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February 19, 2008

RE: EB-2007-0050

Dear Ms. Walli et al: **VIA EMAIL**
[The Board, Applicant, OPA, IESO, and Intervenors]

Please find, below, requests for suggested additions to the Application Evidentiary and for a concomitant Schedule Revision.
Please note the use of **bold, large** and **coloured fonts,** for ease of reference and **highlighting** purposes.

Submission regarding Applicant Evidence and the Timeline.

Request for the OEB to advise the Applicant to supply the additional evidence required for the appropriate resolution of the process. Request for the OEB to alter the schedule to appropriately accommodate review and consideration of this evidence.

It is my submission that it is absolutely essential that the Applicant provides the Board and the Intervenors with their ABB Technical Study prior to the interrogatories. This study goes right to the heart of the first item of the Issues List, 1.0 Project Need and Justification. As such, it requires more inspection than may be available during the Interrogatories. As well, I further submit that this study should be made available, before the Interrogatories, in order for the Intervenors to be appropriately apprized of all the technical issues involved and be able to formulate the most reasonable, knowledgeable and appropriate questions possible. In fact, if this study must be asked for, during the interrogatories, then there will be no chance to submit interrogatories based on the study. This does not seem appropriate.

I do believe that my suggested course will lead to a more concise and efficient Oral Hearing, recouping any time that may be considered "lost" by applying my requests. Further, I submit that, given its importance to this application, this study should have been provided at the outset. It certainly should have been presented prior to the Technical Conference. As evidence in the Application, it would have been open for discussion as pre-filed evidence. Thus, Mr. Nettleton's assertions that only pre-filed evidence could be considered, would not have applied to this very important evidence. There was, really, no good reason for omitting to include it in the Application and Evidence. Also omitted was the following IESO report.

IESO_REP_0299
CONNECTION ASSESSMENT
& APPROVAL PROCESS
SYSTEM IMPACT ASSESSMENT REPORT
For the Proposed Installation of Series Capacitors in the 500kV Circuits between the Bruce Complex & Nanticoke GS
Applicant: Hydro One Networks Inc.
CAA ID No. 2005-200
Transmission Assessments & Performance Department
FINAL Version
Date: 11th April 2006

This report contains information associated with the current application and, more importantly, some reference to the ABB study [commissioned to evaluate elements associated with the proposed project, the technical options and to obtain expert recommendations]. Thus, since relevant information from this SIA Report was not included in the Final SIA Report [which was included in the evidence] then this earlier report should have been included in the evidence, as well. It is very clear that the particulars of the ABB study are absolutely relevant to the considerations of project selection, and should not be ignored. Note that the following recommendations are not the direct recommendations of the consultant. They are the IESO's version of the results and recommendations of the study. The recommendations made are those of the IESO and not the consultant. At least that is the way it appears. Without review of the actual study, we have no idea. Please note that there are no direct quotes or excerpts from the actual ABB study included in the SIA report nor, more particularly, in that report's recommendations. Simply, we do not know how those IESO recommendations were arrived at.

We also have to consider the nature and direction of consultations/studies, themselves. Generally, the contracting agency will define the parameters of the study. At the best, these parameters will serve as an appropriate guide for the proper breadth of the study. However, if the parameters are too narrow, the study can be flawed and its conclusions inappropriate. Without review of this study, we have no idea of the set parameters nor the actual study conclusions. Nor do we know what recommendations the Applicant and the IESO chose to ignore, if any. Remember, generally, it is not incumbent on a contracting agency to observe any of the recommendations of their consultant. They are certainly not bound by any law. In this case, however, the applicant is bound by legislation through the rules of the OEB. Please note the wording in the following excerpt from the 11th April 2006 SIA Report. Most importantly, note the phrase "could be avoided". It says "could" not "should". Thyristors are "power electronic" devices. They are control and protection devices. The main reason for their development was to be used in situations exactly like the one we have here in Ontario. A very large thermal Generating facility and long transmission lines. Also, understand that without the thyristor [or other power electronic device] control, that only a minimum of series compensation can be applied in this situation. Conventional Series Capacitors [without Thyristors, etc,] can contribute to the development of SSR in this situation. Conventional Series Capacitors perform with maximum compensation in all other cases. It is the large generators, turbines and long transmission lines that cause SSR, not Series capacitors. While they can most certainly exacerbate the situation, they do not cause

it.

"16.2 Recommendations

• The ABB Study that was commissioned by Hydro One has determined that subsynchronous resonance (SSR) issues associated with the installation of series capacitors in the 500kV circuits connected to either the Bruce Complex or Nanticoke GS could be avoided if the level of compensation were to be maintained below 40%. This would avoid the need to employ mitigating measures such as using thyristor controlled series capacitors (TCSCs) for a portion of the series capacitor installation. The IESO has determined that installing 30% series compensation would not only avoid the need to uprate the 500kV circuit N582L but it would satisfy the requirement for a minimum level of 20% compensation to maintain post-contingency transient stability. However, the post-contingency flows on the section of circuits B4V & B5V between Hanover TS and Orangeville TS would exceed the 15km/hr wind-speed rating of these circuits.

38 SIA REPORT: INSTALLATION OF 500kV SERIES COMPENSATION

17. Customer Impact Assessment

Once a decision is made whether or not to proceed with the installation of series capacitors and the level of compensation that is to be employed, Hydro One Networks Inc. is proposing to conduct a Customer Impact Assessment for this Project to determine whether the proposed facilities could have any materially adverse effects on their customers.

Should any issues be identified in the CIA then they will be addressed through an Addendum to this Report.

18. Notification of Approval of the Connection Proposal

Subject to the completion of the Customer Impact Assessment and the satisfactory resolution of any issues that it may raise, the IESO has concluded that the following work will have no materially adverse effect on the IESO controlled grid:

• the installation of series capacitors in the Bruce-to-Longwood and the Longwood-to-Nanticoke 500kV circuits, whether at the 50% or 30% compensation level, and subject to appropriate action to uprate either the 500kV circuit N582L (for 50%) or the 230kV circuits B4V & B5V (for 30%).

• the installation of 230kV shunt capacitor banks at Middleport TS, Nanticoke TS, Detweiler TS & Orangeville TS

• the conversion of up to four units at Nanticoke GS to synchronous condenser operation, and/or the installation of SVCs to provide a portion of the reactive power support that will be required. It is therefore recommended that a Notification of Conditional Approval to Connect be issued for this Project

39 SIA REPORT: INSTALLATION OF 500kV SERIES COMPENSATION"

Without this study it would be difficult, to impossible, for some of the Intervenors, and their counsels, to appreciate or better understand the options and their relevance. The opposing Intervenors are not professional engineers. This project will have

serious impact upon landowners, acknowledged sensitive environmental areas and the electrical future of the Province.

Thus, it is essential and equitable that they have the opportunity to examine all relevant information and a reasonable length of time to review, consider and research it. Otherwise, it is like running in a race with one leg hobbled. I maintain that these documents should have been included from the start, certainly before the Technical Conference and definitely before any Interrogatories.

This technical study is the presumed basis for the Applicant's own conclusions regarding certain alternatives and and for the consideration that it supports the superiority of their preferred choice over those alternatives. From the beginning and throughout, the Applicant, their proponents and a number of their supportive Intervenors have stressed the need for speed. They have complained about this OEB process as well as the Environmental Assessment. They feel chafed at the imposition and inappropriate delay they perceive.

This being the case, one has to wonder why, in their own best interests, they didn't willingly present the technical study information and recommendations, in the first place. Surely, if this study so completely supports their intended project, then the Intervenor's technical and cost arguments would have evapourated, substantially decreasing the time required for the completion of this process.

FROM THE OEB:Minimum Filing Requirements for Transmission and Distribution Rate Applications and Leave to Construct Projects EB-2006-0170

5.3.1 Evidence in Support of Need

The Applicant's evidence in support of the need for the project is required and can be supported by evidence of the IESO and/or the Ontario Power Authority:
• where a proposed project is best compared to other viable transmission alternatives, including "doing nothing".

The factors driving the project must be identified, but the burden remains on the Applicant to support the claim of need. If the Applicant identifies a customer or agency as the driver behind a project, it is the Applicant's responsibility to include evidence from that customer or agency as part of the evidence on the application. The Board expects the Applicant to work with that external party in the development of the required evidence. In many cases the external party will be the IESO and/or the OPA, although the additional evidentiary requirement would apply to any external party on whom the Applicant has relied for the justification of the need for the project. The evidence will likely consist of written material prepared by the customer or agency specifically addressing the proposed project, and the customer or agency must be prepared to provide witnesses to support the filed evidence if an oral hearing is held. It is not sufficient for the applicant to state that the customer or agency has established the need for the project; the Board must be able to test that assertion.

5.3.2 Options and Cost Benefit Analyses

In addition to the evidence regarding the need for the project, the Applicant must address how it proposes to accomplish the project including the identification of relevant options. This section outlines the required evidence for that aspect of the

application. The basic form for such evidence should be cost benefit analyses of various options. The Board expects that Applicants will present a preferred option (i.e., the proposed project) and alternative options. It should be recognized, however, that the Board will either approve or not approve the proposed project (i.e. the preferred option). It will not choose a solution from among the alternative options. The Applicant should present the smallest number of alternatives consistent with conveying to the Board the major solution concepts available to meet the same objectives that the preferred option meets. The applicant is expected to also compare the alternatives versus the preferred option along various risk factors including, but not limited to, financial risk to the applicant, inherent technical risks, estimation accuracy risks, and any other critical risk that may impact the business case supporting the proposed project.
For connection projects, in addition to the cost benefit analysis, the Applicant must supply specific information on the nature and magnitude of the network impacts.
In the case of a non-discretionary project, the preferred option should establish that it is a better project than the alternatives. The Applicant need not include "doing nothing" as an alternative since this alternative would not meet the need. One way for an Applicant to demonstrate that that a preferred option is the best option is to show that it has the highest net present value as compared to the other viable alternatives. However, this net present value need not be shown to be greater than zero. In the case of an internally set project, "doing nothing" would count as a viable option.
If the proposed project or alternatives are expected to have significant qualitative benefits that cannot reasonably be quantified, evidence about these qualitative benefits should be provided. These benefits may be taken into account in ranking the projects. Incorporating qualitative criteria may result in a different ranking of projects compared to the ranking based on quantitative benefits and costs alone.

5.3.5 Transmission Rate Impact Assessment

The Board requires information relating to the rate impacts anticipated from transmission investments. Information should cover the short-term impacts as well as long-term impacts of the proposed project.

FROM Technical Conference, Day 1

Questions by Mr. McKay

MR. McKAY: I will be very quick. Can you turn up on your slides the summary of options for screening results? That is the matrix.

Can you give us a bit more explanation on the category for limited effects on other paths, in terms of what that criteria is and what it is used in terms of how you use it to evaluate in terms of eliminating certain of these alternatives.

MR. CHOW: The southwestern Ontario network is quite interconnected in terms of it is not an isolated system. It affects many other paths.

When we look at this in combination with providing required capability - and in this case you look at it together, side by side - it gives you an indication that, one, does it have the capability; two, when you actually have that system, does it affect, in this case, negatively on other paths? .....

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.....MR. McKAY: On that basis, I guess one criteria, you discounted the

series capacitors as a long-term solution; that and the fact that it doesn't have the capacity?

MR. CHOW: Mainly that it doesn't have the capacity. It is capable of seven units versus 700 megawatts of wind.

MR. McKAY: When you did that analysis, were you including generation rejection?

MR. CHOW: No, because we are looking at this set as a long-term solution.

MR. McKAY: That is an isolated analysis on simply the series capacitors?

MR. CHOW: Yes.

MR. McKAY: So you rejected the series capacitors on a long-term basis, and then from the green-line graph that we have seen today, you have made it quite clear that you don't need it on an interim basis with the near-term and the interim measures you want to put in place.

So the question I have is: Why are you continuing with the study? You don't need it in the long term, and it's pretty clear that you don't need it to meet the interim requirements.

MR. CHOW: The answer is on the next slide after that, on the interim. The decision on series compensation will be made in consideration of the line-in-service date. In other words, will it be late, the effectiveness of the other measures.

We believe that the GR, in combination with the other measures, will provide us the necessary capability. When we actually end that phase there, we want to see how close we are, and also the progress of generation additions on the system.

MR. McKAY: That's a change in the evidence; right?

MR. CHOW: At that time, series compensation is a possibility. I am indicating here it is still a possibility, with those considerations. So it is always looked at as a back-pocket solution that we would put in if certain conditions are met.

MR. McKAY: As a final question, a lot of talk today about this study that's being done. I'm assuming that there were some form of terms of reference or something that put some bounds around what this study is, what it is supposed to produce, what you expect. Is that available if we ask that in an interrogatory?

MR. CHOW: This is related to the due-diligence study on series compensation?

MR. McKAY: Yes.

MR. CHOW: Yes. Its terms of reference were developed for the consultant. It would be a part of the attachment of the report, and, yes, on request in an interrogatory.

MR. McKAY: Can we get it now or get it within a couple of weeks?

MR. NETTLETON: The trouble that I am having is the message that we have communicated to all of the parties has been that we are prepared to look at these requests for additional information through the interrogatory process.

I will have to check the procedural order, but I think there is a due date on when IRs are due and there is a due date on when the responses are due.

So I think if people want to ask us interrogatories now, they could; and we can hopefully get through the interrogatories as fast as possible. If your interrogatory came in with that request, we would be able to get it done sooner rather than later.

MR. McKAY: No. I appreciate that, Mr. Nettleton, but I guess the question was, I'm assuming that in order to get this report done, you would have had to put terms of reference together. That document, I'm assuming, is available today, now; obviously we're not going to ask to produce it here today, but as an

interrogatory, it would be good to have the confidence that you wouldn't object to it being filed as an answer to an interrogatory.
MR. NETTLETON: I'm not hearing any objection from OPA.

And from earlier on Day 1, Technical Conference:

Questions by Mr. Pappas

MR. PAPPAS: Thank you. I am going to request that this particular screen stay up for now. Thank you.
Now, my questions deal basically with two matters. One is the matter of due diligence. The other is the matter of capacitor technology. I will state now that my understanding of approval processes and that is that the applicant come before the Board for approval with complete information.
If due-diligence studies have not been done for any reason, then I don't believe that it is appropriate to even come before the Board until they're done. In other words, to come before the Board without these is, in fact, frivolous and vexatious.
Now, regardless of what the Board decides, I am just asking them to consider that fact and that we don't have to go through a long lengthy process that may end up showing that, anyway. It just simply seems to me it is a demand that you do all of your due diligence before you even seek approval.....

.....MR. PAPPAS: My first question, I am going to change this a little bit is I won't ask what, because that goes too much to interrogatory. So I am just going to ask: Regarding the application of interim measures, what studies were done for that? Like I say, you had to have done studies. Were studies done? I will just simply ask that. I don't have to know the names of the studies. I don't have to know the results. I just want to know, were studies done? You certainly are not going to hook up this possibly questionable - according to Hydro - technology without doing studies.
MR. FALVO: Sorry, the question was the near-term measures?
MR. PAPPAS: Yes. Were studies done for the near-term measures?
MR. FALVO: Yes.
MR. PAPPAS: Thank you. Now, again my understanding from everything I have read is that series capacitors are used with other capacitors on systems. Is there some reason why you didn't consider doing the studies on the series capacitors at the same time you did the studies on the system for the dynamic and shunt capacitors?
MR. FALVO: What I would like you to understand is series capacitors are specific application. They're in series in the line. They essentially make the transmission lines look shorter.
We did a study on series capacitors and, as Bob has said, investigating that technology, our study is saying: Assuming the design and the specifications and the maintenance and all of those other things, protection, for example, can be taken care of by Hydro One, the asset owner. Our study is looking at how the system performs.
What we found was that, as Bob has mentioned in his studies, is it doesn't give you the capability that he is looking for.
MR. PAPPAS: Given that, did you study the thyristor-controlled series capacitors or any of the other thyristor-involved series-capacitor devices?.....

..... MR. PAPPAS: So is there any actual documentation that shows that things changed and that those recommendations and conclusions were now invalid? Is

there any documentation that we can find on the IESO site or anywhere else that states these are no longer valid because of these changes?
MR. FALVO: The latest outlook that was part of the evidence stated that the line was needed, and there was a study that is on our website that assessed the series capacitors specifically.....

.....MR. NETTLETON: Mr. Pappas, the question that you asked Mr. Falvo was whether the Independent Electric System Operator had conducted any studies. The answer was that they have, and that there is one published and producible from the IESO website.
MR. PAPPAS: Which one is that? All I heard him read was the one I told him about.
MR. FALVO: No, no. There is a series capacitor study that is on our website.
MR. PAPPAS: Where do I go to find that? I couldn't find it. I searched for anything on series capacitors.
MR. NETTLETON: Maybe after today's presentation you can have a discussion with Mr. Falvo.
MR. PAPPAS: Perhaps I can get the address for the appropriate document. Thank you.

Of course, there was no discussion and they did not produce the significant document. Oh, they did send me links to a number of IESO documents[Please see attachment H1NlettertoCPappasNov2607wattachment.pdf]. But I already had those and had reviewed them. The document that mentioned the Thyristors and the ABB study is the one I introduced earlier [see below] and felt should have been included in the Application evidence along with the actual ABB Study. The latter is definitely not available from the IESO, OPA or Hydro One web sites. The ABB study is the only actual study on series compensation that was undertaken regarding this application. Otherwise, there were only reports referring to it. Thus, contrary to their claims, the study was not available, except directly through them, period. Nor did they even attempt to supply the actual series compensation study. They knew what we were talking about. [Please refer to Mr. McKay's comments quoted,earlier]. They had the study. Instead they sent us reports that were of no consequence.

SYSTEM IMPACT ASSESSMENT REPORT
CAA ID No. 2005-200
FINAL Version
Date: 11th April 2006.

Lastly, this takes us back to the due diligence study. To quote Mr. McKay " So the question I have is: Why are you continuing with the study? " Well, why indeed? Consider SIA Report 2005-200. Obviously, the ABB study was completed before that SIA Report was written in 2005 [note- Final Version 2006] . The OPA had still not even begun their due diligence study on series capacitors by September [or later] 2007. They have had at least two years to take up from the ABB study and undertake and complete a due diligence study. There is no good reason for them to have ignored doing such. It is the OPA who claimed that this project was necessary and as immediate as possible. So, why did they sit on their hands?
Imagine that the Applicant's transmission build [and possibly yet other builds] achieves approval and then, in the relatively near future, afterwards, that the

due diligence study is completed and the conclusion is that the technology must be applied to the lines, to further enhance their transmission capacity, for whatever reason.[perhaps more generator builds at Bruce, as a possible example]. Well I, certainly, will not be impressed and will feel somewhat betrayed. However, I will not be entirely taken by surprise. It is clear to me that if Thyristor Controlled Series Compensation, or another FACTS solution were approved, then there would be no need for the line[s], as regards our domestic requirements for power, transmission capacity, transmission system protection and power conservation.

I am sure that, at the end of the day, if the appropriate FACTS devices[over time] were applied to all the transmission lines originating at the Bruce as well as the 115, 230 and 500kV lines in the south we could avoid future transmission builds in south-western Ontario. This applies, as well, to the other regions of the Province. While some transmission builds, in the future, may be necessary, avoiding transmission builds with their gigantic footprints and impact would seem to be the most sensible act of avoidance, rather than the avoidance of an appropriate and far less intrusive technology that is simply installed on our existing transmission lines, in substations, as are transformers.

In closing, I respectfully submit that it would be a disservice to the process to allow this to go unanswered, and a disservice to not allocate the appropriate time for review and consideration.

Respectfully and without malice.
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