

Mactaquac Project

Final Comparative Environmental Review (CER) Report

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Appendix A Mactaquac Project: Addendum to the Final Comparative Environmental Review (CER)
 Report – Life Achievement Option

MAPBOOKS AND ADDITIONAL TABLES

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Summary of Revisions Made from the Draft CER Report (September 2016) to Final CER Report (August 2016) for the Mactaquac Project

Summary of Revisions to the Final CER Report, by Chapter

Final CER Report Section	Summary of Major Revisions Made Between the Draft CER Report (September 2015) and the Final CER Report (August 2016) for the Mactaquac Project
General	<p>General changes have been made throughout the Final CER Report which are applicable to multiple Chapters of the document. These general changes include the following.</p> <ul style="list-style-type: none"> • Changes have been made throughout the Final CER Report to address various comments and questions received from the CER Advisory Committee as well as relevant comments from Aboriginal communities, the public and stakeholders through engagement activities and the review of the Draft CER report that was dated September 2015. • The Final CER Report has also been updated to reflect the passage of time since the publishing of the Draft CER Report (e.g., verb tenses have been adjusted, information is provided on activities that were planned at the time of the Draft CER Report and have since been conducted, and key input received through engagement activities has been included). • Where possible, additional information has been provided in the Final CER report to reflect information gathered from other studies completed as part of NB Power's decision making process that have been completed since the publication of the Draft CER Report (e.g., results of the Mactaquac Aquatic Ecosystem Study (MAES), geotechnical assessments, slope stability assessments, etc.). • Typographical and consistency errors have been corrected, and the structure of some sentences has been altered to improve clarity and precision. • Minor changes to figures and the mapbook have been made to reflect a variety of comments received during the CER review period. • An Addendum has been developed to consider the potential environmental interactions of the Life Achievement Option, a range of approaches that are currently being considered to continue operation of the Station within its current footprint beyond 2030. That Addendum forms Appendix A of the Final CER Report.
Executive Summary	<ul style="list-style-type: none"> • Additional text has been added providing a high-level description of the Life Achievement Option, discussed in detail in Appendix A. • Various edits have been made to reflect changes that have occurred throughout the main body of the Final CER Report.

Final CER Report Section	Summary of Major Revisions Made Between the Draft CER Report (September 2015) and the Final CER Report (August 2016) for the Mactaquac Project
Chapter 1: Introduction	<ul style="list-style-type: none"> • Additional text has been added providing a high-level description of the Life Achievement Option, for which further discussion and analysis is provided in Appendix A. • Text has been added providing further information on the alkali-aggregate reaction. • Further information has been provided on the condition and expected life of the concrete at the Station, based on updated knowledge since the publication of the Draft CER Report. • This chapter has been updated to reflect an updated project schedule determined by conceptual engineering design studies conducted to date.
Chapter 2: Description of the Project Options	<ul style="list-style-type: none"> • Additional text has been added providing a high-level description of the Life Achievement Option, discussed in further detail in Appendix A. • Options 1, 2 and 3 are now collectively referred to as the “end-of-life” options, to distinguish them from the Life Achievement Option that is aimed at achieving the expected service life of the Station. • Since the writing of the Draft CER Report, the conceptual design of the Options has been further developed. Sections of Chapter 2 have been rewritten to reflect these changes. • Updates have been made to the descriptions of the approach and discharge channel, turbine generator units, fish passage facility, and permanent and temporary ancillary facilities. • Since the writing of the Draft CER Report, the construction activities related to all Options have also been updated as a result of changes to the conceptual design. The main change is related to the dewatering (drawdown) sequence of the headpond for Option 3. Initially a slow drawdown scenario was used in the Draft CER Report, however, NB Power has since determined (based on input from MAES and the evolution of engineering) that an accelerated (quick) drawdown is preferred. Applicable sections of the phases and activities of Option 3 have been rewritten to reflect this change. Project activities have also been revised to a lesser extent as a result of updates in the conceptual design of Options 1 and 2. • Site layout figures (Figures 2.4, 2.5, and 2.6) have been updated to provide more detail on anticipated location of Project related components, including laydown areas. The project footprints are slightly larger than previously (e.g., laydown areas). • Two new figures have been added to show the potential location of excavated material storage area for Options 1 and 2, and a potential disposal area for demolition materials for Option 3. • The anticipated duration of each of the Options has also been revised based on updates to the conceptual design of the Options. • Further information has been provided on current and potential future fish passage practices at the Station.

Final CER Report Section	Summary of Major Revisions Made Between the Draft CER Report (September 2015) and the Final CER Report (August 2016) for the Mactaquac Project
Chapter 3: Methods, Scoping, and Engagement	<ul style="list-style-type: none"> • The discussion of public review of the CER Report and the process for finalizing the CER Report have been updated for the passage of time and to reflect engagement activities conducted to date. • More information has been provided on the Aboriginal, public, and stakeholder engagement programs and activities that were carried out since the Draft CER Report was released, including the information materials, on-site tours of the station, workshops, and open houses provided by NB Power. • A summary of key issues and concerns raised during Aboriginal, public, and stakeholder engagement activities was provided in Section 3.4.3.
Chapter 4: Atmospheric Environment	<ul style="list-style-type: none"> • Corrections have been made to Table 4.3 and Table 4.6 (incorrect percentages were reported). • Revisions to the text to reflect the updated Project schedule for Options 1 and 2 and a potentially larger Project footprint for Options 1 and 2. • Revisions to the text to reflect the revised drawdown scenario, in particular how the accelerated drawdown scenario relates to newly exposed soils and dust generation following drawdown. • Annual GHG emissions have been updated to reflect the revised Project schedule. • The duration of a potential change in microclimate has been revised from "long" to "permanent" in Table 4.7, to more accurately reflect the anticipated duration of this potential change that may arise from Option 3, as raised during the review period for the Draft CER Report. • Additional information requirements have been identified regarding the development of an emissions inventory and dispersion and deposition modelling for emissions, for any EIA of the Preferred Option.
Chapter 5: Acoustic Environment	<ul style="list-style-type: none"> • Figures 5.1 and 5.2 have been updated based on the revised project description and potentially larger Project footprints for Options 1 and 2 as described in Chapter 2. • Table 5.2 has been updated to reflect the revised project description in Chapter 2 and to specify the units of measurement for baseline noise monitoring. • Revisions have been made to the text to reflect the revised Project schedule. • The duration of the potential change in sound quality changed from "medium" to "long" in Table 5.6, to more accurately reflect the multi-year nature of this activity and potential associated noise and vibration, as raised during the review period for the Draft CER Report.
Chapter 6: Surface Water	<ul style="list-style-type: none"> • Additional text has been provided that describes preliminary information on sediment conditions at the bottom of the headpond collected as part of the MAES, and updated information on sediment quantity and quality. • Additional text has been provided that describes preliminary information provided on water quality in the headpond and downstream in the Saint John River collected as part of the MAES.

Final CER Report Section	Summary of Major Revisions Made Between the Draft CER Report (September 2015) and the Final CER Report (August 2016) for the Mactaquac Project
	<ul style="list-style-type: none"> Information has been added to the text on preliminary water management studies and submerged structures and connectivity of tributaries to the river conducted as part of conceptual engineering studies. Additional text has been provided describing conceptual engineering studies on slope stability that have been completed which include conceptual design to protect and stabilize slopes after dewatering of the headpond, and stabilize the shoreline of the new river channel formed in Option 3 river. The text has been revised to reflect a planned accelerated drawdown scenario for Option 3, and potential interactions and mitigation arising from this scenario.
Chapter 7: Groundwater	<ul style="list-style-type: none"> Additional text has been provided discussing the identification of groundwater wells drilled prior to 1994. Text has been clarified throughout to better describe the nature of potential interactions of the Options with groundwater, particularly for Option 3. The duration of a potential change in groundwater quality or quantity was changed from "long" to "permanent" in Table 7.6, to more accurately reflect the anticipated duration of this potential change that may arise from Option 3, as raised during the review period for the Draft CER Report.
Chapter 8: Aquatic Environment	<ul style="list-style-type: none"> The text has been revised to reflect a planned accelerated drawdown scenario for Option 3, and potential interactions and mitigation arising from this scenario. Additional text has been added in several locations where observations of the physical conditions of the aquatic environment in the area of review have been confirmed by the recent findings of the MAES. Additional text has been provided that describes preliminary information on sediment conditions at the bottom of the headpond collected as part of the MAES. The text has been revised to reflect a planned accelerated drawdown scenario for Option 3, and potential interactions and mitigation arising from this scenario. Additional text has been provided that describes preliminary information provided on water quality in the headpond and downstream in the Saint John River collected as part of the MAES. A summary of the benthic macroinvertebrate study of the Saint John River downstream of the Station that was conducted as part of the MAES has been added to this Chapter. The results of preliminary MAES studies related to the movement of Atlantic salmon in the headpond have been added to this chapter. Text relating to fish passage options and objectives has been clarified.

Final CER Report Section	Summary of Major Revisions Made Between the Draft CER Report (September 2015) and the Final CER Report (August 2016) for the Mactaquac Project
Chapter 9: Vegetation and Wetlands	<ul style="list-style-type: none"> The text has been revised to reflect a planned accelerated drawdown scenario, and potential interactions and mitigation arising from this scenario. Additional text has been provided that describes preliminary information on sediment conditions at the bottom of the headpond collected as part of the MAES, and the transport of sediment as a result of the accelerated drawdown scenario. The interaction of sediment with wetlands downstream of the Station (e.g., Grand Lake Meadows) has been clarified.
Chapter 10: Wildlife and Wildlife Habitat	<ul style="list-style-type: none"> The text has been revised to correct an error in a calculation in wetland area. The text has been revised to reflect a planned accelerated drawdown scenario for Option 3, and potential interactions and mitigation arising from this scenario. Additional text has been provided that describes preliminary information on sediment conditions at the bottom of the headpond collected as part of the MAES, and the transport of sediment as a result of the accelerated drawdown scenario. Potential interactions with pygmy snaketail and skillet clubtail (<i>i.e.</i>, two species of dragonflies that are also species at risk) have been clarified. Additional text has been added to provide further information on wood turtles (<i>Glyptemys insculpta</i>).
Chapter 11: Economy and Employment	<ul style="list-style-type: none"> The chapter has been revised based on updates to the anticipated duration of each of the Options. The estimated labour force required for each Option has been updated. The duration and geographic extent of potential changes in economy and employment have been updated in Table 11.9 for some of the Options, as raised during the review period for the Draft CER Report.
Chapter 12: Human Occupancy and Resource Use	<ul style="list-style-type: none"> The chapter has been revised based on updates to the anticipated duration of each of the options. The values in Table 12.2 have been updated to report correct percentages (the source data were correct, but some calculated percentages were incorrect). A discussion of nuisance concerns (e.g., dust, odour, noise) related to decommissioning in Option 3 has been added. A discussion of the feeling of community surrounding the headpond has been expanded based on the results of the Aboriginal, public, and stakeholder engagement program. The duration of a potential change in land and resource use, and a potential change in navigation have been updated in Table 12.5 from “long” to “permanent”, as raised during the review period for the Draft CER Report. The additional information requirements for this Chapter have been updated to reflect the completion of the Social Impact Comparative Review.

Final CER Report Section	Summary of Major Revisions Made Between the Draft CER Report (September 2015) and the Final CER Report (August 2016) for the Mactaquac Project
Chapter 13: Infrastructure and Services	<ul style="list-style-type: none"> • Additional text has been provided that describes preliminary information on sediment conditions at the bottom of the headpond collected as part of the MAES. • The text has been revised to reflect a planned accelerated drawdown scenario for Option 3, and potential interactions and mitigation arising from this scenario. • Additional text has been provided on the conceptual engineering studies which have identified intakes and outfalls in the headpond and downstream of the Station. • The text has been revised to reflect a planned accelerated drawdown scenario for Option 3, and potential interactions and mitigation arising from this scenario. • The estimated labour force required for each Option has been updated. • Text describing additional mitigation to address the movement of sediment and potential interaction with key infrastructure has been added to this Chapter.
Chapter 14: Transportation	<ul style="list-style-type: none"> • The list of collector highways in Mactaquac area in this Chapter has been corrected. • Values have been updated in Table 14.4 to reflect changes in passenger traffic due to an updated labour force arising from advancements in the conceptual design. • Table 14.5 has been updated to reflect changes in trucking requirements arising from changes to the conceptual design and the anticipated duration of each of the Options.
Chapter 15: Heritage Resources	<ul style="list-style-type: none"> • Sections of this Chapter have been rewritten to reflect the ongoing Aboriginal engagement and Traditional Knowledge/Traditional Land Use studies, specifically regarding traditional knowledge regarding archaeological resources. • Additional text provided which discusses the potential future development of exposed shorelines in dewatered area. • The text has been revised to reflect a planned accelerated drawdown scenario for Option 3, and potential interactions and mitigation arising from this scenario.
Chapter 16: Current Use	<ul style="list-style-type: none"> • Sections of this Chapter have been rewritten to reflect the ongoing Aboriginal engagement and Traditional Knowledge/Traditional Land Use studies, as specific information relating to current use activities for traditional purposes by Aboriginal persons in the area of review was not yet available at the time of finalizing the CER Report.

Final CER Report Section	Summary of Major Revisions Made Between the Draft CER Report (September 2015) and the Final CER Report (August 2016) for the Mactaquac Project
Chapter 17: Summary and Conclusions	<ul style="list-style-type: none"> The section has been updated to summarize changes to the VCs that have occurred as a result of updates to the conceptual design of the options and information collected from conceptual engineering studies and MAES studies conducted to date.
Chapter 18: References	New references have been added as applicable.
Appendix A: Mactaquac Project: Addendum to the Comparative Environmental Review (CER) Report – Life Achievement Option	<p>A new appendix containing an Addendum describing a fourth option, the “Life Achievement” Option, has been added. This Option, advanced in parallel to conducting the CER, consists of the partial repair/refurbishment/replacement of existing facilities at the Station, largely within existing footprints, to enable the Station to meet its expected life in 2068, or as close as possible to it. Interactions of this option with the environment are discussed at a high-level and related, where applicable, to how it is similar to, or differs from, other end-of-life options being considered. Since this Option was advanced after the CER was developed, it is evaluated as a separate Addendum rather than having to integrate its evaluation in the main body of the CER Report.</p>

