



CANADIAN ENVIRONMENTAL LAW ASSOCIATION
L'ASSOCIATION CANADIENNE DU DROIT DE L'ENVIRONNEMENT

REVIEW OF ALTERNATIVES IN DARLINGTON NEW BUILD ENVIRONMENTAL IMPACT STATEMENT

Report to Safe And Green Energy (SAGE)

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October 7, 2010

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Re: REVIEW OF ALTERNATIVES IN DARLINGTON NEW BUILD ENVIRONMENTAL IMPACT STATEMENT

ISSUE: Is there an obligation on the proponent, OPG, to consider a functionally different alternative to the project of building a new nuclear generating station at Darlington and has that obligation been met.

CONCLUSION: By failing to consider functional alternatives to the project; and by failing to properly describe the purpose of the project; as well as by failing to properly describe the need for the project, the proponent, OPG and its EIS have failed to meet the requirements of the CEAA. The OPG and its EIS have also failed to meet the requirements of the EIS Guidelines issued in respect of this project and have accordingly further failed to meet the requirements of CEAA.

BACKGROUND:

The Darlington EIS dated September 2009 was issued by OPG in support of the Environmental Assessment of the New Nuclear – Darlington project (defined to include site preparation, construction, and operation). The EIS states that it was prepared by OPG at the direction of the province of Ontario, and is consistent with the Integrated Power System Plan. It should be noted however, as will be discussed further below, the IPSP has not been approved, and the public hearing on the IPSP was put into abeyance. The EIS states that a range of reactor designs is being considered by the Province of Ontario; in fact the Province undertook a process of obtaining bids for new nuclear in the province, but has since suspended that process, a fact which the EIS acknowledges.

The Darlington EIS does not consider any alternative forms of electricity generation other than the proposal to build a new Nuclear Generating Station at the Darlington site. The alternative means considered are alternatives to individual components within the new-build project, for example such as alternative reactor designs; alternatives to cooling; alternatives for used fuel storage, and the like, as opposed to functional alternatives such as conservation, demand management and provision of electricity by renewable power.

This report will also refer to a report prepared for SAGE by Pembina Institute (cite), referred to herein as *Pembina* (Haines, Anderson and Weis, July, 2010).

As Pembina noted in the introduction to their report,

“This EIS considers nuclear power as the only option and does not look at any alternative ways to meet the demand, an approach that stems from provincial directives issued in 2006. Since 2006 the assumptions surrounding nuclear power have changed significantly. It is increasingly

clear that a portfolio of renewable energy, energy efficiency and combined heat and power (CHP) systems can provide a similar contribution to Ontario's electricity needs, and should be considered as a functionally different way to meet the project need and achieve the intended purpose." (Pembina at 1.1)

We write to examine the legal basis for this argument.

The proponent, OPG has asserted in their EIS that the purpose of, and need for the "project" is to fulfill a directive issued by the then Minister of Energy in June 2006:

"The Ontario Government announcement directed the OPA to ensure adequate baseload electricity supply, while maintaining the nuclear generation component of that baseload at today's level of 14,000 MW of installed capacity.

Recognizing that maintaining the current level of nuclear baseload through 2025 would require a combination of refurbishment of existing units and construction of replacement units, and given the long lead times required for licensing approvals of these activities, I am directing OPG to:

a) begin feasibility studies on refurbishing its existing nuclear units. As part of this initiative, OPG is directed to also begin an environmental assessment on the refurbishment of the four existing units at Pickering B, and

b) begin a federal approvals process, including an environmental assessment, for new nuclear units at an existing site."

The EIS states that the purpose of the project is to fulfil that 2006 Directive from the then Minister of Energy.

The EIS states that this purpose has been clarified since then (page I-6).

"OPG's responsibilities pursuant to the directive have been clarified on two occasions by the Province. Firstly, on April 16, 2007, the Minister of Energy wrote to OPG to confirm that the Province supported OPG's proposal, as contained in the Project Description, to specify an upper bound of 4,800 MW for the new build nuclear plant at the DN site. In that letter, the Minister referenced the provincial government's acknowledgement of the EA process as a planning tool and explicitly identified that the upper bound of 4,800 MW for this Project would provide the provincial government with flexibility in its long-term planning to determine the mix of refurbishment and/or new build that would be implemented by the Province, depending on respective feasibility, to maintain the nuclear component of its plan."

"Secondly, on June 16, 2008, the Province further clarified OPG's responsibilities under this directive by announcing the selection of the DN site as the location for Ontario's new nuclear plant. In that announcement, the Province also clarified that as part of Ontario's planned nuclear component of 14,000 MW, the Bruce Power site would continue to contribute approximately 6,300 MW, either through refurbishment of existing units or the construction of new units. The need for the NND Project has been determined by the Province of Ontario and its energy policy, and OPG has been assigned responsibility for obtaining the necessary approvals

for it. Specifically, this Project will fulfill OPG's responsibilities under the "new unit" component of the Province's directive (item b) and, if approved, the Project will be available to the Province to be implemented to assist in maintaining the baseload nuclear generation capacity of 14,000 MW. The Project also reflects the Province's selection of the DN site as the location for the new nuclear facility and the selection of OPG as the operator."

We would suggest that a "directive" cannot constitute a purpose within the meaning of the CEAA. We would also submit that the Directive in no way limits or defines the project in order to avoid the requirement of consideration of need for the project (such as whether the specified baseload generation capacity is required from nuclear generation); nor to avoid consideration of the alternatives to the project (such as alternatives to baseload electricity generation from nuclear generation; or even whether 50% of the electricity system needs to be baseload).

On the contrary, in our submission, by requiring OPG to begin the federal environmental assessment process, the directive and the Ontario policy by necessary implication required a consideration of the factors that the CEAA (in conjunction with the EIS) requires to be considered. This would include a statement of the purpose of the project, the need for the project, alternatives to the project and alternative means of carrying out the project. To interpret the provisions of CEAA as urged by the OPG leads to a tautology where there would be no meaning to the statute and the environmental assessment process. If the request by the province to carry out an environmental assessment is interpreted as meaning that the province's directive itself constitutes the purpose and does not otherwise require an assessment of section 16 factors such as functional alternatives to the project, then there would be no meaning to the provisions of section 16 and responsible authorities would be unable to fulfill their duty to consider those factors.

As previously submitted, a directive is not a purpose or a need within the meaning of those terms in CEAA. But given that the proponent relies on that Directive as its purpose, it is relevant to consider whether circumstances have changed since 2010.

At the time that the Darlington EIS was issued, Ontario had not yet introduced the *Green Energy and Economy Act*. At the time of issuance of the Darlington EIS, pursuant to earlier amendments to the *Electricity Act* (2004), the Ontario Power Authority (also referred to as OPA herein), an entity set up under the 2004 amendments, had prepared an electricity plan for Ontario called the "Integrated Power System Plan," (IPSP) and had submitted that Plan to the Ontario Energy Board (OEB) for approval.

The 2004 amendments to the *Electricity Act* gave the Minister of Energy authority to issue "Directives" to the Ontario Power Authority, that have been approved by the Lieutenant Governor in Council, to set out goals to be achieved during a period covered by an integrated power system plan, for among other things,

“a) the production of electricity from particular combinations of energy sources and generation technologies;

b) increases in generation capacity from alternative energy sources, renewable energy sources or other energy sources; . . .”

In accordance with this authority, then Minister of Energy, Dwight Duncan, issued a supply mix directive on June 13, 2006, to the Ontario Power Authority which called on the OPA to “plan for nuclear capacity to meet base-load electricity requirements but limit the installed in-service capacity of nuclear power over the life of the plan to 14,000 MW” (*Pembina* 1.2); a further directive issued three days later directed OPG to begin a federal approvals process, including an environmental assessment, for new nuclear units at an existing site (*Pembina* 1.2).

As noted earlier, the EIS states that the purpose of the project is based on the June 16, 2006 directive.

After commencing public hearings on the IPSP, the Ontario Power Authority received a directive from then Minister George Smitherman dated September 17, 2008, amending the 2006 directive and requesting that the Ontario Power Authority reconsider and increase the proportion of electricity generation from renewable energy that would be provided in Ontario; and to reconsider and increase the amount of electricity conservation that would be obtained in Ontario.

The Pembina report outlined the main aspects of this 2008 Directive in its report as follows:

“Highlights of the updated directive include:

- Emphasis on increasing the amount and diversity of renewable energy sources in the supply mix.
- Improvement in transmission capacity to create opportunities for renewable energy.
- The availability of distributed generation.
- The viability of using pumped storage to help meet peak demand.
- Ability to accelerate conservation targets in the original IPSP.” (*Pembina Report* 1.3)

The Ontario Power Authority communicated the 2008 Directives to the Ontario Energy Board, and the OEB suspended its public hearing into the IPSP pending the OPA’s response to these directives and provision of a new IPSP with revised figures for energy generation from renewables, and for energy conservation.

A new IPSP has to the date of this report not yet been provided. The prior draft IPSP was suspended and has never been approved.

As the Pembina Report noted,

“The updated directive dated September 17 does not set a target for nuclear power, however it does require an increased role for renewable power. Whether or not this increase is possible with the old nuclear targets needs to be examined.” (*Pembina Report* 1.3)

In the meantime, in 2009 the Ontario government passed new legislation dealing with both renewable energy and energy conservation, among others, namely the *Green Energy Act*. This legislation was proclaimed in 2009. It was designed, among other things, to promote and enable electricity generation from renewable energy sources; and to increase and promote conservation of electricity consumption. The *Green Energy Act* included a new power for the Minister in respect of directives regarding renewable energy, demand reduction and conservation of electricity:

“(4.1) The Minister may direct the OPA to undertake any request for proposal, any other form of procurement solicitation or any other initiative or activity that relates to,

- (a) the procurement of electricity supply or capacity derived from renewable energy sources;
- (b) reductions in electricity demand; or
- (c) measures related to conservation or the management of electricity demand.” (*Electricity Act, 1998 as amended, section 25.32 (4.1)*)

As described in more detail in the Pembina report, subsequent directives issued by the Minister of energy in 2009 and 2010 have required development of a “Feed In Tariff” program to encourage renewable energy projects in the province of Ontario, procurement of conservation and demand management programs to reduce electricity consumption, and assignment of responsibility for conservation targets among Ontario’s electricity utilities. And as of the fall of 2010, the Ontario Ministry of Energy is conducting a form of public consultation which the current Minister has stated will inform additional directives which he anticipates issuing in the next several months.

These developments are all significant changes to the Ontario electricity policy landscape and these additional policy decisions, legislation and directives are not considered in the Darlington EIS. As a result of these significant changes, considerable progress has been made in contracting for renewable power generation for Ontario using the new tools under the GEA. In addition to significant contracts for renewable electricity generation which have been entered into under the Feed In Tariffs program, the micro-FITs program, and previous standard offer contracts, the Ontario Power Authority states that it is in the process of implementing significant measures in response to the conservation directives as of January 2011.

An additional highly significant change which must be included in the Panels consideration of the factors mandated by section 16 of CEAA and the EIS Guidelines is the analysis which is conducted by the Integrated Electricity System Operator (IESO) as to present and forecasted demand for electricity in the province of Ontario. The IESO is an agency established under the *Electricity Act*, and mandated to coordinate electricity system usage across the province. Among other things, the IESO monitors electricity usage and demand, conducts analysis, and predicts future electricity demand in the

province. Current statements from the IESO indicate that both current and forecast demand for electricity in Ontario are significantly below the figures which were available in 2006.

These recent developments in the Province of Ontario constitute a series of material circumstances / factors which have changed, including the state of Ontario provincial policy with respect to Ontario's electricity supply which are summarized as follows:

- Passage of the *Green Energy and Economy Act*
- Increase in amount of contracted renewable power
- Increase in amount of available and expected renewable power
- Decreasing costs of available and expected renewable power
- Additional opportunities for combined heat and power projects to meet a portion of the electricity demand
- A new approach to developing transmission in the province so as to be able to take advantage of additional renewable power
- Increase in amount of expected electricity conservation and reduction in electricity demand by demand management
- Issuance of Directives for renewable power and conservation by the Minister of Energy and Infrastructure
- Prediction from the IESO that electricity demand in the province will decrease relative to previous expectations
- Major contracting of renewable energy production facilities for the province
- Receipt of bids for new-build nuclear power which far exceeded Ontario's expectations as to price
- The suspension by the province of the process of obtaining bids as to which technology would be utilized for any potential new-build nuclear power

Given these changes, it is imperative that the project proponent, Ontario Power Generation (OPG) be required to include consideration of alternatives to a new-build project in its Environmental Impact Statement, and in particular, to include robust consideration of the availability of additional generation by renewable power - both as contracted to date, and with respect to additional potential in the province; natural gas industrial co-generation; and to include robust consideration of the availability of additional conservation as an alternative to new-build.

As Pembina stated in its report:

“As of the writing of this analysis (June 2010), the OPA has not yet produced an IPSP stemming from the September 17, 2008, directive. Without the new plan, the role of nuclear moving forward is not defined. As such, an EIS should consider alternative options to the proposed project. This is not the case in the EIS put forward by OPG.”

ANALYSIS OF THE APPLICABLE PROVISIONS OF THE CANADIAN ENVIRONMENTAL PROTECTION ACT

The *CEAA* is intended to ensure that environmental factors are integrated into federal planning and decision making. (See Canadian Environmental Assessment Act, An Annotated Guide; Hobby, Beverly and Lambrecht, Kirk, Canada Law Book)

Its purposes include:

“to encourage responsible authorities to take actions that promote sustainable development and thereby achieve or maintain a healthy environment and a healthy economy.” (*CEAA* section 4(1)(b))

“Sustainable development” is defined in *CEAA* as “development that meets the needs of the present, without compromising the ability of future generations to meet their own needs.”

Those actions by responsible authorities are intended “to achieve or maintain a healthy environment and a healthy economy.”

The Act rightly requires an environmental screening or comprehensive study of a project and every mediation or assessment by a review panel to include a consideration of certain factors in order to determine whether the proposal is consistent with the purposes of *CEAA* and whether the Responsible Authority should take an action to allow the proposal to proceed.

These factors are specified in the Act. For example, section 16 of the *CEAA* requires that the review panel consider, among other factors,

“(e) any other matter relevant to the screening, comprehensive study, mediation or assessment by a review panel, *such as the need for the project and alternatives to the project*, that the responsible authority or . . . the Minister may require to be considered” (section 16(1)(e)).

In addition, the Act sets out additional factors that *must* be considered in an assessment by a review panel. This includes,

- (a) “the *purpose* of the project;
- (b) *alternative means* of carrying out the project that are technically and economically feasible and the environmental effects of any such alternative means . . .
- (c) . . . follow-up program; and

(d) the *capacity of renewable resources* that are likely to be significantly affected by the project to meet the needs of the present and those of the future.” (Section 16(2) (emphasis added))

The EIS has not met the requirements of section 16. It has not met the requirements of section 16 unless it has provided the information for the Review Panel to consider the need for the project and functional alternatives to the project. In particular, in our opinion, the types of functional alternatives that must be considered must include a bona fide consideration of lower impact alternatives. This proposal for provision of base load electricity in the province of Ontario by nuclear generation, must be compared to the renewable alternatives, conservation and efficiencies, which are now available in Ontario, and under development. These have not been assessed under the EIS.

The EIS must consider whether there is a need for this proposal given the many changes in Ontario policy, reduced demand for electricity, and the demonstrated availability of renewable electricity sources.

The EIS must under any straightforward interpretation of the provisions of section 16 consider the lower impact alternatives and the compare the potential adverse environmental effects among them. The decision in this matter, including consideration of the factors outlined in section 16, must be made in a “careful and precautionary manner,” to “ensure that the project does not cause significant adverse environmental effects” as dictated by section 4(1), the purpose of the Act.

The proponent has an obligation to demonstrate the need for the project within the EIS and the current environmental assessment (Section 16(1)(e) and EIS Guidelines – excerpted below).

A consideration of the purpose of the project is mandatory and not subject to the discretion of the RA or Minister (section 16(2)). And the scope of the purpose is not one of the matters to be determined by the RA or Minister (section 16(3)). The EIS Guideline (Final) dated January 2009 states in section 5.2 that “the EIS must describe the Project and its purpose . . .” (section 5.2).

The EIS elaborates slightly on this statement at section E.7.1 of the EIS Guideline,

“7.1 Purpose and Need for the Project

The proponent must clearly describe the need for the proposed new nuclear power plant. This description must define the problem or opportunity the project is intending to solve or satisfy and should establish the fundamental justification or rationale for the project.

The proponent must describe the purpose of the project by defining what is to be achieved by carrying out the project.

The “need for” and “purpose of” the project should be established from the perspective of the project proponent and provide the context for the consideration of alternatives in Sections 7.2 and 7.3 below.”

In our opinion, it is not within the discretion of the Panel to fail to consider matters directly relevant to the purpose of the project such as reduced current and forecasted electricity demand reported on by

Ontario's own agency (the IESO). It is also not within its discretion to fail to consider available alternative methods of electricity generation that the province of Ontario has itself supported and encouraged with its own new legislation, and financing programs, and multiple directives.

The EIS has also not even met the EIS Guideline in that it has not clearly described:

- The need for the new nuclear plant. A Minister's Directive is not a "need."
- The problem that the project is intended to solve. Again, a Minister's Directive is not a statement of the problem; the problem must be described with respect to the services that the project will supply, namely electricity generation in Ontario.
- The opportunity that the project is intended to solve. To repeat, a Minister's Directive is not a statement of the opportunity that the project is intended to respond to; the opportunity in this case must similarly be described with respect to the services intended to be provided by the project.

Furthermore, the inadequate and improper descriptions of "purpose" and "need" contained in the EIS are now out of date given the extensive new information and developments on the issue of electricity supply mix and choice of source of electricity generation in province of Ontario (as described in more detail earlier herein, and in the *Pembina* report).

The EIS has not established a fundamental justification for the project given that it does not contain current factually correct information on which to base an argument for justification of proceeding with the project. To recommend proceeding with a project of this type, on the scale of cost and impact which it would generate, without a demonstration of its fundamental justification would constitute a failure to meet the purposes of CEAA and the mandatory duties of the Responsible Authorities and this Panel.

Similarly, the EIS has not established a fundamental rationale for the project since it has not demonstrated a need for the project within the context of current energy policy and current and predicted electricity demand in Ontario. It has failed to situate this proposed project within that electricity policy context, has failed to evaluate the extent to which the projects' rationale would be met by the alternative renewable power generation methods encouraged and promoted by the *Green Energy Act* and the various directives described herein, and has failed to evaluate the rationale for the project within an accurate and current context of electricity needs in the province including the impact of conservation programs which have now been mandated by Ontario.

As a result of these issues, the EIS has not defined what is to be achieved by carrying out the project and thus has not described the purpose of the project. Again, fulfillment of a Minister's Directive cannot in law be the achievement that is intended by the CEAA since such an interpretation would render the provisions of the Act as to factors to be considered, meaningless. Rather, the Minister's

Directive must itself be situated and understood within the context of what it was aiming to achieve – this must be described in regards to the services or output to be provided by the project – i.e. meeting a demonstrated need for electricity generation. This need has not been demonstrated in the EIS. Even a statement as to an upper range of a quantum of electricity generation does not amount to a purpose without a context which is current, accurate and framed in terms of a demonstrated need.

The EIS also cannot establish the fundamental justification or rationale for the project without evidence to demonstrate the need for the project. For example, such evidence could consist of reliable current usage data, reliable analysis of electricity demand and usage, present and future, and the extent to which conservation and demand management, along with current and future sources of renewable energy will meet the electricity usage and generation needs of Ontario along with the other already existing components of the Ontario electricity system.

The EIS Guidelines provide with respect to Alternatives To that the proponent shall:

“7.2 Alternatives to the Project

An analysis of alternatives to the project must describe functionally different ways to meet the project’s need and achieve the project’s purpose from the perspective of the proponent. This section must therefore identify and discuss other technically and economically feasible methods of producing electricity other than the construction and operation of the OPG Darlington NNPP that are within the control and/or interests of OPG. As an assessment of provincial energy policy is not within the terms of reference of this joint review panel, the alternatives to the project need not include alternatives that are contrary to Ontario’s formal plans or directives. However, the EIS must explain where this rationale has been applied to exclude consideration of possible alternatives to the project.

For each identified alternative to the Darlington NNPP that are within the control and/or interests of OPG, this section of the EIS must explain how the proponent developed the criteria to identify the major environmental, economic and technical costs and benefits of those alternatives, and how the proponent identified the preferred project based on the relative consideration of the environmental, economic and technical benefits and costs. This must be done to a level of detail which is sufficient to allow the joint review panel and the public to compare the project with its alternatives.”

OPG has not met its obligation under this section of the EIS Guidelines. While the EIS Guidelines indicate that the project need not include alternatives that are **contrary** to Ontario’s formal plans or directives, this does not establish those directives as themselves determinative of the question of alternatives; and the directives are not themselves alternatives. Furthermore, Ontario’s formal plans have changed since the date that the EIS was prepared, including by way of the issuance of highly relevant, additional directives on energy policy (See earlier and *Pembina* report). The OPG states in its EIS on this topic that:

"1.1.4 Alternatives to the Project

As noted in Section 1.1.3, the purpose of the NND Project is to fulfill OPG's responsibilities under paragraph b) of the provincial directive dated June 16, 2006, as clarified by the Minister of Energy. Similarly, the need for this Project has been determined by the provincial directive and clarifications since issued. The clarifications of the provincial directive have established that new nuclear units are to be built at the DN site and that the Province supports OPG seeking approval for up to 4,800 MW, to provide the Province with flexibility in determining the mix of refurbishment and new build that will be implemented to maintain 14,000 MW of installed nuclear capacity."

In our opinion, this statement is erroneous and does not meet the EIS Guidelines, nor the provisions of CEAA in providing a basis for consideration of alternatives to the Panel. It cannot be said that the cited provincial directive provides for alternatives to the project. It does not itself describe alternatives to the project and its existence does not excuse the OPG from complying with the requirements of CEAA.

In conclusion, in our opinion, for the foregoing reasons, the OPG and its EIS have failed to comply with the mandatory provisions of CEAA and with the EIS Guidelines issued in respect of this Environmental Assessment. It is therefore not possible at present for the Panel or Responsible Authorities to carry out their mandatory duties under the CEAA; in particular, by considering the factors outlined in section 16 of the CEAA. Accordingly the Panel must not recommend proceeding with licensing processes for site preparation, construction or operation of the Darlington New Build project.

All of which is respectfully submitted

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