan SEA, Table 15 identifies the SEA process components incorporated in the Plan.

**Table 15. SEA Process Criteria used in the BLNG Precinct Plan SEA**

<b>Item #</b>	<b>SEA Process Criteria</b>	<b>Description</b>
1.	Scoping	The SEA included a project scoping to identify potential sources of impact.
2.	Sustainability	Sustainable development in the Kimberley region of Western Australia was identified as the goal for the strategic approach to development of gas resources in Browse Basin.
3.	Consideration of Alternatives To	Evaluation of “No Development” option was carried out to identify the effects of not proceeding with development of the BLNG Precinct plan.
4.	Site Selection	A site selection process was designed as part of the SEA which analysed a range of considerations including technical, socio-economic, environmental, and heritage constraints. A range of development options were considered to determine the suitability of the proposal and to define the preferred location for proposed development.
5.	Description of Existing Environment	Description of the existing environment, including heritage, environmental and cultural heritage values in the project local and regional areas.
6.	Impact Assessment and Mitigation Measures	Analysis of the actions prescribed by the plan in relation to the identified environmental, social and heritage values to identify potential impacts during construction, operation and decommissioning of the BLNG Precinct. Matters of National Environmental Significance (MNES) pursuant to the <i>EPBC Act</i> were also assessed.
7.	Cumulative Impact Assessment	An assessment whether the impacts arising from core elements of the plan would be altered by indirect activities or related projects both locally and regionally and over short and longer timeframes.
8.	Consultation	Extensive stakeholder consultation with advisory agencies, members of the public, Indigenous groups and other stakeholders. A Stakeholder Reference Group was established to obtain input from key non-government stakeholders.
9.	Monitoring and Adaptive Management	Requirement to incorporate monitoring and adaptive management into project operations.

Marsden (2013) suggests that the Browse Basin SEA has been criticised by opponents for its scoping and site selection processes. Specifically, the Browse Basin SEA did not apply a thorough examination of alternative sites or technologies (i.e., “Alternatives To”) beyond the

area of Kimberley coast and the location at James Price Point was conveniently selected as the preferred alternative, resulting in a cost and time savings of not having to examine all other “Alternatives To” in detail.

## **2.7 The Need for Strategic Environmental Assessment in Energy Policy Planning**

The energy sector is globally a large impact generator in terms of resource exploration, production, consumption and waste disposal. Problems with energy use and supply are associated with global warming, air pollution, ozone depletion, forest destruction, acid precipitation and emission of radioactive substances (Dincer, 1999). Addressing these issues must be considered a priority in order to achieve an energy future without compromising the state of the environment.

The energy sector plays an important role in the economies and the overall development of nations around the world and contributes significantly to the well-being of people. Nevertheless, the energy sector is a field in which many social and environmental outcomes associated with energy supply have to be considered and accounted for and the potential impacts need to be evaluated (Malvesion and Montano, 2012). Typically, the assessment of the impacts associated with the development of energy infrastructure projects is conducted by undertaking an EIA. However, the EA process does not deal with the assessment of the environmental implications at higher levels of the decision-making process and a specific project-level EA does not deal with considerations of energy supply challenges. As such, SEA is an important tool that can be used to deal with such decisions in the early stages of the assessment process (Malvesion and Montano, 2012).

Energy development has implications for sustainability. One of the main factors for sustainable development is the requirement for a supply of energy that is fully sustainable and effective and makes efficient use of energy resources (Dincer, 1999). Furthermore, a sustainable supply of energy sources is one that in the long-term is readily available at a reasonable cost and can be utilized without having negative impacts.

As a result, SEA implementation in the energy sector could play an important role as decision makers must identify and evaluate alternative energy options and make informed decisions about the long-term sustainability of proposed energy-related PPPs.

## **2.8 Energy Policy Development in Ontario**

Having examined the need for SEA in energy policy planning, the following sections present a historical analysis of energy policy development in Ontario and set the context as to how energy supply planning in the Province has emerged the way it is today.

### **2.8.1 The Rise of the Ontario Hydro Empire**

Ontario Hydro was the first publicly-owned power utility in North America. By 1917 Ontario Hydro was delivering 250,000 kW of power to many municipalities across the Province, making it one of the world's largest hydro-electric domains (McKay, 1983). By 1923, Ontario Hydro was the largest utility in the world with capital investments of approximately \$200 million and it alone accounted for half of the provincial debt. Ontario Hydro's existing construction projects had a major economic impact on the Province at the time. By 1930, as a result of the Great Depression and Ontario Hydro's exaggerated electricity demand predictions, the Province was left with an enormous surplus of power.

Despite numerous scandals, the public image of Ontario Hydro did not change because it had delivered on its promise to bring cheap, reliable electric power to everyone in Ontario. As a result, electricity demand continued to double every decade (McKay, 1983). In the first half of the 20th century, Ontario Hydro emerged as a power unto itself that was focused on the development of large-scale, capital-intensive power generating means. This institutional preference for centralized power, as well as the lack of provincial involvement in the energy policy and decision-making process, made strategic decision-making (and specifically SEA) extremely difficult to be achieved.

By 1951 the peak provincial demand for electricity had climbed to over 3 million kilowatts (kW) and Ontario Hydro's system planners had concluded that hydraulic energy could not provide all of the Province's electrical needs to the year 2000. As such, in 1951 the first of six coal fired generating stations was locked into the grid (McKay, 1983). As a result, a fundamental shift in focus for system power planning had occurred and Ontario Hydro began to design the electrical grid to incorporate larger, more expensive and centralized generating stations beyond water power. This change marked a transition to an electrical system which heavily depended on non-renewable fuels and a time when electricity was relatively cheap and environmental concerns

were absent. In 1961, an internal Ontario Hydro report was released which suggested that increasing consumption levels were forcing Ontario Hydro to rely more on new, expensive coal stations and that the real price of electricity was rising. By 1963 Ontario Hydro developed electric heating for buildings, which became a primary heating method by the 1970s.

The pattern of centralized power and the push for large-scale, capital intensive power development carried on through the 1960s and 1970s. In, 1964, Ontario Hydro announced its decision to build a nuclear complex in Pickering, 45 kilometres from downtown Toronto. This decision was not based on scientific or engineering evidence of the need for additional energy supply; rather it was motivated by a sense of panic that the supply of cheap power to meet growing electricity demand could not be produced using coal-fired plants.

Between 1960 and 1975, Ontario Hydro decision makers approved the construction of 25,000 megawatts (MW) of generating capacity through coal and nuclear power stations. Ontario Hydro insisted that this capacity was necessary in order to prevent blackouts in the future. The report failed to consider the question of limits to growth, and the inevitability of unchecked demand eventually outstripping Ontario Hydro's physical and financial resources and in turn the report acknowledged the possibility of an even faster escalating demand. These conclusions provide an insight into the lack of strategic planning and thinking among the energy planners at Ontario Hydro at the time. System energy planners had completely ignored the reality of constraints that could come to bear in the future and had maintained their strong belief that electrical demand would continue to increase indefinitely. As a result, critical issues such as changing consumption patterns, energy conservation, capital availability and environmental impacts were not discussed at all.

### **2.8.2 Energy Policy Changes through 1970s to early 1990s**

In the early 1970s, the rapid development of Ontario's nuclear program coincided with the emergence of environmental protection as an important public policy issue. By 1976 growing political opposition emerged to challenge Ontario Hydro on issues such as systems planning, environmental impacts, and access to information and public participation. As the level of concern and emphasis on environmental issues increased, the status of nuclear power as a cheap and environmentally clean solution to the Province's energy crisis was challenged by members

of the public. Therefore, in the mid-1970s, the public began to express strong criticisms of Ontario's nuclear program and blamed the Government for failing to predict the enormous health, environmental and economic costs associated with nuclear energy. This critique at the time shows the need for SEA to be carried out by or be imposed on Ontario Hydro's centralized decision-making structure.

In September 1978, a report by the Ontario Royal Commission on Electric Power Planning was published, known as the *Porter Commission Report*, which concluded that a maximum of three new generating stations would be needed before the year 2000 (McKay 1983). This report, which is an example of a *de facto* Strategic Environmental Assessment outside of the *EA Act*, signified a first official warning with respect to the credibility of the long-range planning forecasts presented by Ontario Hydro. Following the 1978 publication of the *Porter Commission Report*, Ontario Hydro became defensive about its projections. The 1979 Davis Conservative Government published a policy statement on energy titled *Energy Security for the Eighties*. The report outlined a 15-year investment of \$30 billion in new energy projects, half of which was meant to fund renewable energy projects. However, the main problem with this strategy was that the only committed funding, which totalled \$12.55 billion, was for nuclear power and the remainder was to be funded by individuals, private industry, municipal and federal governments (McKay 1983).

In 1989, Ontario Hydro published its first Demand/Supply Plan (DSP) report, *Providing the Balance of Power*, which was a major integrated power system planning exercise. The DSP presented, for the first time in Ontario Hydro history, an integrated plan for new electricity supply and demand management for the next 20 years (Mulvihill et al., 2013). The plan suggested that the supply/demand gap would significantly widen in the mid-1990s through 2005 and would reach 21,300 MW by 2014 (Ontario Hydro, 1989). As such, Ontario Hydro's proposal to address this gap was to build several additional nuclear and coal-fired generation plants.

Since Ontario Hydro was a public agency, the DSP was subject to the Ontario *EA Act*. The *EA Act* at the time was one of the most advanced pieces of environmental legislation in Canada. Under the *EA Act*, the definition of an "undertaking" included not only public body projects, but also proposals, plans and programs (Government of Ontario, 1990). As such, the DSP was the first plan that would undergo a *de facto* Strategic Environmental Assessment. Public hearings of

the plan at the Environmental Assessment Board began in 1990. During the review of the DSP, however, the Environmental Assessment Board expressed strong criticisms of Ontario Hydro's plan. In 1993, surprisingly, before the conclusion of the hearings, the plan was withdrawn by Ontario Hydro due to what it claimed was the recession and a need for economic restructuring, and the sudden oversupply of electricity as the Darlington nuclear power plant came into service (Mulvihill et al., 2013). However, Mulvihill et al. (2013) suggest that the true reason for the withdrawal of the Plan was due to a decline in electricity demand and, when challenged, Ontario Hydro was not able to support its initial electricity demand projections. Since then, it is evident that the Province has avoided strategic assessments of its policies, programs and plans and has shifted to a project-level EA approach.

### **2.8.3 The Split of Ontario Hydro and the Energy Competition Act**

In 1998, a fundamental change occurred in Ontario's energy policy development. Mike Harris, who was the Premier of Ontario at the time, was responsible for passing Bill 35 – the *Energy Competition Act*. Bill 35 led to the deregulation of the electricity market and this legislation created several new pieces of legislation, most significantly, the *Electricity Act* and the *Ontario Energy Board Act*. The *Electricity Act* was significant as it led to the division of Ontario Hydro into five new entities, each focusing on a different functional area:

- 1) Ontario Power Generation (OPG) - focused on generation;
- 2) Hydro One - focused on distribution and transmission projects;
- 3) Ontario Electricity Financial Corporation (OEFC) - focused on debt repayment;
- 4) The Independent Electricity System Operator (IESO) - focused on electricity system distribution; and,
- 5) Ontario Electrical Safety Association (OESA) - focused on safety (Canada Energy, 2013).

The 1998 *Electricity Act* guaranteed an open wholesale electricity market and access to the power transmission grid for new competitors in generation. The *Electricity Act* also led to the creation of Bruce Power, which in 2001 leased the Bruce nuclear facilities from OPG. As of 2013, Bruce Power is responsible for approximately 16% of Ontario's electricity generation today (Canada Energy, 2013).

Since 2004, Ontario's electricity generating and distribution system became subject to a comprehensive review by the Ontario Government and included input from various parties including the public and energy experts. In 2004, a report from the Electricity Conservation and Supply Task Force (ECSTF) confirmed that a market approach implemented by previous governments was not a viable plan for energy planning and concluded that Ontario needed a long-term planning strategy, and to attract investors in new electricity generation (Government of Ontario, 2004). The plan promised to focus on the following key areas:

- 1) Development of a conservation, demand management and demand response strategy;
- 2) A reliable, sustainable and diverse supply of competitively-priced power;
- 3) Effective consumer protection measures;
- 4) The measurement of new investment in conservation, generation and transmission; and,
- 5) Elimination of coal fired generation and replacement of it with other, cleaner sources of energy.

In 2004 the introduction of the *Electricity Restructuring Act* offered the opportunity for a SEA of the Province's plans and programs. As a result of the *Electricity Restructuring Act*, in 2005 the Ministry of Energy directed the Ontario Power Authority (OPA) to present guidance on the supply mix for Ontario's electricity system and as such the OPA produced the *Supply Mix Advice Report* (OPA, 2005). The report identified a mix of electricity supply sources that would meet the expected demand in Ontario by year 2025, taking into account conservation targets and new sources of renewable energy (Ontario Power Authority, 2013).

The recommendations in the plan targeted an increase in renewable sources in the Province's supply mix, while maintaining the existing share of nuclear generation, and replacement of coal by increasing the share of gas-fired generation and renewable resources. However, OPA's report was criticised as it significantly underestimated Ontario's renewable energy supply potential and the potential for combined heat and power plants that can help meet the Province's electricity needs. In addition, the report underestimated the environmental and economic costs and risks associated with the reliance on nuclear power (Winfield et al., 2006).

In 2007, the OPA introduced its first Integrated Power System Plan (IPSP I) which was one of the most significant electricity system initiatives in Ontario in over a decade with a capital

investment requirement estimated at \$70 billion. The IPSP presented plans for the construction, refurbishment and replacement of many of Ontario's transmission and generation facilities. The IPSP also identified many environmental and economic implications, including the significant costs of nuclear reactors and concerns about the long-term disposal of radioactive wastes. The public consultations that were held for the IPSP revealed that more than 90% of the participants were concerned about the nuclear component of the plan.

Following the events of the 1989 DSP, there were strong expectations that IPSP would be subject to review under the *EA Act*. In 2006, approximately a year before the introduction of the IPSP, the Ontario Government introduced an amendment to the *EA Act* and implemented *Ontario Regulation 277/06 – Designation and Exemption of Integrated Power System Plan*), exempting the IPSP from the *EA Act*. This meant that the IPSP could proceed without an assessment of its environmental impacts. Further, the Ministry of Energy argued that projects identified in the IPSP would undergo a proponent-led environmental screening under *Ontario Regulation 116/01 – Electricity Projects*. The outcomes of these political decisions point to an evident avoidance of strategic guidance with respect to energy policy development in Ontario. As suggested by Winfield et al. (2010), despite the high level of conflict over a wide range of issues regarding electricity planning, the Province made a decision to reject the possibility of carrying out a SEA of its approach to electricity planning.

In 2011, the Ministry of Energy issued a new Supply Mix Directive which outlined the requirements for OPA to develop an updated IPSP (IPSP II) (OPA, 2011). The first Plan (IPSP I), prepared in 2007, was intended to be a living document that looked 20 years ahead and that was to be updated every three years to respond to changing conditions such as consumer demand and new technologies. Based on the new Supply Mix Directive, the OPA was required to update the 2007 IPSP and reflect how the goals set out by the Government of Ontario in relation to conservation, nuclear generation, phase-out of coal-fired generation, renewable energy and hydroelectric generation, transmission, development of smart grid and reliability and operability, will be met (OPA, 2013). However, updated Plan was delivered to the Ministry of Energy for review just prior to the Provincial election on October 7, 2011 and since the Minister of Energy changed due to the election, the updated IPSP II was never reviewed by the Ontario Energy Board (Wind Concerns Ontario, 2012). Sources suggest that the review of IPSP II was stopped

by the government's green energy initiative. The new Minister of Energy suggested that the 2010 Ontario Long-Term Energy Plan (introduced as a result of the 2009 Green Energy and Economy Act - as further discussed in Section 2.8.4) was intended to be used as a guide to developing IPSP II. However, in 2012 the Minister of Energy introduced Bill 75. Section 40 (2) of the Bill stated that Clause 70 (2) (I) of the *Ontario Electricity System Operator Act 2012*, is amended by striking out “an integrated power system supply plan” and substituting “an energy plan”.

During this period, there was an evident lack of provincial involvement in the decision-making process with regard to energy policy.

#### **2.8.4 The Ontario Long-Term Energy Plan**

The *Green Energy and Green Economy Act 2009 (Green Energy Act)* (Government of Ontario, 2009) is Ontario’s signature energy policy which was passed by the Ontario Government into law on May 14, 2009. The *Green Energy Act* was created with the intent to promote the use of renewable energy development and as such the Province of Ontario has placed a priority on expanding renewable sources of energy including solar energy, wind, water, biomass, biogas, geothermal and tidal forces. This legislation was a key step in Ontario’s climate change plan to reduce air pollution and greenhouse gas emissions. The overall goal of the *Green Energy Act* was to foster growth of renewable energy projects, promote energy conservation and efficiency and at the same time strengthen Ontario’s economy (Stuermer, 2011).

The *Green Energy Act* was the biggest change in energy policy and energy planning since the 1999 split of Ontario Hydro. The *Green Energy Act* represents a fundamental change in energy policy from the large-scale, capital-intensive and nuclear-dependent power generating means to a decentralization of energy policy with emphasis on conservation and development of renewable energy.

As a result of the *Green Energy Act*, in November 2010, the Government of Ontario released the Long-Term Energy Plan (LTEP), *Building Our Clean Energy Future*, which set out the Province’s expected electricity requirements until 2030 and established the ways to meet them by building a modern, clean and reliable system. Key provisions of the 2010 plan included the following:

- Demand is projected to grow moderately (about 15%) between 2010 and 2030;
- Ontario would eliminate coal-fired generation by 2014 by converting coal plants to gas and biomass plants and shutting down coal plant units.
- About 50% of the Province's energy supply would come from nuclear power by adding two new nuclear units at Darlington site and refurbishment and extension of the like of the Pickering B station.
- Increased electricity supply from renewable energy from wind, solar and bioenergy would amount to 10,700 MW by 2018.
- Hydroelectric capacity would grow to 9,000 MW through new facilities and by maximizing existing facilities.
- Proceed with five priority transmission projects needed for reliability, renewable energy, growth and changing demand.
- Increased and broaden conservation targets to 7,100 MW and reduce overall demand (Ontario Ministry of Energy, 2010).

In 2013, the Ontario Ministry of Energy updated the LTEP. The 2013 LTEP, *Achieving Balance*, reflects input from thousands of Ontarians and identifies five principles that will guide future decisions: cost-effectiveness, reliability, clean energy, community engagement, and an emphasis on conservation and demand management before building new generation (Ontario Ministry of Energy, 2013). The plan identifies a strategy for achieving balance in the energy sector by the means described below.

- Conservation - the need for new supply is projected to decrease by implementation of conservation programs and standards. The long-term target for conservation is 30 terrawatt-hours (TWh) in 2032, representing 16% of the total predicted energy production.
- Nuclear - deferral of construction of two new nuclear reactors at the Darlington Generating Station and moving ahead with nuclear refurbishment at both Darlington and Bruce Generating Stations, beginning in 2016. Nuclear power is projected to represent 42% of energy production by the year 2025.

- Renewable Energy - extending the phasing-in of wind, solar and bioenergy for with 20,000 MW online by 2025, representing about half of Ontario's installed generating capacity.
  - Wind is expected to represent 11% of energy production by 2025.
  - Solar PV is expected to represent 3% of energy production by 2025.
  - Hydroelectricity is expected to form 29% of energy production by 2025.
- Natural Gas/Combined Heat and Power is projected to represent 12% of energy production by 2025.
- Development of a new competitive procurement process with the Ontario Power Authority for future renewable projects larger than 500 kW.
- Issuing an annual Ontario Energy Report to update Ontarians on changing supply and demand conditions, and to outline the progress to date on the LTEP.
- Continue with the plans for five new transmission projects in northwestern Ontario (Ontario Ministry of Energy, 2013).

In contrast to the 2010 LTEP, the updated plan focuses on conservation and demand response as the key elements in the energy supply mix for Ontario. The 2013 LTEP also focuses on new renewable energy generation as the replacement for coal power and on refurbishment of nuclear reactors, rather than building new nuclear reactors. It should be noted that, similar to the IPSP and its exemption from the *EA Act* because of *Ontario Regulation 277/06 – Designation and Exemption of Integrated Power System Plan*, and since the IPSP was replaced with the LTEP, both the 2010 and 2013 LTEPs were also exempted from the *EA Act*.

The historical analysis of the Ontario energy sector and its development over the last two decades, illustrates a shift in energy policy from its highly centralized decision-making to a decentralized energy philosophy. This has occurred since the split of Ontario Hydro in 1999 and has also been recognized through the introduction of the 2009 *Green Energy Act* which has led to increased stimulus of renewable sources of energy. The historical analysis, presented in the sections above, clearly shows the political reluctance and purposeful avoidance of power authorities to implement SEA as part of their PPPs and demonstrates that politics and power

relations often become true drivers of SEA. This is primarily because of political authorities' fear that they would lose their control, power and influence when it comes to decision-making.

### 3. Methods

In order to answer the two research questions of this MRP, the methods framework adopted for this research is a literature review approach and is illustrated in Figure 2. Specifically, the MRP has three distinct components:

- Identification of best practices criteria for carrying out SEA;
- Conducting a screening of the Ontario LTEPs (2010 and updated 2013) against the established best practices criteria for SEA; and,
- Evaluation of the strengths and weaknesses of the Ontario LTEPs.

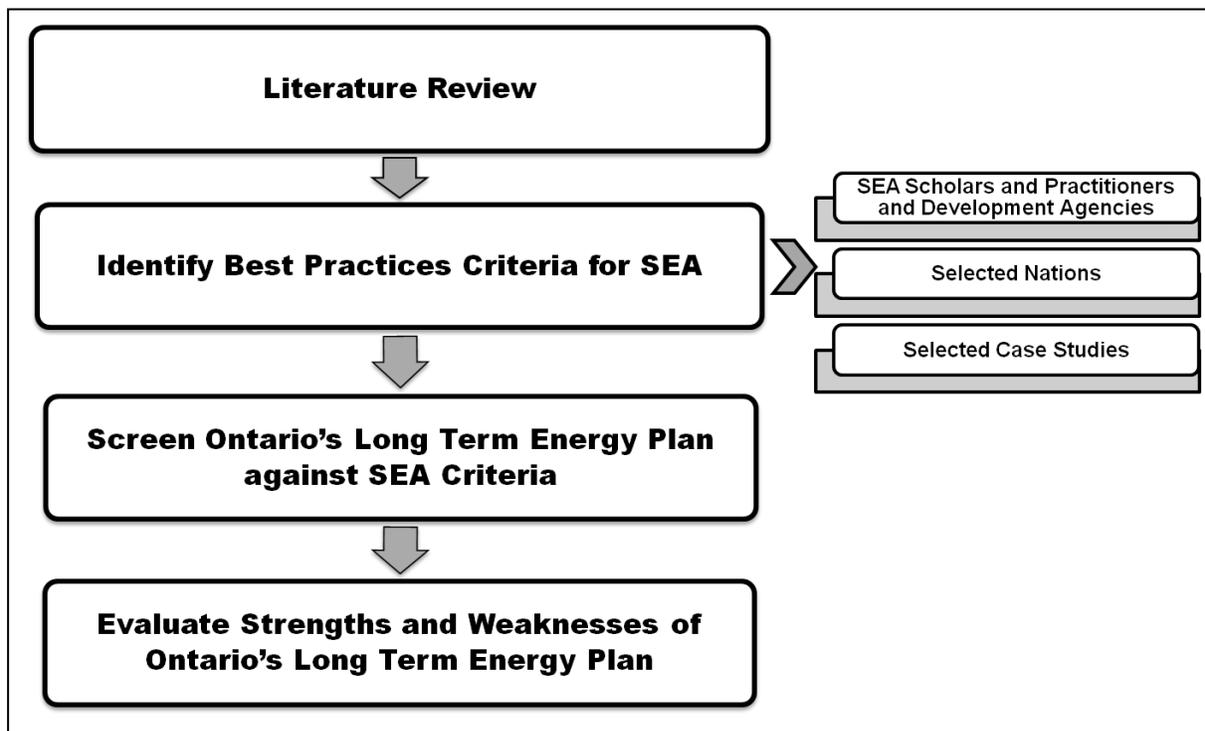


Figure 2. Research Project Methods Framework

#### 3.1 Identification of Best Practices Criteria for SEA

While the terms best practices is ambiguous, for the purposes of this MRP, best practices are defined as follows:

*Best practices are those principles and criteria of the SEA process that are recognized as being most effective based on established guidelines and directives, successfully implemented SEA case studies of policies, plans and programmes and the knowledge/theories of SEA scholars and practitioners and international development agencies.*

Further, three areas of research have been selected for identification of best practices for SEA as follows:

- 1) SEA Guidelines identified in SEA directives and guidelines in selected nations;
- 2) Good practices guidance for SEA as suggested by SEA scholars and practitioners and international development agencies; and,
- 3) SEA process applied in four case studies in the energy sector.

It should be noted that for the purposes of this MRP, SEA best practices criteria were identified with respect to the process followed and stages considered when carrying out SEA undertakings.

### **3.1.1 SEA Directives and Guidelines in Selected Nations**

SEA directives and guidelines established in Canada, Australia, New Zealand and the European Union were explored in terms of good practice SEA. The above-mentioned nations were selected because they have either a legislative provision or directives for SEA, or are known for their SEA-like processes and for conducting SEA-type undertakings. The guidelines and directives from these countries were used to identify best practices for carrying out SEA undertakings. Specifically, the table below identifies the documents, guidelines and legislative requirements that were reviewed for the selected nations with respect to their SEA provisions.

**Table 16. SEA Provisions Reviewed for Selected Nations**

Country/Group of Countries	SEA Provision	Description
Canada	<ul style="list-style-type: none"> <li>• Cabinet Directive on Environmental Assessment of Policy, Plan and Programme Proposals (introduced 1990, various amendments).</li> <li>• <b>Type:</b> Non-statutory procedure.</li> </ul>	<ul style="list-style-type: none"> <li>• Directive by the Federal Government's Cabinet of Departmental Minister for their respective departments to consider environmental concerns at the strategic level of decision-making.</li> <li>• The process applies to only federal decision-making.</li> </ul>
European Union (27 Member States)	<ul style="list-style-type: none"> <li>• SEA Directive 2001/42/EC (entry into force 2004).</li> <li>• <b>Type:</b> Formal SEA provision.</li> </ul>	<ul style="list-style-type: none"> <li>• Directive for carrying out an environmental assessment for a wide range of public plans and programmes (e.g. land use, transportation, waste, energy agriculture, etc.).</li> <li>• Requires that all EU Member States at the time to follow the requirements of the SEA Directive as of July 2004.</li> </ul>
Australia	<ul style="list-style-type: none"> <li>• <i>Environment Protection and Biodiversity Conservation (EPBC) Act</i> of 1999 (plus a range of other federal and state legislation).</li> <li>• <b>Type:</b> Discretionary provision for SEA in Section 146 of the <i>EPBC Act</i>.</li> </ul>	<ul style="list-style-type: none"> <li>• Part 10 of the <i>EPBC Act</i> provides for strategic assessments of new proposals or developments (actions) over a large scale and timeframe. Strategic assessments are undertaken by the organization responsible for implementing the policy, plan or program.</li> <li>• There is considerable experience with mandatory SEA of fisheries and emerging practice of other discretionary applications of SEA following the 2006 amendments to the <i>EPBC Act</i>.</li> </ul>
New Zealand	<ul style="list-style-type: none"> <li>• <i>Resource Management Act (RMA)</i> 1991 (and amended in 2005).</li> <li>• <b>Type:</b> Informal provisions for SEA.</li> </ul>	<ul style="list-style-type: none"> <li>• The <i>RMA</i> requires an assessment of environmental effects (AEEs) for all regional as well as district plans, policies and programmes in relation to managing air, land and water resources.</li> </ul>

### **3.1.2 Good Practices Guidance for SEA from SEA Scholars and Practitioners**

In addition to SEA practices established by the selected nations described above, good SEA practices as described in guidelines and manuals of recognized SEA scholars and practitioners were used to identify the most important SEA principles and criteria (i.e., the must haves). Accordingly, the work of the following SEA scholars was reviewed:

- Therivel and Partidatio (1996)
- Partidario (2000, 2003, 2012)
- Wood and Dejeddour (1992)
- Noble (2002, 2009)
- Gibson et al. (2010)
- Therivel (2004)
- Benevides et al. (2008)
- White and Noble (2013)
- Sadler (1998)

Following the review of the academic literature of the above mentioned SEA scholars and practitioners, SEA process principles were derived and described. This list formed the SEA best practices identified but SEA scholars and practitioners.

In addition, SEA good practice guidelines developed as a result the contributions of international agencies were reviewed and analysed. Guidelines and related reports from the following international development agencies were reviewed:

- Organization for Economic Co-operation and Development (OECD) (2006)
- The World Bank (2007)
- United Nations Environment Programme (UNEP) (2004)
- United Nations Economic Commission for Europe (UNECE) (2007)

Based on the SEA guidelines and documentation available from each of the above noted organizations, a list of the SEA process criteria was formulated for each organization in a tabular format. Each list was considered as part of the generation of the overall list of best practices criteria for SEA.

### **3.1.3 SEA Case Studies in the Energy Sector**

Four SEA case studies were selected for review in order to analyse what SEA criteria and principles were used for those undertakings. The case studies were selected based on a review of literature. Since this project focuses on application of SEA to the Ontario Long-Term Energy Plan (LTEP) (i.e., a provincial-level plan), the SEA case studies selected are energy sector undertakings at the municipal, regional / provincial level. The case studies capture different SEA processes, including formal and informal SEA undertakings. Table 17 below provides an overview of the selected case studies.

**Table 17. Selected SEA Case Studies in the Energy Sector**

<b>Case Study</b>	<b>Purpose</b>	<b>Scale and Proponent</b>	<b>SEA Requirement</b>
The Bay of Fundy Tidal Energy SEA (Nova Scotia, Canada)	To address a range of marine renewable energy technologies in the Bay of Fundy and to provide advice on whether, when and under what conditions tidal energy projects should be allowed in the Bay of Fundy.	Regional (i.e., the Bay of Fundy); Nova Scotia Department of Energy	n/a Nova Scotia Department of Energy's decision to address marine renewable energy through SEA process is both innovative in the Canadian context and also in line with developments in other parts of the world.
UK Offshore Energy SEA (United Kingdom)	To identify future leasing for offshore wind farms and licensing for offshore oil and gas storage for the areas of the UK Renewable Energy Zone and the territorial waters of England and Wales.	Regional; Department of Energy and Climate Change	EU SEA Directive 2001/42/CE
Finspang Municipal Energy Plan (Finspang, Sweden)	To develop and energy plan for the municipality of Finspang with the objective to strengthen municipal decision-making by applying, evaluating and developing tools for SEA in energy planning.	Municipal; Municipality of Finspang	EU SEA Directive 2001/42/CE;
Browse Liquefied Natural Gas Precinct Plan (State of Western Australia, Australia)	To establish a single, commercially viable gas processing location on the west Kimberley coast, with suitable land tenure, governance principles, and strategic approvals in place, to attract and facilitate a minimum of two Liquefied Natural Gas projects and to commercialise gas from the Browse Basin.	Provincial/Regional-type SEA (Browse Basin gas fields in the State of Western Australia); Department of State Development, Government of Western Australia	<i>Western Australia Environmental Protection Act 1986 and Environment Protection and Biodiversity Conservation Act 1999</i>

### **3.2 Developing a List of Best Practices Criteria for SEA**

As a first step in the identification of SEA best practices, the SEA criteria identified based on the three areas of research (i.e., SEA scholars and practitioners, selected nations and case studies) were combined and presented in a tabular format. It is important to note that this list of SEA best practices is not an exhaustive list, rather the criteria were viewed as generally accepted SEA process criteria and principles. They provide means to compare practice and examine how SEA processes are followed or how SEA is undertaken.

Next, each criterion listed in the table was considered in the selection of best practices SEA criteria. The criteria that appeared common to the majority of the components<sup>3</sup> described in the SEA directives of the selected nations, the four SEA case studies and the good practice guidance from SEA scholars and international agencies were carried forward to form the final list of SEA best practices criteria.

### **3.3 Screen the Ontario Long-Term Energy Plan against Strategic Environmental Assessment criteria**

The final list of SEA best practices criteria was used to screen the 2010 Ontario LTEP and the updated 2013 LTEP from a SEA perspective. Each SEA criterion was used to frame a question, and a “Yes” or “No” response was provided in terms of application to both the 2010 and the 2013 LTEPs. The screening was presented in a table format discussing the results of applying the SEA best practices criteria to LTEPs. With this in mind, a “Yes” answer to a criterion’s application would be considered a strength or an advantage of the Plan, whereas a “No” response would be considered a weakness or a disadvantage of the Plan with respect to the application of SEA.

### **3.4 Evaluate Strengths and Weaknesses of the Ontario Long-Term Energy Plan**

Following the application of the screening criteria, the strengths and weaknesses of LTEPs, with respect to SEA was analysed. This analysis was aimed to inform whether SEA best practices were applied and considered in the decision-making process and the development of the Province’s energy policies as part of the 2010 and 2013 LTEPs.

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3. Refers to the thirteen components reviewed as part of the three areas of literature, namely: 1) European Union, 2) Canada, 3)Australia, 4) New Zealand, 5) SEA Scholars and Practitioners, 6) OECD, 7) World Bank, 8) UNEP, 9) UNECE, 10) the Bay of Fundy SEA, 11) the UK Offshore Energy SEA, 12) the Finspang Municipal Energy Plan, 13) the Browse Liquefied Natural Gas Precinct Plan.

## **4. Results and Discussion**

### **4.1 SEA Best Practices Identified Through Literature Review**

SEA best practices criteria were developed based on the common elements from the following three categories of research conducted as part of the literature review:

- i. Good practice guidance for SEA suggested by SEA scholars and practitioners and international development agencies;
- ii. SEA guidelines and directives identified by four selected nations; and,
- iii. SEA process and criteria applied in four selected case studies in the energy sector.

Based on an analysis of the literature review, Tables 18 to 20 below present the SEA best practices criteria for each of the three literature review categories. In total, 14 different SEA process criteria were identified. The 14 criteria are further reviewed in Section 4.1.1 as part of the determination of the final list of SEA best practices criteria.

**Table 18. SEA Best Practices Identified by Selected Nations**

<b>Item #</b>	<b>SEA Process Criteria</b>	<b>European Union</b>	<b>Canada</b>	<b>Australia</b>	<b>New Zealand</b>
1.	Screening /Identify the Need	✓	✓		✓
2.	Scoping	✓	✓	✓	
3.	Environmental Baseline	✓	✓		
4.	Develop Alternatives To the Undertaking	✓	✓		✓
5.	Evaluate Alternatives	✓	✓		✓
6.	Select Preferred Alternative	✓	✓		
7.	Assessment of Environmental Effects	✓	✓	✓	✓
8.	Identify Mitigation Measures	✓	✓	✓	✓
9.	Monitoring/Follow-up	✓	✓	✓	✓
10.	Assessment of Cumulative Effects	✓	✓		
11.	Public and Stakeholder Consultation	✓	✓	✓	✓
12.	Adaptive Management			✓	
13.	Sustainable Development Consideration	✓		✓	✓
14.	Transboundry Effects	-	-	-	-

**Table 19. SEA Best Practices Identified by Scholars and Practitioners and International Development Agencies**

Item #	SEA Process Criteria	SEA Scholars and Practitioners	OECD <sup>4</sup>	World Bank	UNEP <sup>5</sup>	UNECE <sup>6</sup>
1.	Screening /Identify the Need	✓	✓	✓	✓	✓
2.	Scoping	✓	✓		✓	✓
3.	Environmental Baseline	✓	✓		✓	
4.	Develop Alternatives To the Undertaking	✓	✓	✓	✓	
5.	Evaluate Alternatives	✓	✓	✓	✓	✓
6.	Select Preferred Alternative(s)	✓	✓	✓	✓	
7.	Assessment of Environmental Effects	✓	✓	✓	✓	✓
8.	Identify Mitigation Measures	✓	✓		✓	✓
9.	Monitoring/Follow-up	✓	✓		✓	✓
10.	Assessment of Cumulative Effects	✓		✓		
11.	Public and Stakeholder Consultation	✓	✓	✓	✓	
12.	Adaptive Management	-	-	-	-	-
13.	Sustainable Development Consideration	✓	✓			✓
14.	Transboundary Effects					✓

4. Organization for Economic Co-operation and Development

5. United Nations Environment Programme

6. United Nations Economic Commission for Europe

**Table 20. SEA Best Practices Identified by Selected Case Studies**

<b>Item #</b>	<b>SEA Process Criteria</b>	<b>Bay of Fundy SEA</b>	<b>UK Offshore Energy SEA</b>	<b>Finspang Municipal Energy Plan</b>	<b>Browse Liquefied Natural Gas Precinct Plan</b>
1.	Screening /Identify the Need	✓	✓	✓	
2.	Scoping		✓		✓
3.	Environmental Baseline	✓	✓	✓	✓
4.	Develop Alternatives To the Undertaking		✓	✓	✓
5.	Evaluate Alternatives		✓		✓
6.	Select Preferred Alternative(s)	✓	✓		✓
7.	Assessment of Environmental Effects	✓	✓	✓	✓
8.	Identify Mitigation Measures	✓	✓		✓
9.	Monitoring/Follow-up	✓	✓	✓	
10.	Assessment of Cumulative Effects	✓	✓		
11.	Public and Stakeholder Consultation	✓	✓	✓	✓
12.	Adaptive Management				✓
13.	Sustainable Development Consideration	✓			✓
14.	Transboundary Effects		✓		

Based on the results from the literature review, the three tables above present the list of SEA process criteria that are identified as “best practices” in accordance with the definition provided in Section 3.1 of this paper.

#### 4.1.1 Selection of Best Practices SEA Criteria

All 14 criteria from the tables above were considered in the selection of the final list of best practices SEA criteria. The criteria that appeared in more than half of the 13 components<sup>7</sup> in the Tables 18 to 20 were selected as the final SEA best practices criteria. Table 21 presents the list of the twelve SEA process criteria that were carried forward as “best practices” and the rationale for their selection.

**Table 21. List of Best Practices SEA Process Criteria Carried Forward**

<b>Item #</b>	<b>SEA Best Practices Criteria Selected</b>	<b>Rationale for Selection / Importance in SEA</b>
1.	Screening /Identify the Need	The SEA criterion was common to eleven out of the thirteen components.  This criterion is important as it provides a clear answer whether a given strategic action requires SEA. At this stage of the SEA process, the purpose of and the need for the SEA are also established.
2.	Scoping	The SEA criterion was common to nine out of the thirteen components.  Scoping is the process of identifying, from a broad range of problems, a number of priority issues to be addressed in the SEA (Cooper and Sheate, 2004). This criterion is important as it establishes the key issues and objectives to be addressed by the SEA. During this step of the SEA process the focus is on defining the scope of the assessment of environmental effects, the significant issues and desired objectives to be addressed in the SEA (Therivel, 2004). Other relevant policies, plans and programs related to the subject SEA are also identified.
3.	Environmental Baseline	The SEA criterion was common to nine out of the thirteen components.  This criterion is key in identifying the existing environmental conditions for assessment purposes, including any environmental and sustainability issues and constraints.
4.	Develop Alternatives To the Undertaking	The SEA criterion was common to ten out of the thirteen components.  Alternatives To and their potential global environmental impact can only truly be assessed at the policy, plan or programme stage. In SEA, the focus is on identifying broad

7. As identified in Tables 18 to 20, the thirteen components reviewed as part of the three areas of literature review include: 1) European Union, 2) Canada, 3)Australia, 4) New Zealand, 5) SEA Scholars and Practitioners, 6) OECD, 7) World Bank, 8) UNEP, 9) UNECE, 10) the Bay of Fundy SEA, 11) the UK Offshore Energy SEA, 12) the Finspang Municipal Energy Plan, 13) the Browse Liquefied Natural Gas Precinct Plan.

Item #	SEA Best Practices Criteria Selected	Rationale for Selection / Importance in SEA
		range of Alternatives To. Identification of Alternatives To earlier in the decision-making process is key to better planning at the project-level EA. Consideration of Alternatives To at the project-level is often difficult, if not impossible (Wood and Djeddour, 1992).
5.	Evaluate Alternatives	<p>The SEA criterion was common to ten out of the thirteen components.</p> <p>This criterion is used for the comparative evaluation of the different SEA alternatives in terms of their potential environmental impact.</p>
6.	Select Preferred Alternative(s)	<p>The SEA criterion was common to nine out of the thirteen components.</p> <p>A preferred alternative is selected based on comparative evaluation of identified alternatives. Typically, the preferred alternative is the alternative that minimizes negative environmental effects and optimizes the positive.</p>
7.	Assessment of Environmental Effects	<p>The SEA criterion was common to all thirteen components.</p> <p>This criterion is important as it is used to predict and evaluate the possible environmental consequences of strategic actions. It also requires a judgement about whether the effect is significant and whether environmental limits would be exceeded (Theirvel, 2004).</p> <p>SEA aims to minimize negative impacts, optimize positive ones, and compensate for the loss of valuable features and benefits.</p>
8.	Identify Mitigation Measures	<p>The SEA criterion was common to ten out of the thirteen components.</p> <p>This process criterion involves the formulation of and description of mitigation measures for minimizing adverse environmental effects. Impact mitigation in SEA often takes other forms than end-of-pipe technology measures established during project-level EAs. It could include changing aspects of the strategic action to avoid the negative impact, influencing other organizations to act in certain ways, or setting constraints on subsequent project implementation (Theirvel, 2004).</p>
9.	Monitoring/Follow-up	<p>The SEA criterion was common to eleven out of the thirteen components.</p> <p>This criterion is key as it requires monitoring of the environmental effects of PPPs, which would lead to improvement of subsequent SEAs. Follow-up programs are typically developed to verify achievement of the identified</p>

Item #	SEA Best Practices Criteria Selected	Rationale for Selection / Importance in SEA
		SEA objectives.
10.	Assessment of Cumulative Effects	<p>The SEA criterion was common to six out of the thirteen components. Even though this criterion was common to less than half of the thirteen components, theoretically, as proven by SEA scholars, not understanding and considering the cumulative effects of proposed PPPs makes the SEA process purposeless. Therefore, this criterion was carried forward in the final list of best practices SEA criteria.</p> <p>This criterion includes impacts classified broadly as certain cumulative impacts, synergistic, ancillary impacts, regional impacts and non-project impacts.</p> <p>Assessment of cumulative effects at the strategic level is key because project-level EA does not effectively address the concern of gradual environmental degradation from a range of activities and interaction of multiple projects, programmes and policy decisions (Cooper and Sheate, 2004).</p>
11.	Public and Stakeholder Consultation	<p>The SEA criterion was common to twelve out of the thirteen components.</p> <p>Consultation during SEA provides an opportunity for input and facilitation between the public, stakeholders and other organizations involved in the formulation of PPPs.</p> <p>Successful and meaningful public participation is important to the success of the SEA. Consultation as part of SEA is fundamental because it provides the opportunity to determine the views of the general public on the nature and potential environmental implications of future developments.</p>
12.	Sustainable Development Consideration	<p>The SEA criterion was common to eight out of the thirteen components.</p> <p>Consideration of sustainable development as part of the SEA objectives is a key component of successful SEA (Gibson et al., 2010). Sustainability consideration includes the integration of broad environmental (biophysical, social, institutional and economic) issues as part of decision-making to create enabling development conditions (Partidario, 2012).</p>

#### 4.1.2 SEA Criteria Not Carried Forward as Best Practices

Two of the 14 criteria were not carried forward as “best practices” because they were common to only a few of the 13 components (refer to Table 22).

**Table 22. SEA Criteria Not Carried Forward as Best Practices**

Item #	SEA Criteria Not Carried Forward	Rationale for Elimination
1.	Adaptive Management	<p>The SEA criterion was common to only two out of the thirteen components: 1) Australia’s strategic assessments guidelines and 2) the Browse Liquefied Natural Gas Precinct Plan case study in Australia.</p> <p>The Australia Government, as part of its strategic assessments guidelines under the <i>Environment Protection and Biodiversity Conservation Act</i> discusses the need for ongoing adaptive management for continually improving management practices through learning from the outcomes of previous management. The Australian Government expects that this process be incorporated into the management of all conservation lands protected under a Program (Australian Government, 2011).</p> <p>The Strategic Assessment for the Browse Liquefied Natural Gas Precinct Plan (Government of Australia, 2012) includes a requirement for commercial proponents to incorporate monitoring and adaptive management programs into their operations.</p>
2.	Transboundary Effects	<p>The SEA criterion was common to only two out of the thirteen components: 1) the United Nations Economic Commission for Europe (UNECE) and 2) the UK Offshore Energy SEA.</p> <p>The UNECE’s SEA Protocol to the Espoo Convention discusses that SEA can facilitate transboundary cooperation and to address difficult issues and concerns related to shared protected areas, waterways, transport connections and transboundary pollution (UNECE, 2007).</p> <p>The UK Offshore Energy SEA took into consideration potential transboundary effects of the project because the area covered by the proposed plan/programme abuts the waters of all the UK’s immediate neighbours. The SEA report discusses that potential transboundary effects such as marine discharges, displacement of fishing activity, accidental oil spills etc., may be able to be detected in the waters of neighbouring states and need to be considered (DECC, 2009).</p>

## **4.2 Screening of the 2010 and 2013 Ontario Long-Term Energy Plans**

The final list of 12 best practices SEA criteria, as indicated in Table 21 above, were used to screen the 2010 and 2013 Ontario LTEPs and to identify if SEA considerations were incorporated as part of the preparation of these plans. The 12 SEA best practices criteria were used to develop screening criteria questions, defining what constitutes a “Yes” or “No” response during the application of the criterion. As such, the following twelve questions were developed for screening purposes:

1. Was the need for the Plan identified?
2. Was scoping conducted as part of the generation of the Plan?
3. Did the Plan describe the existing environmental baseline conditions?
4. Did the Plan consider ‘Alternatives To’?
5. Did the Plan include an evaluation of alternatives?
6. Did the Plan identify a preferred alternative(s)?
7. Did the Plan include assessment of environmental effects of its proposal?
8. Did the Plan identify measures to mitigate adverse environmental effects?
9. Did the Plan include a monitoring or a follow-up program?
10. Did the Plan include an assessment of cumulative effects?
11. Was public and stakeholder consultation carried out as part of the preparation of the Plan?
12. Did the Plan include consideration of sustainable development?

Table 23 presents the screening analysis of the 2010 and 2013 LTEPs with respect to the 12 SEA best practices criteria. Section 4.3 further discusses the results of the screening with respect to SEA.

**Table 23. Screening of the 2010 and 2013 LTEPs against SEA Best Practices Criteria**

Item #	SEA Screening Criteria	Long-Term Energy Plan 2010	Updated Long-Term Energy Plan 2013
1.	Was the need for the Plan defined?	<p style="text-align: center;"><b>Yes</b></p> <p>The Plan discusses the need to identify the future of Ontario’s energy system and supply mix for 2010 to 2030.</p> <p>The Plan identifies the types of energy that will meet the growing demand for energy in the Province and a balanced supply mix that is reliable, modern, clean and cost effective.</p>	<p style="text-align: center;"><b>Yes</b></p> <p>The updated Plan provides information on the status of the electricity system.</p> <p>The updated Plan aims to take a pragmatic approach considering that Ontario is in a surplus supply situation which presents an opportunity to consider how to address future electricity needs.</p> <p>As such the Plan is designed to balance five principles: cost effectiveness; reliability; clean energy; community engagement; and emphasis on conservation and demand management before building new generation.</p>
2.	Was scoping conducted as part of the generation of the Plan?	<p style="text-align: center;"><b>Yes</b></p> <p>The Plan outlines the priority issues to be addressed and the scope of the Plan, including an aging supply network, growing population, lack of electricity generation, need for clean coal-free generation and modernization of nuclear generators.</p> <p>The plan references other relevant policies, plans and programs such as the <i>Green Energy and Green Economy Act 2009</i>, the Ontario Clean Energy Benefit and Ontario’s Coal Phase-Out Plan.</p> <p>However, the Plan does not identify specific environmental issues that need to be addressed.</p>	<p style="text-align: center;"><b>Yes</b></p> <p>The scope of the plan builds on the foundation laid in the 2010 LTEP and it focusing on lowering the projected total system costs.</p> <p>The updated Plan recognizes some other initiatives such as the Ontario Clean Energy Benefit, the Feed-in Tariff program, Green Energy Investment Agreement, Industrial Accelerator Program and Ontario’s Coal Phase-Out Plan.</p> <p>However, the updated Plan does not identify specific environmental issues that need to be addressed.</p>

Item #	SEA Screening Criteria	Long-Term Energy Plan 2010	Updated Long-Term Energy Plan 2013
3.	Did the Plan describe the existing environmental baseline conditions?	<p style="text-align: center;"><b>No</b></p> <p>The Plan does not provide a description of the exiting environment and it does not identify relevant environmental and sustainability issues and constraints.</p> <p>The Plan provides a brief history of the state of the Province's electricity system up to the year 2010.</p>	<p style="text-align: center;"><b>No</b></p> <p>The Plan does not provide a description of the exiting environment and it does not identify relevant environmental and sustainability issues and constraints.</p> <p>The Plan identifies the current energy supply mix, which includes electricity generation and conservation.</p>
4.	Did the Plan consider 'Alternatives To'?	<p style="text-align: center;"><b>No</b></p> <p>The Plan does not present different scenarios (i.e., Alternatives To) for achieving the desired energy supply mix for 2010 to 2030 to address the anticipated electricity demand (i.e., the Plan's objective).</p> <p>Instead, the Plan presents various components that would comprise Ontario's electricity supply mix. The plan identifies the role each component will play as part of the supply mix. These components include coal, nuclear, hydroelectric, wind, solar, bioenergy, natural gas and combined heat and power.</p>	<p style="text-align: center;"><b>No</b></p> <p>The updated Plan does not present different scenarios (i.e., Alternatives To) for achieving the desired energy supply mix for 2010 to 2030 to address the anticipated electricity demand (i.e., the Plan's objective).</p> <p>The Plan presents updated information from the 2010 Plan on the various electricity supply mix components and presents a greater focus on conservation initiatives.</p>
5.	Did the Plan include an evaluation of alternatives?	<p style="text-align: center;"><b>No</b></p> <p>The Plan does not present an evaluation of different scenarios or of the different components for achieving the desired energy supply mix.</p>	<p style="text-align: center;"><b>No</b></p> <p>The updated Plan does not present an evaluation of different scenarios or of the different components for achieving the desired energy supply mix.</p>
6.	Did the Plan identify a preferred alternative(s)?	<p style="text-align: center;"><b>Yes</b></p> <p>The Plan presents the preferred energy supply mix and its components, including its conservation strategy and planned transmission projects.</p>	<p style="text-align: center;"><b>Yes</b></p> <p>The updated Plan presents the preferred energy supply mix and its components, including its conservation first strategy, new transmission projects and enhancements, opportunities for clean imports.</p>

<b>Item #</b>	<b>SEA Screening Criteria</b>	<b>Long-Term Energy Plan 2010</b>	<b>Updated Long-Term Energy Plan 2013</b>
7.	Did the Plan include assessment of environmental effects of its proposal?	<b>No</b> The Plan does not assess the environmental effects of the preferred energy supply mix and its components.	<b>No</b> The updated Plan does not assess the environmental effects of the preferred energy supply mix and its components.
8.	Did the Plan identify measures to mitigate adverse environmental effects?	<b>No</b> Since the Plan does not assess the environmental effects of the proposal, there were no mitigation measures to be identified.	<b>No</b> Since the Plan does not assess the environmental effects of the proposal, there were no mitigation measures to be identified.
9.	Did the Plan include a monitoring or a follow-up program?	<b>No</b> The Plan does not identify a monitoring or follow-up program with respect to environmental effects. However, the Plan includes a commitment for the preparation of updates to the Plan every three years.	<b>No</b> The Plan does not identify a monitoring or follow-up program with respect to environmental effects. However, the updated Plan includes a commitment for the preparation of an annual Ontario Energy Report which will update the public on changing supply and demand conditions and on the progress to date on the Long-Term Energy Plan.
10.	Did the Plan include an assessment of cumulative effects?	<b>No</b> The Plan does not take into consideration the potential effects of other proposed plans or proposals on the broader environment (i.e., cumulative effects).	<b>No</b> The Plan does not take into consideration the potential effects of other proposed plans or proposals on the broader environment (i.e., cumulative effects).
11.	Was public and stakeholder consultation carried out as part of the preparation of the Plan?	<b>Yes</b> The Plan was informed by public and stakeholder consultations as well as advice from the Ontario Power Authority. More than 40 stakeholder sessions were held and over 2,500 online responses were received.	<b>Yes</b> The updated Plan includes a more comprehensive consultation program than the 2010 Plan. In advance of the 2013 Plan, the government conducted consultations in 12 different communities to gather public feedback on energy issues. Meetings were also held with representatives of over 90 First Nation and Métis communities and organizations in 10

Item #	SEA Screening Criteria	Long-Term Energy Plan 2010	Updated Long-Term Energy Plan 2013
			<p>engagement sessions across Ontario.</p> <p>More than 1,000 submissions and comments were received, primarily through the online Environmental Registry, and almost 8,000 people participated in an online survey.</p>
12.	Did the Plan include consideration of sustainable development?	<p style="text-align: center;"><b>Yes</b></p> <p>The Plan recognizes that a “<i>good system planning includes a sustainable supply mix that meets the demands of the public</i>”. The Plan takes into consideration sustainability as part of its energy supply by including more renewable energy sources, hydroelectricity and conservation programs. The plan also highlights the provincial government’s plan for phasing out coal which would lead to decreased greenhouse gas emissions.</p> <p>The Plan identifies that the presented energy supply mix balances “<i>reliability, cost and environmental performance</i>”.</p> <p>Form a SEA perspective, however, the plan does not explore the environmental concerns raised by its proposals.</p>	<p style="text-align: center;"><b>Yes</b></p> <p>The updated Plan has a more sustainable outlook in terms of its energy supply mix. The Plan presents a ‘conservation first’ initiative and building new generation when needed, providing for greater electricity savings. The Plan also identifies more sources of renewable energy (including energy storage) and less reliance on nuclear generation. These objectives are more sustainable, more cost-effective and more flexible.</p> <p>The Plan highlights that Ontario “<i>will continue to invest in new renewable generation, and explore flexible options such as storage technologies by applying balanced planning principles in a measured and sustainable way</i>”.</p> <p>Form a SEA perspective, however, the plan does not explore the environmental concerns raised by its proposals.</p>

## 4.3 Discussion of Results

### 4.3.1 Evaluation of Strengths and Weaknesses of the LTEP with Respect to SEA

Based on the analysis presented in Table 23, the 2010 and 2013 LTEPs exhibit various strengths and weaknesses.

*Screening/Identify the Need:* Both documents present the need for conducting the Plan. The Plans also include a description of their overall purpose and the goals to be achieved. In SEA, identification of the need of the PPPs is a key element to be assessed (Partidario, 1996).

*Scoping:* Both Plans identify the key issues to be addressed and the objective of the Plans in terms of identifying a preferred energy supply mix to address anticipated demand for electricity generation. The Plans also make connections to other relevant policies considered as part of preparation of the plan, including the *Green Energy and Green Economy Act 2009*, the Ontario Power Authority's Feed-in Tariff Program, Ontario's Coal Phase-Out Plan, the Ontario Clean Energy Benefit and more.

With respect to SEA, to ensure that SEA contributes to sustainability, the scope of SEA must be wide-ranging in terms of the concept of the environment (covering ecosystems, communities and natural and physical resources) and in terms of the type of impacts considered such as ecological, physical, social, cultural and economic (Partidario, 1996). As such, even though both Plans identify their scope, it appears to be limited from a SEA perspective. In addition, the objectives set by both Plans do not include explicit sustainability objectives in terms of environmental protection, consideration of social issues and economic resources and benefits.

*Environmental Baseline:* The goal of describing the baseline environment is to gain an understanding for what environmental problems may exist, and to provide a basis for future impact predictions and monitoring (Therivel, 2004). Both Plans identify the existing state of Ontario's energy system. However, the Plans do not describe the existing environmental conditions (physical, biological, socioeconomic and cultural environments). Establishing the environmental baseline in SEA is a key component for identifying the potential environmental impacts of alternatives (e.g. potential energy supply alternatives) and for assessment of the environmental effects of the preferred alternative/strategic action (Jay, 2010).

Alternatives Consideration, Evaluation and Identification of a Preferred Alternative: In SEA, this step involves consideration whether the objectives of a strategic action could be achieved by other means (i.e., Alternatives To) (Jay, 2010). Strategic alternatives consideration (i.e., Alternatives To) and assessment are considered to be fundamental components of good practice SEA and a core components to the development of improved energy sector PPPs (White and Noble, 2012; White and Noble, 2013). The objective of SEA is to identify alternatives that are more sustainable, least negative and more in line with existing PPPs and projects, and that trigger less significant environmental change (Noble, 2006). With this in mind, both Plans do not present different scenarios for achieving a balanced energy supply mix, instead both Plans simply identify the preferred way for achieving their objectives. Further, the Plans do not consider or evaluate different strategies or scenarios for achieving the defined objective (i.e., to identify a preferred energy supply mix to address anticipated demand for electrical generation), nor did they consider a “do nothing” option. Both Plans simply present the preferred energy supply mix and its desired components. Therefore, in terms of alternatives consideration, both Plans exhibit a fundamental weakness from a SEA perspective.

Impact Assessment and Mitigation: Both Plans do not undertake an assessment of environmental effects of the preferred energy supply mix and since no impacts were identified, there are no mitigation measures to be identified either. High level assumptions and discussions are presented in terms of environmental benefits such as reduction of greenhouse gases due to greater focus on renewable and economic benefits such as job creation.

Cumulative Effects Assessment: Both Plans do not discuss the potential effects of other proposed plans or proposals on the broader environment or impacts from incremental changes caused by the LTEPs together with other past, present or reasonably foreseeable actions (i.e., cumulative effects). Assessment of cumulative impacts of other proposals is considered an important tool for improving the efficiency of assessment of environmental impacts and could reduce the number and complexity of project-level EAs (Runhaar and Driessen, 2007). Cumulative effects assessment is a key component of the SEA process as it addresses environmental concerns of multiple past, present and future activities, policies, plans and projects.

Monitoring and Follow-up: Both Plans do not identify a specific monitoring or a follow-up program to be undertaken with respect to environmental effects because no impact assessment

was carried out and no mitigation measures were identified. Both Plans, however, highlight the need for preparing updates to the plan on a regular basis.

*Public and Stakeholder Consultation:* Both Plans involved the public, stakeholders and First Nations in a consultation process as part of the development of the LTEP. The Ontario government undertook a more comprehensive consultation program in advance of the 2013 Plan compared with the 2010 Plan, which included consultations in 12 different communities to gather feedback on energy issues. Meetings were also held with representatives of over 90 First Nation and Métis communities and organizations in 10 engagement sessions across Ontario. More than 1,000 submissions and comments were received, primarily through the online Environmental Registry, and almost 8,000 people participated in an online survey.

Public and stakeholder involvement is a fundamental element of the SEA process (Partidario, 1996). Through the involvement of interested parties and the public, decision makers can, at an early stage, identify and address public concerns about a proposed action that could otherwise lead to delays or the need for further analysis later in the process. In addition, stakeholders and the public can be an important source of local and traditional knowledge about likely environmental effects (Government of Canada, 2004).

*Sustainability Consideration:* Filipa and Partidario (2012) suggest that the global trend towards sustainable development includes a transition in the energy paradigm, moving away from the combustion of fossil fuels and focusing on renewables as the solution to reduce greenhouse gas emissions. Filipa and Partidario (2012) further describe this notion as a reduction of the dependence on external energy resources, by using renewable resources and focusing on increased energy efficiency, without compromising the human development and assuring the protection of the environment.

Both Plans consider sustainability as part of the presented energy supply mix by including more renewable energy sources, hydroelectricity and conservation programs. The 2013 Plan for example, presents a new “conservation first” initiative and suggests that putting conservation first and supplementing it with a diversified portfolio of green energy sources, can be more beneficial in terms of costs than renewed investment in nuclear stations where the costs would continue to increase (The Pembina Foundation, Greenpeace Canada and the Pembina Institute,

2013). The Plan focuses on conservation and demand responses as key elements in the supply mix and includes a greater supply of renewable energy with the goal that renewable energy would represent half of Ontario's installed capacity by the year 2025. Putting conservation first and reducing future demand for electricity allows for a slower, more incremental approach to building new generation as needed. Renewable energy projects tend to be built in smaller and more diverse increments than larger nuclear facilities. The 2013 Plan suggests that new generation can be built out in a manner that better reflects changes in demand. This approach is more flexible and more sustainable (The Pembina Foundation, Greenpeace Canada and the Pembina Institute, 2013). The 2013 LTEP emphasises that "*diverse and resilient, green energy is a sustainable, low-carbon way to meet Ontario's energy needs at a more affordable cost*" (Ontario Ministry of Energy, 2013).

The energy sector is one of the most transversal sectors, where a large number of high level political aspects and social and environmental considerations must be accounted for to provide direction toward sustainable development. SEA aims to enhance considerations regarding the environment and sustainable development in the early stages of decision-making (Runhaar and Diressen, 2007). Therefore, SEA can provide support in the decision-making for energy systems (Filipa and Partidario, 2012).

Partidario (1996) suggests that for SEA to be an effective tool in achieving sustainability, two issues must be addressed by SEA: i) the relationship between local, short-term uses of the environment and long-term productivity and cumulative effects must be specified; and ii) the identification of significant irreversible changes must be included. With this concept in mind, a key weakness of both the 2010 and 2013 Plans is that they did not explore and evaluate these issues from a sustainability perspective.

Overall, both the 2010 and 2013 LTEPs exhibit some elements of SEA, including identification of the need and objectives and scope, identification of preferred alternative, public and stakeholder consultation program and some consideration of sustainability. The weaknesses of the Plans with respect to SEA, discussed above, signify that neither of the two Plans was developed with SEA in mind in terms of approach, process and best practices. In addition, the two key SEA criteria – i.e., "Alternatives To" and cumulative effects, were not considered as

part of the planning process of the Plans. This is a critical omission, since these criteria are the most important strategic elements of the SEA process.

One issue arising as a result of the lack of SEA consideration as part of the development of the LTEP, and the associated *Green Energy Act*, is related to the measures introduced to stimulate renewable energy growth. One of these measures is the streamlining of several energy project approval processes into a single Renewable Energy Approval (REA) (Government of Ontario, 2012). The other is the introduction of a Feed-in Tariff (FIT) program by the OPA that offers long-term contracts at generous rates for renewable energy projects selling power to the electricity grid. In a rush to promote renewables in Ontario, FIT contracts were signed before any type of environmental assessment was completed, leading to an “accomplished fact” perception for these projects. Moreover, with the provincial government limiting local municipal government land use powers, opposition to what were seen as “pre-approved” projects emerged, creating a public backlash against renewable energy projects, particularly wind power projects (Manning and Vince, 2010). This example shows that not undertaking SEA as part of the development of the 2010 and 2013 LTEPs is a missed opportunity for Ontario in terms of the benefits associated with SEA and how early decisions made by the Province could have resulted in better environmental outcomes and enhanced community support for renewable energy projects.

#### **4.3.2 Strategic Environmental Assessment for the Energy Sector**

SEA is a procedural tool that can be used to facilitate strategic decision and integration of environmental issues in the context of sustainability. The energy sector is linked to the greatest use and exploitation of natural resources for generation purposes. A large number of political, social, environmental and economic considerations must be an intrinsic element of policy formulation and development of sustainable energy systems (Partidario, 1996). Thus, implementing SEA early on as part of the energy planning process is important so that strategic decisions can take place as part of the development of energy policies and systems that are sustainable (Filipa and Partidario, 2012). Stakeholder involvement as part of the SEA process is also essential to covering all dimensions related to the core issues of energy policy.

While SEA could be used to integrate environmental considerations and sustainability in the energy planning process, SEA also plays a significant role in the development of solutions. Filipa and Partidario (2012) suggest that if SEA is integrated early on in the development of energy PPPs, it can effectively contribute to the development of proposal goals, objectives and principles and can lead to improved decisions (Filipa and Partidario, 2012). Carrying out SEA of PPPs can lead to the development of many individual energy development projects.

Jay (2010) suggests that there is a growing interest in SEA as a tool for incorporating environmental and sustainability considerations into energy systems development. The challenge, however, of implementing SEA into the energy sector is the absence of regulatory pressure to practice SEA.

Partidario (1996) suggests that open and flexible political and institutional structures are key conditions for effective development and implementation of SEA systems and to ensure good quality information provided, an open and transparent consultation process is followed, that political authorities are made accountable and that the results of SEA are considered in the decision-making. Partidario (1996) agrees that countries that have open and flexible political and cultural structures, such as New Zealand and the flexible system created under the *RMA*, are more likely to have established conditions for development of sound environmental policies and clearly identified environmental objectives.

Implementing SEA at a higher policy-level, where government bodies set the broad framework for the development of energy infrastructure, including energy mixes, location and scale of development, future trends are critical in terms of promoting strategic thinking at the highest level of decision-making. SEA is considered significant at the policy level, as policy sets the conditions for all downstream activities, expressed in subsequent plans and programs. Jay (2010) suggests that for SEA to become properly embedded within the energy sector, priority must be given to undertaking strategic-level assessment at the policy level. The current pressure to develop national energy policies in light of climate change and energy security concerns and the potential for significant impacts on energy infrastructure and for environmental resources, make this issue more urgent (Jay, 2010).

### **4.3.3 Ontario Energy Policy and Strategic Environmental Assessment**

The energy policy problems in Ontario are not a matter of having a shortage of supply, but that of having excess supply which is not managed properly. Energy planning must first begin by identifying the energy needs of the future and with a clear understanding of the current amount of energy used, the forms of energy used and the quality of energy needed to fuel our modern industrial economy.

Concluded first in a series of discussions by McKay (1983), the main obstacle to an energy-efficient future in Ontario is the lack of strategic decision-making at the institutional level. Ontario has had a relatively abundant energy supply and the Province has been promoting even larger supplies of energy under the assumption that demand will always grow enough to absorb that supply (Brooks, 1981). As such, energy policy has been developed on the assumption that each year the Province will need more energy than the year before. Thus, the focus has been on where the energy will come from and how will it be paid for. Long-term energy planning initiatives in the past have all overestimated long-term electricity demand growth. Conclusions as discussed in the updated 2013 LTEP, confirm that in recent years Ontario has experienced a decline in electricity demand, due to in part to the Province's successful conservation programs (The Pembina Foundation, Greenpeace Canada and the Pembina Institute, 2013).

In order to achieve a sustainable and efficient energy future, Ontario's energy sources should be identified in terms of the quantity and quality required. Energy efficiency must be made a priority and the overdependence on an inefficient energy delivery system (i.e., pipelines, refineries and transmission lines) must be reduced. Ontario has a great abundance of natural resources that can provide the basic building blocks of a strong, sustainable economy based on renewable resources. The Province must expedite the shift from the reliance on non-renewable fossil fuels and uranium to sustainable renewable sources of energy.

The mistakes of Ontario Hydro demonstrate that energy policy development in Ontario must consider the following:

- the need to provide an adequate supply of power for the Province;
- the need to effectively manage electricity demand;

- the need to ensure that the power system is politically accountable to the people who use it.

From an economic, environmental and social perspective, the strategic objective of energy policy in Ontario would be to shift from capital-intensive and highly-centralized forms of energy to stabilizing energy consumption and having an annual rate of energy consumption that remains unchanged from one year to the next (i.e., zero energy growth) (Brooks,1981).

In the last two decades, energy policy in Ontario has seen a shift from its highly centralized energy policy to a decentralized energy philosophy. This has occurred since the split of Ontario Hydro in 1999 and has also been recognized through the Ontario Liberal Government's introduction of the 2009 *Green Energy and Green Economy Act* which has led to an increased stimulus for renewable sources of energy. Ontario's major energy institutions, however, have not been overly concerned of the real needs of the Province and Ontario's existing energy policy has been used to protect the narrow interests of a powerful bureaucracy.

The missed opportunity for the provincial government to undertake SEA as part of its 2010 and 2013 LTEPs shows the non-committal approach of the government regarding policy development in the absence of regulatory requirements. The avoidance of disclosure and the nature of political power make SEA of PPPs a difficult task to accomplish in Ontario.

As explored in this MRP, many different nations are moving towards policy convergence and increased implementation of SEA. The Ontario Government should also consider incorporating SEA best practices as part of the development of PPPs in the energy sector. Further, the provincial government should consider the development of a general SEA regulation and a guideline document describing the means and methodology for carrying out best practice SEA for PPPs that can be utilized by both government agencies and private proponents when conducting SEA.

## **5. Conclusions and Future Considerations**

The results of this study identify an opportunity for advancement of SEA in energy sector planning. Research and practice of SEA show strong evidence of the added value that SEA and SEA-like processes bring to energy planning and policy development (White and Noble, 2012).

Future research should focus on examining benefits that SEA can provide with respect to energy sector policy development and planning and on bringing awareness to decision-makers regarding the role of SEA and the importance of its timing in the PPP process (White and Noble, 2013).

In addition, there is an opportunity to conduct further research focusing on identifying the gaps in SEA methodology and best practices guidance. Partidario (1996) suggests that practitioners need to be better informed about the principles, concepts and methods for SEA and better advised on how conducting SEA is a simple and effective way to good environmental performance.

In SEA, ‘Alternatives To’ is considered to be a key criterion and a fundamental part of good practice. White and Noble (2012) express that there is a clear need for the promotion of “Alternatives To” consideration in SEA application in the energy sector and suggest that the existing process is restrictive. To accomplish this, the benefits from “Alternatives To” consideration in SEA in the electricity sector policy and planning practices need to be better demonstrated and documented especially since many SEAs of PPPs tend to be undertaken informally outside the scope of existing legislation and specific government directives (White and Noble, 2013).

General SEA guidance needs to be developed for planners and government authorities that would identify how and when to apply SEA and in order to maximize the benefits and effective application in the PPP development process and that can be used to ensure consistent and effective application of SEA (White and Noble, 2012). Sadler et al. (2011) suggest that there is also a need to develop sector-specific guidance on SEA as it would provide a level of detail for sectoral application of SEA that general guidance cannot give. It would also be convenient for the user as it would immediately provide information and instructions for the type of SEA process in which they are involved.

As such, Ontario can benefit from establishing a formal legislative framework and regulation by the provincial government that would outline the requirements for undertaking SEA in general. The provincial government should also develop SEA-specific guidance documents for the various sectors, including the energy sector. The SEA guidance for the energy sector would outline SEA best practices, a framework and methodology for developing energy sector PPPs and would ensure consistent and effective application of SEA by government agencies, planners and private proponents.

Strategic thinking via SEA at the highest policy-making level, where governmental authorities set the broad framework for the development of energy infrastructure, consideration of energy supply mixes, options for the location and scale of energy projects and anticipate future trends, is paramount, as policy sets the conditions for downstream activities which are eventually expressed in the specific energy plans and programmes.

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