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A Foundation for the Future

Strengthening follow-up and monitoring in the Manitoba-Minnesota Transmission Project to ensure robust environmental protection

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Executive Summary

Environmental assessment (EA) is a proactive planning process, designed to identify, and where possible mitigate the potential negative impacts of a proposed project before irreversible decisions are made.

Expectations of what EA can and should achieve evolve with increasing adoption and application. A strong EA process should be informed by the principles of transparency, inclusivity, informed deliberation and meaningful participation.

Attention should not be lost once a project gets its approval. Environments and circumstances can change, in some instances quite rapidly. Follow-up and monitoring is meant to ensure that public attention remains on the project throughout construction/ implementation operation and decommissioning.

This report provides a critique of the follow-up and monitoring programs submitted by Manitoba Hydro for the Manitoba-Minnesota Transmission Project. It is not intended to offer judgment on whether the project should be approved. The focus of this submission is to identify opportunities to strengthen the follow-up and monitoring components of project design and implementation, should the project proceed.

My analysis shows that the approach to AM is a marked improvement over the approach submitted for the Bipole III project. The plan demonstrates clear effort to implement Adaptive Management (AM), including recognition of the concept in draft follow-up and monitoring plans, and purposeful implementation of experimentation for six Valued Components (VCs). A strong feature of the EIS and the Monitoring program is the explicit recognition of learning from past experiences.

That being said, there are a number of aspects which merit additional consideration, largely related to increasing transparency in follow-up and monitoring decisions schedule to occur after the project has received approval. There is a demand for publically accessible information, with clear procedures, structured decision-making and clear decision-making criteria in post-hearing MMTP decisions.

There is a critical lack of information as to how First Nations and the Metis Nation will be involved in the development and implementation of follow-up and monitoring programs. There is an opportunity for the Clean Environment Commission (CEC) to make recommendations to support Indigenous engagement in follow-up and monitoring. Doing so would provide increased certainty that there is a clear direction to work collaboratively with First Nations and the Metis Nation, and there is sufficient funding allocated to ensure this proceeds in a meaningful way.

There is also a need to carefully consider the VCs selected for monitoring, including the methods (indicators and parameters) through which each will be assessed. Particular attention should be given to VCs:

- with higher levels of uncertainty;
- identified through the First Nations and Metis Engagement Program (FNMEP); and/or,
- involving cumulative effects.

In addition, the time horizon for monitoring of VCs should be carefully considered in the context of evidence and testimony of hearing participants, and recommendations in the Traditional Land Use Studies.

CEC recommendations are critically important in filling gaps in the legislative framework, and have been extremely important for moving towards EA that is informed by the principles of transparency, inclusivity, informed deliberation and meaningful participation. The Commission has an important opportunity to shape a more robust follow-up and monitoring program.

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Acronyms

AM	Adaptive Management
CEC	Clean Environment Commission
CEnvPP	Construction Environmental Protection Plan
EA	Environmental Assessment
EIS	Environmental Impact Statement
EMS	Environmental Management Systems
EPP	Environmental Protection Plan
FNMEP	First Nations and Metis Engagement Program
ISO	International Standards Organization
MISO	Midcontinent Independent System Operator
MMTP	Manitoba-Minnesota Transmission Project
NSMD	Non-state, market-driven
VC	Valued Component, traditionally called a “valued ecosystem component”, or VEC

About the author and the retainer

Patricia Fitzpatrick, PhD is an Associate Professor in the Department of Geography, and an Instructor in the Master's of Development Practice: Indigenous Development, at the University of Winnipeg. She received her BA from the University of Waterloo in 1998, her MNRM from the University of Manitoba in 2001 and her PhD in Geography from the University of Waterloo in 2005.

Dr. Fitzpatrick's primary area of research focuses on how we manage our natural resources. Her research considers the role and opportunity for public participation and learning; unpacking procedural complexity; strengthening follow-up and monitoring, including consideration of adaptive management, and independent oversight; and, exploring the increasing control by non-state actors (such as industry) in governance through initiatives like corporate social responsibility policies, and certification schemes, among others.

Dr. Fitzpatrick has published peer-reviewed articles and book chapters in the areas of environmental impact assessment, Canadian mineral resource development, corporate social responsibility, and non-state market-driven environmental governance.

Over the past twenty years, Dr. Fitzpatrick has been involved in ten EAs involving mining, hydroelectric development, oil and gas. In the recent past, she (along with a colleague Dr. Alan Diduck) provided evidence to the Clean Environment Commission (Manitoba) on the adaptive management principles and the related practices of environment monitoring and independent oversight for the Bipole III hydro-electric transmission line and the Keeyask Generation Station.

Dr. Fitzpatrick teaches courses in introductory human geography, human geography of northern Canada, resource development and the Canadian environment, and environment and sustainability. Dr. Fitzpatrick has also presented at numerous conferences, notably on environmental impact assessment and resource management.

Dr. Fitzpatrick was retained by the Consumers' Association of Canada (Manitoba) Inc. to provide:

- a critical review of Manitoba Hydro's monitoring and follow-up approach for the MMTP;
- an overview of the adaptive management process and make recommendations on how it may be applied to this project; and,
- a review of the Environmental Protection Plan and the ISO compliance identified by Manitoba Hydro in its EIS filing for the MMTP.

Declaration

I understand that my duty in providing written and oral evidence is to help the Clean Environment Commission and that this duty overrides any obligation to the party by who I am retained or the persons who have paid or are liable to pay me. I confirm that I have complied with and will comply with my duty.

I have not entered into any arrangement where the amount or payment of my fees is in any way dependent on the outcome of the case.

I acknowledge that it is my duty to provide:

- evidence that is fair, objective and non-partisan
- evidence that relates only to matters within my expertise or specialization
- such additional assistance to the Clean Environment Commission as it may reasonably require to determine relevant issues.

1.0 Introduction

Manitoba Hydro is a crown corporation, governed by *The Manitoba Hydro Act* (C.C.S.M. c. H190). The purpose and objectives of the Act, and by extension, the corporation created under the legislation are set out in section 2. Specifically:

> The purposes and objects of this Act provide for the continuance of a supply of power adequate for the needs of the province, and to engage in and to promote economy and efficiency in the development, generation, transmission, distribution, supply and end-use of power and, in addition, are
>
> (a) to provide and market products, services and expertise related to the development, generation, transmission, distribution, supply and end-use of power, within and outside the province; and
>
> (b) to market and supply power to persons outside the province on terms and conditions acceptable to the board.

In practice, Manitoba Hydro[1] serves as "the province's major energy utility."[2]

Of relevance to this project is the corporation's electricity portfolio. Manitoba Hydro, and its partners, currently generates 5701 MW of energy, 96% through hydroelectric development. The remaining four percent comes from two geothermal stations, four remote diesel stations, and two independent wind farms.

In addition to supplying electricity to Manitobans, the corporation pursues an active electricity export agenda. As summarized by the Public Utilities Board (PUB)

> Over the past decade, Manitoba Hydro has generally exported between 10,000 to 12,000 GWh of energy annually, which approximates 40% to 50% of the energy sold to domestic customers during the period. Exports have contributed about 32% of Manitoba Hydro's revenue and aided in keeping Manitoba Hydro's domestic electricity rates among the lowest in Canada and North America.[3]

This export agenda, compounded by an identified need for increased energy reliability within the province, serves as the impetus for the Manitoba-Minnesota Transmission Line Project (MMTP).[4]

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[1] Manitoba Hydro. (no date). Manitoba Hydro. Retrieved March 9, 2017, from https://www.hydro.mb.ca/your_home/index.shtml.

[2] The corporation has an extensive service portfolio, which includes natural gas distribution, electrical generation, electricity distribution, among other business interests.

[3] Public Utilities Board. (2014). Report on the needs for and alternative to NFAT: Review of Manitoba Hydro's preferred development plan. Winnipeg, MB, Canada: Public Utilities Board at p. 163.

[4] Ibid at p. 20.

1.1 About the Project

Under contemplation are the Manitoba-based elements of a new 750 MW transmission interconnection in the Midcontinent Independent System Operator (MISO) market. Specifically, this project involves a 213 km, 500kV AC power line from the Dorsey Converter Station (near Rosser, MB) to the US border near Piney; and necessary modifications to three existing stations (Riel, Dorsey and Glenboro South).[5]

The Manitoba-Minnesota Transmission Project (MMTP) was first subject to public review during the 2013-2014 hearing by the Public Utilities Board into Manitoba Hydro's *Preferred Development Plan.* This hearing reviewed fifteen development scenarios designed to address Manitobans' "growing electricity needs", as forecasted by the corporation.[6] The MMTP was one component of the corporation's *preferred* plan.

The "*Need For"* the MMTP offered by the corporation, and accepted by the PUB[7] , focused on the benefits of expanding Manitoba's interconnection with the MISO market to:

- Support firm export contracts;
- Increase energy reliability for domestic customers "in times of drought or infrastructure outage";[8] and,
- Add potential for new markets and contracts.

Although the *Preferred Development Plan* was not accepted in its entirety[9], the Public Utilities Board endorsed the development of the MMTP.[10]

Recommendations 15 and 16, under the heading "Actions in Support of a Clean Energy Future" provide important context for this approval.[11]

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[5] See Manitoba Hydro. (2015b). Manitoba-Minnesota transmission project environmental impact statement: Executive volume. Winnipeg, MB, Canada: Manitoba Hydro At the border, the transmission line will connect to the proposed Great Northern Transmission Line, a "750 MW, 500 kV AC transmission line proposed by Minnesota Power," which would meet the MMTP in the north, and "terminate in the Iron Range near Duluth, Minnesota" (Public Utilities Board. (2014). Report on the needs for and alternative to NFAT: Review of Manitoba Hydro's preferred development plan. Winnipeg, MB, Canada: Public Utilities Board at p.49). The Great Northern Transmission Line Project is governed by American federal and state authorities. According to the project website (www.greatnortherntransmissionline.com), the project received its Presidential permit November 15, 2016. The seemingly last regulatory hurdle involves DNR license to cross public lands and waters, which is on-going. Nonetheless, preconstruction activities in the way of vegetation remove began January 2017.

[6] Manitoba Hydro. (no date). Manitoba Hydro. Retrieved March 9, 2017, from https://www.hydro.mb.ca/your_home/index.shtml.

[7] Public Utilities Board. (2014). Report on the needs for and alternative to NFAT: Review of Manitoba Hydro's preferred development plan. Winnipeg, MB, Canada: Public Utilities Board at p. 20.

[8] Ibid at p. 28.

[9] Ibid. The Public Utilities Board recommended that that the Conawapa and North-South Transmission Upgrade projects be terminated; the Keeyask and MMTLP proceed; and, DSM projects be removed from Manitoba Hydro, to be delivered by an "independent, arm's length entity".

[10] Ibid at p. 35.

[11] Ibid at pp. 35-36.

15. The Panel recommends that integrated resource planning become a cornerstone of a new clean energy strategy for the Province of Manitoba.

16. The Panel recommends that the Government of Manitoba not approve the construction of any generating facilities, nor approve the beginning of the required infrastructure work for any generation facility, beyond the Keeyask Project, unless such facilities are justified through an integrated resource planning process. The integrated resource planning process must include public consultation.

The MMTP is currently undergoing environmental assessment (EA).[12] Provincially, the project is subject to an EA as part of achieving a Class 3 license under *The Environment Act* (C.C.S.M. c. E.125); these hearings are held as part of that approval process. Federally, the National Energy Board is reviewing the international power line as per the *National Energy Board Act (*NEB Act) (R.S.C. 1985, c. N-7) and environmental impacts, as per the *Canadian Environmental Assessment Act, 2012* (CEAA 2012) (S.C. 2012, c.19, s.52).

1.2 About the Report

This submission focuses on the strengths and weaknesses of Manitoba Hydro's approach to follow-up and monitoring as part of the MMTP. Section 2 describes material canvased in this review. This material includes peer-review literature, project-specific documentation, and follow-up and monitoring reports for two recent Manitoba Hydro initiatives (Bipole III and Keeyask Generation Station). Supplemental information was gathered through participation in a meeting with Manitoba Hydro, and events organized by the Consumers' Association of Canada (Manitoba).

Specific findings are canvased in the remainder of the document. Given the length of this report, each chapter will start by listing three to five key messages explored within that section.

Section 3 review best practice in EA and related follow-up and monitoring programs. Of particular importance is the role of adaptive management (AM), considered best practice in design and implementation.

Section 4 reviews the proposed follow-up and monitoring plans proposed for the MMTP. First, it considers the design characteristics of the material submitted as part of the Clean Environment Commission (CEC) review. Next, it reviews the monitoring plan, as compared against best practice AM.

Section 5 focuses on one aspect of the documentation: the role of ISO 14001. This section considers what ISO 14001 is designed to accomplish as compared with how this system is referenced in the Environmental Impact Statement (EIS).

[12] Manitoba Hydro. (2015e). Manitoba-Minnesota transmission project environmental impact statement: Project description. Winnipeg, MB, Canada: Manitoba Hydro.

Section 6 assembles specific recommendations from each chapter. Section 7 provides a comprehensive list of references, cited in footnotes throughout the document.

2.0 Methods

Where appropriate, my analysis was framed by peer-reviewed literature and guidance documents related to different topics, including (but not limited to): follow-up and monitoring; AM; and ISO 14001 and related non-state, market driven (NSMD) tools. Relevant literature referenced in footnotes, and listed in Section 8.0 References.

Table 1 lists key case-specific documentation considered in my analysis. As illustrated, I reviewed documentation related to the MMTP, as well as material surrounding the Bipole III Transmission Project and Keeyask Generation Project. This scope follows Manitoba Hydro's approach to the EIS[13], namely:

> Manitoba Hydro reviewed comments received on EIS submissions for previous projects (i.e.,Wuskwatim Generating Station Project, Bipole III Transmission Project, Keeyask Generation Project). The format of this EIS, and the environmental assessment it documents, builds in improvements based on these comments, where possible, and every relevant chapter in the EIS includes a section summarizing learnings from previous assessments.

I obtained supplemental information through participating in the following activities:

- An interview with three Manitoba Hydro employees charged with implementing follow-up and monitoring. Information associated with this meeting is cited as *personal communication, March 17 (2017).*

- A workshop offered by the Consumer's Association of Canada (Manitoba) Inc. for the policy communities working on the MMTP hearing. Information associated with this workshop is cited as *CAC (MB) Inc., April 10 (2017)*.

- A focus group offered by the Consumer's Association of Canada (Manitoba) Inc for consumers. Information associated with this focus group is cited as *CAC (MB) Inc., April 12 (2017)*.

[13] Manitoba Hydro. (2015d). Manitoba-Minnesota transmission project environmental impact statement: Introduction. Winnipeg, MB, Canada: Manitoba Hydro at pp.1-3.

Table 1: Case-specific material reviewed as part of this report.

Overview (*)	
MMTP Impact Statement	Scoping Document Executive Summary Introduction Project Description Public Engagement Process First Nations and Metis Engagement Process Appendix A – Aboriginal and Traditional Knowledge Studies[14] (as updated) Environmental Protection, Follow-up and Monitoring (Chapter 22) • Appendix A Draft Construction Environmental Protection Plan (CEnvPP) • Appendix B Draft Access Management Plan • Appendix C Draft Environmental Monitoring Plan (v. 3 April 2017) Draft Rehabilitation and Invasive Species Management Plan Draft Cultural and Heritage Resources Protection Plan Right-of-Way Habitat Management Plan for Managing Critical Golden-winged Warbler Clean Environment Commission Transcripts, May 8-16 (inclusive)
MMTP IRs	All CAC IRs Select IRs of other participants (as cited)
Bipole III	Chapter 11: Environmental Protection, Follow-up and Monitoring Chapter (and associated appendices) Guidance from Adaptive Environmental Management, Monitoring and Independent Oversight for Manitoba Hydro's Upcoming Development Proposals Clean Environment Commission Report Environmental License 2014 Biophysical Monitoring and Mitigation Report 2015 Biophysical Monitoring and Mitigation Report Manitoba Hydro dedicated website
Keeyask Project	Chapter 8: Monitoring and Follow-up (and associated appendices) Assessing Adaptive Management in the Keeyask EIS: Clean Environment Commission Report Environmental License Select Monitoring reports from 2015 and 2006 Dedicated website
Preferred Development Plan	Public Utilities Board Final Report

(*) the material was scanned in its entirety (including the appendices), but the analysis generally relied on information identified under the column “Detailed Review”

[14] Accessed from https://www.hydro.mb.ca/projects/mb_mn_transmission/pdfs/EIS/mmtp_app_a_atk_reports.pdf; and the two traditional knowledge reports later posted under “Supplemental filing” at https://www.hydro.mb.ca/projects/mb_mn_transmission/document_library.shtml.

Piecing together the components which inform my analysis of the follow-up and monitoring program for this particular assessment has been challenging. Two public registries; different rounds of IRs for government and participants; and emerging information related to the follow-up and monitoring plans made it difficult to find the necessary information to complete my analysis. This report was prepared before Manitoba Hydro presented its follow-up and monitoring program to the Commission on May 18, (including cross-examination by participants on May 23), and before participants shared evidence and recommendations as part of the hearing process. This is problematic because the presentations by and cross-examination of the proponent to date (i.e. May 17, 2017) have provided more holistic and detailed explanations then I could find in the EIS and IRs.

2.1 MMTP: Details of the Environmental Assessment (EA)

The impact statement for the MMTP is designed to meet the requirements of both the federal and provincial assessment legislation. As such, the scoping document sets out the parameters for what information must be included in the impact statement.

Section 11.0 of the scoping document focuses on follow-up and monitoring plans. At a high level, the proponent was instructed to report on:[15]

> "Follow-up and monitoring programs, and associated reporting required at construction and operation stages of development will be recommended."

Addition detail is provided in the subsequent paragraphs. The EIS should address:

- Requirements for each VC or potential affects;
- Information about the approach to inspection; and,
- Recommendations about independent third-party auditing.

The proponent was also directed to submit a Draft EnvPP which canvases

- Contractor emergency response requirements;
- Identification of roles and responsibilities;
- Inspection procedures;
- Reporting and Communication plans;
- Biophysical monitoring plan; and,
- Access Management Plan.

[15] Manitoba Hydro. (2015f). *Manitoba-Minnesota transmission project scoping document: June 11, 2015*. Winnipeg, Manitoba: Department of Sustainable Development, Government of Manitoba Retrieved from http://www.gov.mb.ca/sd/eal/registries/5750mbhydrombminnesota/mmtpfinalscopingdocumentjune11_2015.pdf at p. 11.11.

3.0 Follow-up and monitoring: Why is this critically important?

3.1 Key Messages

- Expectations of what EA can and should achieve evolve with increasing adoption and application. This process should be informed by the principles of transparency, inclusivity, informed deliberation and meaningful participation.

- Follow-up and monitoring programs are a critically important component of a good EA; these programs should be informed by the principles described above; address the design characteristics of compliance & enforcement; monitoring for effects; monitoring for learning; and ex-post evaluation; and apply the concept of AM.

- AM serves as best practice for the design and implementation of follow-up and monitoring programs. AM is a "systematic process for improving strategies and practices by learning from, and acting on outcomes of management experiences."[16]

- AM is purposeful, planned, orderly and organized. It is focused on a proactive learning approach, designed to address uncertainties. It is meant to replace reactive responses to unexpected results, or "managing adaptively".

- CEC recommendations from Bipole III and Keeyask Generating Station were critical in shaping a more robust follow-up and monitoring program. These recommendations, if included in this report, would strengthen the follow-up and monitoring program.

3.2 Environmental Assessment (EA): a short review[17]

EA is a proactive planning process, designed to identify, and where possible mitigate the potential negative impacts of a proposed project before irreversible decisions are made. Beanlands and Duinker[18] once termed this process as "minimum regret planning";[19] more colloquially, EA serves as the policy process which embodies the idiom "look before you leap."

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[16] Nyberg, J.B., & Taylor, B. (1995). Applying adaptive management in British Columbia's forests. Paper presented at the Proceedings of the FAO/ECE/ILO International Forestry Seminar, Prince George, BC.

[17] This section has been adapted from Fitzpatrick, P. (2015). Working at building sustainable relationships: Strengthening follow-up in the Enbridge line 3 proposed project. A report prepared for the Assembly of Manitoba Chiefs and the Public Interest Law Centre of Legal Aid Manitoba (pp. 59). Winnipeg, MB: Public Interest Law Centre.

[18] Beanlands, G.E., & Dunker, P.N. (1983). An ecological framework for impact assessment. Halifax, Nova Scotia: Institute for Resource and Environmental Studies, Halifax University.

[19] Mitchell defines minimum regret planning as the "idea that we should do our best to consider the implications of taking a particular course of action... sot that we do not later regret the action taken because of any subsequent negative impacts caused." See Mitchell, B.(Ed.). (2015). Resource and environmental management in Canada (5th ed.). Toronto, ON, Canada: Oxford University Press, at p. 482.

EA, in various forms, is recognized as an important policy process, including at the country and international level.[20] With experience, our understanding of what EA should and must accomplish changes. As noted by Sinclair and Doelle[21] "what we expect from EA has evolved and will continue to mature". As this process has been adopted across the globe, the focus of this process has moved from mitigating negative impacts to more holistically, "promoting positive outcomes."[22]

This sentiment was most recently articulated by the Expert Panel charged with reviewing the federal EA process:[23]

> "As we drew lessons from what we had heard across the country, we came to the conclusion that we need to improve the way we plan for development in our country. We believe that Canadians deserve better, and that it is entirely possible to deliver better."

The key point is that best practice in EA changes with practice; over time, experiences inform our understanding of how to best undertake development through EA.

To that end, the Expert Panel identified four principles that informed its understanding of EA:[24]

- Transparency: "to restore trust and confidence in assessment processes, people must be able to see and understand how the process is being applied, how assessments are being undertaken, and how decisions are being made. Without this transparency, no process will be trusted."[25]

- Inclusivity: "The assessment process can contribute positively to a project's social license if , and only if, that process takes into account the concerns of all parties who consider themselves or their interests to be affected by that project."[26]

- Informed: "we conclude that ...[EA] must be entirely based on evidence that is, and is seen to be, unbiased, accurate, accessible and complete."[27]

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[20] See for example Morgan, R.K. (2012). Environmental impact assessment: The state of the art. Impact Assessment and Project Appraisal, 30(1), 5-14; and Pope, J., Bond, A., Morrison-Saunders, A., & Retief, F. (2013). Advancing the theory and practice of impact assessment: Setting the research agenda. Environmental Impact Assessment Review, 41, 1-9. doi: http://dx.doi.org/10.1016/j.eiar.2013.01.008.
[21] Sinclair, A.J., & Doelle, M. (2015). Environmental assessment in Canada: Encouraging decisions for sustainability. In B. Mitchell (Ed.), Resource and environmental management in Canada (5th ed., pp. 112-141). Toronto, ON, Canada: Oxford University Press at p. 144.
[22] Pope, J., Bond, A., Morrison-Saunders, A., & Retief, F. (2013). Advancing the theory and practice of impact assessment: Setting the research agenda. Environmental Impact Assessment Review, 41, 1-9. doi: http://dx.doi.org/10.1016/j.eiar.2013.01.008 at p. 3.
[23] Expert Panel Review of Environmental Assessment Processes. (2017). Building common ground: A new vision for impact assessment in Canada. Ottawa, ON: Government of Canada at p. 2.
[24] Ibid at pp. 13-14.
[25] Ibid at p. 13.
[26] Ibid at p. 14.
[27] Ibid at p. 14.

- Meaningful: “the process must be perceived by interveners to give them a real opportunity to be heard and to feel that they have had a chance to influence the ultimate decisions.”[28]

While these principles are not new, per say, the Expert Panel’s writing serves as an important reminder of the innovative, participatory foundation of EA.

Transparency is an important concept, both in this report, and recent efforts by the federal government to restore confidence in decision-making related to resource management.[29] Unfortunately, much of the documentation assumes that the definition of transparency is self-evident. For this report, I have adopted the definition provided by Mitchell:[30]

> “The openness of a process to the public. Clear procedures, structured decision-making, and clear decision-making criteria assist in providing transparency.”

It is also informative for this report to identify design characteristics of best practice surrounding EA. These include both

- legislative components (e.g., widespread application, limits to ministerial discretion, enforceable conditions for approval, mandatory reporting on follow-up, etc.) and,

- process aspects (e.g., significant public involvement, access to information, follow-up and monitoring programs etc).

Table 2 identifies eight design characteristics of best practice EA. Of particular interest to this report is point 7, which focuses on elements relating to post-approval of projects.

[28] Ibid at p. 14.
[29] E.g., Expert Panel on the Modernization of the National Energy Board. (2017) Forward, Together: Enabling Canada's Clean, Safe, and Secure Energy Future. See https://www.nrcan.gc.ca/sites/www.nrcan.gc.ca/files/pdf/NEB-Modernization-Report-EN-WebReady.pdf Expert Panel Review of Environmental Assessment Processes (2017). Building common ground: A new vision for impact assessment in Canada. Ottawa, ON: Government of Canada; and TennØy, A., Kværner, J., & Gjerstad, K.I. (2006). Uncertainty in environmental impact assessment predictions: The need for better communication and more transparency. Impact Assessment and Project Appraisal, 24(1), 45-56. doi: 10.3152/147154606781765345.
[30] Mitchell, B. (Ed.). (2015). Resource and environmental management in Canada (5th ed.). Toronto, ON, Canada: Oxford University Press at p. 487.

Table 2: Design characteristics of best practice. Please note this list was compile before the independent review of federal EA, which added several new aspects including: AM, recognition of Indigenous Legal Traditions, the role of UNDRIP and sustainability assessment, among others.[31]

Best Practice EA includes:

1. a strong legislative foundation that establishes EA as mandatory and enforceable, and that provides process certainty, fairness and consistency;
2. a broad definition of the environment and a process that sets out requirements that ensure that EA is applied to all environmentally significant undertakings;
3. a process aimed at identifying the best option rather than merely acceptable proposal, requiring critical examination of purposes, comparative evaluation of alternative to the proposal, and alternative means of undertaking the proposal;
4. a process that limits ministerial discretion;
5. an open and fair process that provides a significant role for the public, and contains provisions related to public notice, comment access to information and participant funding;
6. a process with enforceable terms and conditions for the approval of an activity;
7. a process that specifically addresses monitoring and other post-approval follow-up activities to ensure terms and conditions have been met;
8. a process with provisions for linking assessment work into a larger context, including the setting of overall biophysical and socio-economic impacts; and
9. a strong support network of NGO and professional EA associations.

3.3 Follow-up and Monitoring

A good EA process does not end with project approval, or even construction. We now recognize that is important to continue to scrutinize projects through operation, and into the decommissioning phase. Post-approval elements are broadly referred to as "follow-up and monitoring."

As noted by Ray & Green[32]

> *EA is essentially a hypothesis framework, with approval resting on the assumption that the project will incur no significant adverse environmental impacts once mitigation measures have been deployed. This is a hypothesis that needs testing, and monitoring is a critical means to test this hypothesis. Once a project is approved and gets underway, monitoring is absolutely necessary to enable the learning needed to test and improve impact predictions, success of mitigation options, and most importantly, to enable learning between projects that*

[31] Sinclair, A.J., & Doelle, M. (2015). Environmental assessment in Canada: Encouraging decisions for sustainability. In B. Mitchell (Ed.), Resource and environmental management in Canada (5th ed., pp. 112-141). Toronto, ON, Canada: Oxford University Press at p. 114.

[32] Ray, J.C., & Green, S. (2016). Submission to the expert panel for the review of environmental assessment processes at p. 10.

> *are similar in nature (e.g., similar type of development or undertaking and/or impacts) or in the same general geography.*

Attention should not be lost once a project gets its approval. Environments and circumstances can change, in some instances quite rapidly. Follow-up and monitoring is meant to ensure that public attention remains on the project throughout construction/ implementation operation and decommissioning.

Follow-up and monitoring programs, broadly speaking, are meant to ensure that the goal of minimizing negative impacts is not forgotten after the project is approved.[33] These types of activities are designed to ensure that the goal of *improved environmental performance*[34] continues to garner attention – by the proponents, regulators, affected Communities, and the public- during project implementation. Follow-up and monitoring should be designed to be an iterative and "adaptive process of mitigation performance evaluation, state-of-the-art environmental monitoring and ongoing revision of mitigation programs and project impact management measures."[35]

Additional direction is taken from guidance written for the former CEAA. This operational policy statement, explains that the follow-up program:[36]

> "is used to verify predictions of environmental effects identified in the environmental assessment;
>
> determine the effectiveness of mitigation measures in order to modify or implement new measures where required;
>
> support the implementation of adaptive management measures to address previously unanticipated adverse environmental effects;
>
> provide information on environmental effects and mitigation that can be used to improve and/or support future environmental assessments including cumulative environmental effects assessments; and
>
> support environmental management systems used to manage the environmental effects of projects."

Like the EA process itself, best practice follow-up and monitoring must be informed by the key principles of transparency, inclusivity, informed and meaningful. As noted by the Expert Panel charged with reviewing the federal EA process:[37]

[33] See, for example, Arts, J., & Morrison-Saunders, A. (2004). Lessons for EIA follow-up. In A. Morrison-Saunders & J. Arts (Eds.), Assessing impact: Handbook of EIA and SEA follow-up (pp. 286-314). Sterling, VA: Earthscan; and Noble, B. (2010). Introduction to environmental impact assessment: A guide to principles and practice. Don Mills, ON: Oxford University Press., among others.

[34] I have adopted this phrase from a report by Lundberg.

[35] Noble, B. (2010). Introduction to environmental impact assessment: A guide to principles and practice. Don Mills, ON: Oxford University Press, at p. 160.

[36] Canadian Environmental Assessment Agency. (2011, December). Operational policy statement: Follow-up programs under the Canadian Environmental Assessment Act. Retrieved July 09, 2015, from https://www.ceaa-acee.gc.ca/default.asp?lang=En&n=499F0D58-1.

[37] Expert Panel Review of Environmental Assessment Processes. (2017). Building common ground: A new vision for impact assessment in Canada. Ottawa, ON: Government of Canada at p. 68.

> "Participants said that the lack of trust related to monitoring and follow-up is related to a lack of transparency in the monitoring and follow-up phases. They want all monitoring data to be posted publicly in real time in order to show clearly that monitoring is taking place and that the local environment is not being put at risk."

Figure 1 illustrates the types of activities captured in follow-up and monitoring programs. These include:[38]

- Compliance, which involves ensuring that the proponent is meeting its regulatory requirements, including the terms and conditions set out in the licenses;
- Monitoring, namely activities "designed to identify the nature and cause of change";
- Auditing, which involves an objective examination or comparison of observations with pre-determined; and,
- Ex-post (or post hoc) evaluation, which involves a detailed comparison of the information provided in the impact statement, as compared with what happened in reality. These are typically conducted within a specific time-frame, post-construction, and replicated during operation.

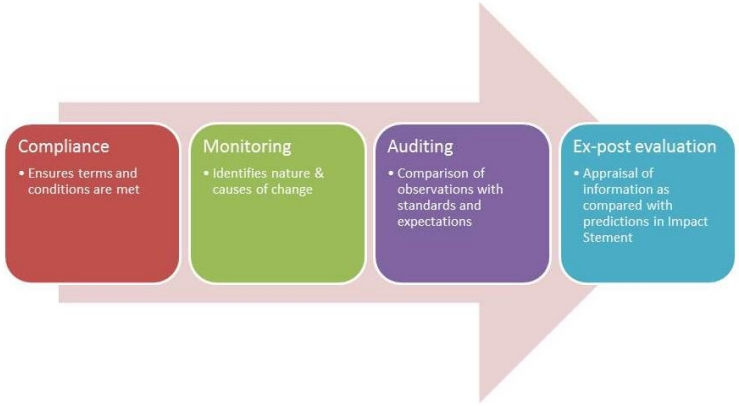

Figure 1: Follow-up and monitoring program objectives.

To identify the types of follow-up and monitoring programs necessary for any specific development Baker[39] provides a "practical framework" of what types of information must be considered:

> "(1) the determination of the need for follow-up;

[38] Noble, B. (2010). Introduction to environmental impact assessment: A guide to principles and practice. Don Mills, ON: Oxford University Press, at p. 163; see also Jalava, K., Haakana, A.-M., & Kuitunen, M. (2015). The rationale for and practice of EIA follow-up: An analysis of Finnish road projects. Impact Assessment and Project Appraisal, 33(4), 255-264. doi: 10.1080/14615517.2015.1069997.

[39] Baker, J. (2004). A practical framework for EIA follow-up. In A. Morrison-Saunders & J. Arts (Eds.), Assessing impact. Handbook of EIA and SEA follow-up (pp. 42–62).

(2) the issues to be addressed, and the selection of the methodology and tools that may be incorporated into the program;

(3) follow-up implementation;

(4) the evaluation of results and outcomes;

(5) issues management and;

(6) stakeholder communication."[40]

In reviewing proposed material, attentions should be given to a number of questions, including[41]:

- "How was the need and objective for follow-up seen and argued?
- What types of impacts were suggested to be followed, and then followed?
- What follow-up techniques were suggested to be followed, and then followed?
- What were the responsibilities and how was the follow-up organized?
- How was the follow-up information reported and used?
- What kind of information was gained?
- <Ultimately> Did the reporting of follow-up practices and information show evidence that follow-up helped to protect the environment?
- Did the reporting show evidence of other benefits of follow-up?

Through the EA process, including the hearings, decision-makers should be provided with necessary information to identify specific VCs that require monitoring. The analysis which I provide in this report focuses on the broad systems proposed by Manitoba Hydro to conduct monitoring. However, area experts are needed to critique specific methods identified for particular VCs (e.g., experts on golden winged warblers).

[40] Jalava, K., Haakana, A.-M., & Kuitunen, M. (2015). The rationale for and practice of EIA follow-up: An analysis of Finnish road projects. Impact Assessment and Project Appraisal, 33(4), 255-264. doi: 10.1080/14615517.2015.1069997 on p. 256.
[41] Ibid at p. 257.

3.4 Adaptive Management (AM)[42]

EA, and associated follow-up and monitoring programs, are framed in the context of uncertainty. Recognizing that our understanding of socio-ecological systems is incomplete and imperfect need not necessarily prevent project construction. Indeed proponents, planners and governments make decisions based on the best information available at a specific point in time. But in making these decisions, it is important to develop robust systems and methods that can deal with the unknowns as they arise. One such approach, **AM is considered to be best practice for minimizing the environmental and social risks of development.**

In resource management, uncertainty has a specific and purposeful meaning. Uncertainty recognizes our understanding of the world – the foundational socio-ecological components and their interconnections - is imperfect.[43] Despite incomplete information, decisions must be made, at specific points in time, based on best available information.

> "Our understanding of biophysical systems, of human societies, or of the interactions between natural and social systems is often incomplete and imperfect…we are aware that conditions and circumstance in which future could well change relative to what they are today." Mitchell (2002, p. 15)

There is more than one source of uncertainty. As described by Wynne:[44]

- "Risk: Know the odds.
- Uncertainty: Do not know the odds. May know the key parameters.
- Ignorance: Do not know what we should know. Do not even know what questions we should be posing.
- Indeterminancy: Causal chains or networks are open. Understanding not possible."

A pithy summary was offered by former-Secretary of Defense Donald Rumsfeld:[45]

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[42] This section has been adapted from Fitzpatrick, P. (2015). Working at building sustainable relationships: Strengthening follow-up in the Enbridge line 3 proposed project. A report prepared for the Assembly of Manitoba Chiefs and the Public Interest Law Centre of Legal Aid Manitoba (pp. 59). Winnipeg, MB: Public Interest Law Centre; Diduck, A.P., & Fitzpatrick, P. (2013). Assessing adaptive management in the Keeyask EIS: A report prepared for the Consumers Association of Canada (Manitoba) and the Public Interest Law Centre of Legal Aid Manitoba. Winnipeg, MB: Public Interest Law Centre; and Fitzpatrick, P., Diduck, A.P., & Robson, J.P. (submitted). Good development should not end with environmental assessment: Adaptive management and learning as guiding principles for northern development. In A. Craft & J. Gunn (Eds.), In our backyard" legacy resource development in northern and remote areas: The Keeyask experience (pp. 15).

[43] Mitchell, B. (2002). Resource and environmental management (2nd ed.). Essex, England: Longman, Pearson Education Limited at p. 15.

[44] Wynne, B. (1992). Uncertainty and environmental learning: Reconceiving science and policy in the preventive paradigm. Global environmental change, 2(2), 111-127; as cited in Mitchell, B. (2002). Resource and environmental management (2nd ed.). Essex, England: Longman, Pearson Education Limited at pg. 16.

[45] Rumsfeld, D. (Producer). (2002). US department of defense briefing. Retrieved from http://www.youtube.com/watch?v=_RpSv3HjpEw.

> "There are known knowns. These are things we know that we know. There are known unknowns. That is to say, there are things that we now know we don't know. But there are also unknown unknowns. There are things we don't know we don't know".

Uncertainty should be used to frame our understanding of the system. This recognition allows us to: [46]

- "make adjustments as new information becomes available; and
- "hel[p] us to identify the kinds of analysis or planning which may be appropriate."

An important tool for moving forward, in the face of uncertainty, is AM. As cited elsewhere[47] "adaptive management is a systematic process for improving strategies and practices by learning and acting on the outcomes of management experience."[48]

"[A]daptive management is often included as an important component of the EA process, particularly in monitoring and managing project impacts."[49] Indeed, AM is identified as a component of best practice design principle for monitoring and enforcement.[50] When used within this context, follow-up and monitoring programs become central to ensuring that a development continues to reflect new and emerging information throughout the project's lifecycle.[51]

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[46] Mitchell, B. (2002). Resource and environmental management (2nd ed.). Essex, England: Longman, Pearson Education Limited at p. 15.

[47] i.e., Diduck, A.P., Fitzpatrick, P., & Robson, J.P. (2012). Guidance from adaptive environmental management, monitoring and independent oversight for Manitoba hydro's upcoming development proposals: A report prepared for the Consumers Association of Canada (Manitoba) and the Public Interest Law Centre of Legal Aid Manitoba. Winnipeg, MB: Public Interest Law Centre at p.1; Fitzpatrick, P., Diduck, A.P., & Robson, J.P. (submitted). Good development should not end with environmental assessment: Adaptive management and learning as guiding principles for northern development. In A. Craft & J. Gunn (Eds.), In our backyard" legacy resource development in northern and remote areas: The Keeyask experience (pp. 15) at p.3.

[48] Nyberg, J.B., & Taylor, B. (1995). Applying adaptive management in British Columbia's forests. Paper presented at the Proceedings of the FAO/ECE/ILO International Forestry Seminar, Prince George, BC.

[49] Noble, B. (2015). Adaptive environmental management. In B. Mitchell (Ed.), Resource and environmental management in Canada (pp. 87-111). Don Mills, ON: Oxford University Press at p. 106.

[50] Specifically: "An effective monitoring and enforcement strategy, based on principles of adaptive management, ensures environmental, economic, and social goals are achieved during all project phases." Van Hinte, T., Gunton, T.I., & Day, J.C. (2007). Evaluation of the assessment process for major projects: A case study of oil and gas pipelines in Canada. Impact Assessment and Project Appraisal, 25(2), 123-137. doi: 10.3152/146155107X204491at p. 132.

[51] See also Ruhl, J. (2003). Taking adaptive management seriously: A case study of the endangered species act. *U. Kan. L. Rev., 52*, 1249; and Noble, B. (2015). Adaptive environmental management. In B. Mitchell (Ed.), Resource and environmental management in canada (pp. 87-111). Don Mills, ON: Oxford University Press.

While people will often learn and adapt simply because of their experiences (*manage adaptively)*, what distinguishes AM from such reactive learning is its **purposefulness**, which explicitly replaces learning through *ad hoc*, trial-and-error with learning by careful tests.

Perhaps a good colloquial explanation is that rather than learning simply from your mistakes (manage adaptively), **AM involves careful contingency planning to learn from your experiences**.

Experimentation, then, is a core element of AM.[52] In AM, managers (e.g., those who oversee monitoring programs) treat human interventions in natural systems as experimental probes.[53] That is, management actions are designed (from the outset) to test hypotheses about the behaviour of an ecosystem being changed through human use. This can be applied in two ways:

- Passive AM; and
- Active AM.

In passive AM, historical data are used to frame a single best approach, to be taken along a path that is assumed to be correct. Faced with uncertainty, managers implement the alternative they think is 'best' (with respect to meeting management objectives), and then monitor to see if they were right, making adjustments if desired objectives are not met.

Active AM is explicitly designed to provide data and feedback on the relative efficacy of alternative management or policy options. Faced with uncertainty, managers implement more than one strategy as concurrent experiments to see which will best meet management objectives.

AM is a continuous learning cycle, designed to link design and implementation elements on a continuous basis. Figure 2 provides a useful, visual illustration of how AM is iterative, and how it is essential to build lessons drawn from experience into monitoring design and implementation. It relies on the well

When should proponents implement experimentation in AM?

As noted by Moore et al (2017, p.5), there is "no simple rule for when learning is worthwhile." The proponent needs to "optimize its investment in learning" (p.1).

Experimentation, a key mechanism for learning, must balance the benefits and costs associated with implementation.

Two benefits and two costs important "the benefits associated with applying learning to subsequent management, the transient benefits accrued during the learning phase, the direct costs of learning, and the opportunity costs of learning (the resources not available for subsequent management." (Moore et. al., 2017, p. 10)

[52] Lee, K.N. (1993). Compass and gyroscope: Integrating science and politics for the environment. Washington, D.C.: Island Press; see also Moore, A.L., Walker, L., Runge, M.C., McDonald-Madden, E., & McCarthy, M.A. (2017). Two-step adaptive management for choosing between two management actions. Ecological Applications.

[53] Lee, K.N. (1993). Compass and gyroscope: Integrating science and politics for the environment. Washington, D.C.: Island Press.

documented and utilized plan-do-check-act (PDCA), which can be adopted for robust follow-up and monitoring programs.

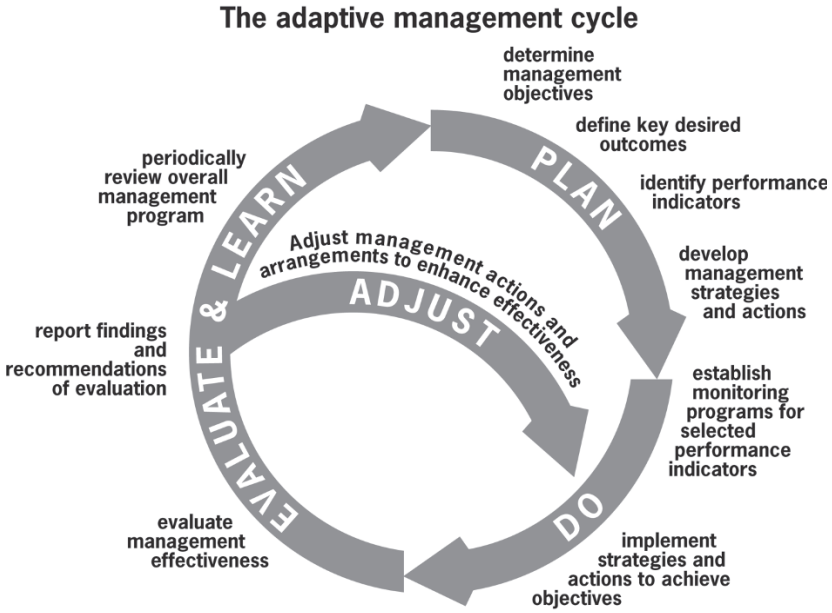

Figure 2: The AM cycle for the Tasmanian Wilderness World Heritage Project.[54]

Although understanding of AM is improving with time, it is possible to identify at least five design elements of AM strategies.

[54] Jones, G. (2009). The adaptive management system for the Tasmanian wilderness world heritage area: Linking management planning with effective evaluation. In C. Allan & G. H. Stankey (Eds.), Adaptive environmental management: A practitioner's guide (pp. 227-258). New York: Springer Verlag at p. 237.

AM:

- is **iterative**: decisions must be reviewed and reassessed on a regular basis;
- involves **on-going experimentation**: purposeful, well-conceived interventions are planned, and implemented to address key uncertainties, and the findings are included in subsequent design;
- **relies on systematic monitoring:** detailed and robust records are needed to evaluate changes in the environment;
- emphasizes **feedback and learning:** by developing clear processes for using monitoring data, and incorporating outcomes from experimentation, AM serves to minimize uncertainty;
- **involves the policy community**[55]: monitoring, experimental probes, and other criteria for management decisions should incorporate the experience and expertise of the broader policy community.

It is worth repeating that while people will often learn and adapt simply because of their experiences, or "manage adaptively", what distinguishes AM from such reactive learning is its purposefulness. AM explicitly replaces learning through ad hoc, trial-and-error with learning by careful tests and clear mechanisms for implementing findings in the monitoring program.

Understanding how to implement AM has been increasing, to the point where we now have a rich literature that can provide guidance.[56] In addition to the design elements described above (e.g., iterative, on-going experimentation, etc), programs designed under the guise of AM should include the following characteristics:

- Comprehensive definition of AM (including uncertainty and complexity);
- Evidence that the program design and implementation is deliberate;
- Clear indication that program design encourages, and incorporates learning;
- Transparent decision-making and communication of results; and,
- Clear financial and human resources for future modifications.

For the Keeyask Generation EA, Diduck & Fitzpatrick[57] proposed a detailed framework for considering AM. It identifies specific questions, drawing from the literature at different

[55] Policy community refers to those individuals and organizations who have common core beliefs and/or sector-specific interests with relevance to the specific project, policy, programme, etc. under review.
[56] Allan, C., & Stankey, G.H. (Eds.). (2009b). Adaptive environmental management: A practitioner's guide. New York: Springer Netherland; Noble, B. (2015). Adaptive environmental management. In B. Mitchell (Ed.), Resource and environmental management in Canada (pp. 87-111). Don Mills, ON: Oxford University Press.
[57] Diduck, A.P., & Fitzpatrick, P. (2013). Assessing adaptive management in the Keeyask EIS: A report prepared for the Consumers Association of Canada (Manitoba) and the Public Interest Law Centre of Legal Aid Manitoba. Winnipeg, MB: Public Interest Law Centre

stages of follow-up and monitoring, that can be used to ensure that the proponents "fully harness the power of AM for responding to the complexity, uncertainty and conflict inherent in the corporation's upcoming development proposals."[58] These probative questions are presented in Table 3.

[58] Ibid at p. 4.

Table 3: Best Practice AM.

Plan (and hypothesize)

- A-1 To what degree does the proponent's management strategy recognize and accept uncertainty and thereby create safe and rewarding conditions to experiment carefully (and to make occasional errors as long as the errors result in learning that leads to an improved project or better management)?
- A-2 To what extent does the management strategy take a long-term, multi-scale, and integrative view of the environment?
- A-3 Are the right people involved for developing a deep and nuanced understanding of ecological, social, economic, and cultural contexts?
- A-4 Are opportunities being taken for active experimentation using questions and hypotheses that are testable, quantifiable and replicable? And are the experiments focused on the uncertainties most likely to influence management decisions?
- A-5 Is the design of the undertaking and its implementation as well as the AM strategy sufficiently flexible to make adjustments in response to lessons learned?
- A-6 Is planning transparent, open to scrutiny, and designed to encourage thoughtful and constructive debate? And does the strategy explicitly address the multiple goals of stakeholders?
- A-7 To what degree does the strategy cover adaptive capacity to pursue emerging opportunities for new or enhanced positive effects as well as unexpected risks or damages?

Do (and monitor)

- B-1 Are the right people involved for regular monitoring of ecological, social, economic, and cultural effects and for effective sharing and application of associated learning?
- B-2 Are the timelines to obtain verified results compatible with management decision-making requirements?
- B-3 Will monitoring differentiate among different hypothesized outcomes from a particular strategy, and thus contribute to learning about how the managed system works?
- B-4 To what degree is implementation and monitoring transparent, open to scrutiny, and designed to encourage thoughtful and constructive debate?
- B-5 How is the monitoring designed to track and identify indirect and cumulative as well as direct and project-specific effects?

Evaluate (and learn)

- C-1 Are suitable organizational structures and financial resources in place for evaluation of monitoring results, and for promoting learning and innovation?
- C-2 Are the right people involved for careful evaluation, and for promoting learning and innovation?
- C-3 Are suitable approaches being used for evaluation purposes?
- C-4 To what degree are evaluation and learning processes transparent, open to scrutiny, and designed to encourage thoughtful and constructive debate?Adjust (as needed or desired)
- D-1 Are suitable organizational structures, skills and financial resources in place for adjusting the strategy and the project in response to lessons learned?
- D-2 Does the proponent address how adjustments will be made?
- D-3 Are the right people involved to ensure effective implementation?
- D-4 Is the process of making adjustments transparent, open to scrutiny, and designed to encourage thoughtful and constructive debate?

3.5 Lessons learned from recent CEC hearings involving Manitoba Hydro

The previous sections outline the state of EA, and the role of follow-up and monitoring, including AM as best practice. This context is driven by a number of factors, such as legislative requirements, proponent planning and experience, and the work of independent tribunals, such as the CEC.

Evidence from Bipole III and the Keeyask Generating Station, for example, are referenced in subsequent EAs, such as the Enbridge Line 3 Project[59]. These projects also informed submissions to the federal expert panel reviewing EA.[60] Lessons learned from recent Manitoba Hydro EAs are informing practice not only within the province, but also across the country.

CEC recommendations are critically important in filling gaps in the legislative framework, and have been extremely important for moving towards EA that is informed by the principles of transparency, inclusivity, informed deliberation and meaningful participation. Table 4 identifies key recommendations by the CEC which strengthened the proponent's approach to follow-up and monitoring.

Table 4: CEC recommendations designed to strengthen follow-up and monitoring.

Area	CEC Recommendation for Bipole III[61]	CEC Recommendation for the Keeyask Generating Station[62]
Ex-post evaluation	12.1 Manitoba Hydro, under the direction of Manitoba Conservation and Water Stewardship, on completion of the Bipole III Project, undertake a third-party environmental audit to assess whether commitments were met and to assess the accuracy of assumptions and predictions. The results of this audit shall be made public. This is to be repeated five years after the first environmental audit.[63]	13.1 Keeyask Hydropower Limited Partnership, under the direction of Manitoba Water Conservation and Water Stewardship, on completion of the construction of the Keeyask Generation Project, undertake a third-party environmental audit to assess whether commitments were met and to assess the accuracy of assumptions and predictions. The results of this audit will be made public. This is to be repeated ten years after the first environmental audit.[64]
Transparency, Inclusivity, Meaningful participation	12.2 Manitoba Hydro develop and maintain, in perpetuity, an easily accessible Project-related website to contain all of the information related to monitoring and assessing environmental mitigation and management committed to and noted throughout this report. This information is to be	13.2 Keeyask Hydropower Limited Partnership maintain its Keeyask website for the life of the Project, containing all the information the Proponent has already committed to in the EIS and Keeyask hearings related to monitoring and assessing environmental impacts, mitigation and management.

[59] Fitzpatrick, P. (2015). Working at building sustainable relationships: Strengthening follow-up in the Enbridge line 3 proposed project. A report prepared for the Assembly of Manitoba Chiefs and the Public Interest Law Centre of Legal Aid Manitoba (pp. 59). Winnipeg, MB: Public Interest Law Centre.
[60] Fitzpatrick, P. (2016). Building better federal EA: Submission to the expert panel upon its visit to Winnipeg (pp. 16). Winnipeg, MB: The University of Winnipeg.
[61] Clean Environment Commission. (2013). Report on public hearings Bipole III transmission project. Winnipeg, MB, Canada: Clean Environment Commission.
[62] Clean Environment Commission. (2014). Keeyask generating project: Report on public hearing. Winnipeg, MB, Canada: Clean Environment Commission.
[63] See condition 63 of the licence at http://www.gov.mb.ca/sd/eal/registries/5433bipole/3055.pdf.
[64] See condition 67 of the generating licence at http://www.gov.mb.ca/sd/eal/registries/5550keeyask/licence3107.pdf.

Area	CEC Recommendation for Bipole III	CEC Recommendation for the Keeyask Generating Station
	easily retrievable and updated frequently. Minutes from any community meeting related to Bipole III Project monitoring and mitigation management are to be posted on this website[65].	This information is to be easily retrievable and updated frequently[66].
Transparency, Inclusivity, Meaningful participation	12.3 Manitoba Hydro provide to the Manitoba Government an annual report on the Bipole III Project containing information in such detail that past, current and future assessments can be made as to the accuracy of predictions, success of mitigation actions and commitments to future actions. These reports will provide assessment of any trends detected over the entire reporting period. These reports shall be made public[67].	13.3 Keeyask Hydropower Limited Partnership provide to Manitoba Conservation and Water Stewardship an annual report on the Keeyask Generation Project containing sufficient detail that assessments can be made as to the accuracy of predictions, success of mitigation actions and commitment to future actions. These reports will provide assessment of any trends detected over the entire reporting period. These reports are to be made public.[68]

The importance of these recommendations cannot be understated. They represent a new benchmark for best practice in follow-up and monitoring in Canada. Specifically, they mark a material change in expectations from theory to practice in Manitoba.[69] And importantly, they serve to address two key identified weaknesses in practice: ensuring regulators are informed of outcomes, and ensuring the policy communities are kept informed of the monitoring results.[70]

Although third party audits have yet to be completed for the Bipole III and Keeyask projects, I strongly recommend that the CEC replicate this recommendation for the MMTP.

[65] See condition 64 of the license at http://www.gov.mb.ca/sd/eal/registries/5433bipole/3055.pdf.
[66] See condition 68 of the generating licence at http://www.gov.mb.ca/sd/eal/registries/5550keeyask/licence3107.pdf.
[67] See conditions 18, 57, 58 and 64 of the license at http://www.gov.mb.ca/sd/eal/registries/5433bipole/3055.pdf.
[68] See condition 16 of the transmission licence at http://www.gov.mb.ca/sd/eal/registries/5614keeyask_transmission/keeyask3106.pdf and condition 20 of the generating licence at http://www.gov.mb.ca/sd/eal/registries/5550keeyask/licence3107.pdf.
[69] Ex-post evaluations, for example, are required in some jurisdictions (such as the Dutch Environmental Management Act), but not yet part of the legislative EA process in Manitoba or Canada (see for example Arts, J., Caldwell, P., & Morrison-Saunders, A. (2001). Environmental impact assessment follow-up: Good practice and future directions — findings from a workshop at the IAIA 2000 conference. Impact Assessment and Project Appraisal, 19(3), 175-185. doi: 10.3152/147154601781767014.
[70] Identified by Bennett, S., Kemp, S., & Hudson, M.D. (2016). Stakeholder perceptions of environmental management plans as an environmental protection tool for major developments in the UK. Environmental Impact Assessment Review, 56, 60-71. doi: http://dx.doi.org/10.1016/j.eiar.2015.09.005.

As noted by Tennøy et al:[71]

> Most authors recognize the unavoidable uncertainty inherent in EIA predictions. This is confirmed by post-audit studies, which show that real impacts of projects often differ from predicted impacts.

As such, a post hoc evaluation, as described in Table 4 is critically important. It represents a real effort to undertake quality assurance – of the accuracy of predictions, the effectiveness of mitigation measures and the implementation of monitoring programs, including consideration of AM, among others[72] – within the MMTP specifically, but also the opportunity to learn from the EA process, and, in doing so, ensure lessons are applied in future project.[73] As noted in the hearing[74], this type of third party audit was not considered for this assessment. As discussed in greater detail in Section 5, the scope of the external audits required for ISO 14001 certification would not fulfill this role.

This idea was supported by some members of the policy community during the CAC Manitoba workshop,[75] and seemed to have some support by participants of the Hearings.[76] Questions were raised surrounding accountability (e.g., "What is the impact of monitoring plans on the CEC reports to the government?), transparency and trust.

Recommendation 1: The CEC replicate the recommendation that, upon completion of the project, Manitoba Hydro "undertake a third-party environmental audit to assess whether commitments were met and to assess the accuracy of assumptions and predictions. The results of this audit shall be made public. This is to be repeated five years after the first environmental audit."

The second recommendation, which required the proponent to maintain a website, for the life of the project, with all information, in a manner that is easily retrievable and updated frequently, is essential for ensuring the public continues to have access to meaningful information about the project.

This requirement is useful, as demonstrated by approximately 2,664 unique page views between November 14, 2014 through January 31, 2017 for the Bipole III project.[77] In

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[71] TennØy, A., Kværner, J., & Gjerstad, K.I. (2006). Uncertainty in environmental impact assessment predictions: The need for better communication and more transparency. Impact Assessment and Project Appraisal, 24(1), 45-56. doi: 10.3152/147154606781765345.

[72] See Olszynski, M., & Kwasniak, A. (2017). Monitoring, follow-up, adaptive management and quality assurance: Prepared for the Expert Panel - review of environmental assessment processes (pp. 13). Calgary, AB: The University of Calgary.

[73] E.g. Arts, J., & Morrison-Saunders, A. (2004). Lessons for eia follow-up. In A. Morrison-Saunders & J. Arts (Eds.), Assessing impact: Handbook of eia and sea follow-up (pp. 286-314). Sterling, VA: Earthscan.

[74] Hearing Transcript, May 15, 207 at pp.1149 (line 18)-1150 (line 6).

[75] CAC (MB) Inc., April 10 (2017).

[76] Hearing Transcripts, May 15 p.1107 (lines 11-18): Mr. Mills stated"…if clause 63 of the Bipole III was applied to the Manitoba-Minnesota Transmission Project – in other words, if this board recommended, again, a third-party upon-completion audit, would you mind if that condition, this time, indicated that the report was to be made available to the public as well as the Director."

[77] See response to CAC-IR-009.

addition, some participants at the CAC Manitoba Consumers Focus group sought publicly accessible information, on websites.[78]

In my experience, the interfaces on project websites maintained by Manitoba Hydro are much more user-friendly than the provincial public registry. The proponent-led sites organize material by theme, whereas the provincial site has a chronological listing of all material, making it often challenging to find the most relevant file. The site created for the Keeyask Generating Station by the Keeyask Hydropower Limited Partnership has the most easily accessible project information[79], and in fact, the public registry[80] for this project often sends the user to the Partnership site to access monitoring plans and results. In fact, despite my familiarity with the file, it is difficult for me to find the monitoring results for the Keeyask project on the public registry, when they are easily accessible on the proponent site.

Recommendation 2: The CEC replicate the recommendation that, "for the life of the Project, containing all the information the Proponent has already committed to in the EIS and …<MMTP> hearings related to monitoring and assessing environmental impacts, mitigation and management. This information is to be easily retrievable and updated frequently."[81]

The third recommendation focused on ensuring that the results of follow-up and monitoring are publicly available. While annual reports are typically sent to the Department of Sustainable Development, for these two projects, the recommendations specified that the results should be publicly available.

While Manitoba Hydro has committed to making annual reports for the MMTP publicly available, and including "the accuracy of predictions, success of mitigation actions and commitments to future actions,"[82] including this recommendation in the CEC report will add authority to this requirement, ensuring that, regardless of changes in funding, the commitment to disclose the information is assured.

Having the monitoring information publicly available will go a long way to address recommendation 5.2.1 of the Expert Panel on the Modernization of the National Energy Board:[83]

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[78] CAC(MB) Inc, April 12.
[79] See http://keeyask.com/the-project/environment-and-montoring/.
[80] See https://www.gov.mb.ca/sd/eal/registries/5550keeyask/.
[81] Note this condition was taken from the Keeyask Generating Station Project, as it is for the life the project, rather than "in perpetuity" (the condition for the Bipole III Generating Station).
[82] See response to CAC-IR-006.
[83] See Expert Panel on the Modernization of the National Energy Board. Forward, Together: Enabling Canada's Clean, Safe, and Secure Energy Future. 2017 accessed from https://www.nrcan.gc.ca/sites/www.nrcan.gc.ca/files/pdf/NEB-Modernization-Report-EN-WebReady.pdf at page 79: "5.2.1 The CETC immediately improve transparency of monitoring information, incident reports, and follow-up, including the provision of better online tools to help all citizens interact with this information."

> "… immediately improve transparency of monitoring information, incident reports, and follow-up, including the provision of better online tools to help all citizens interact with this information."

Recommendation 3: The CEC replicate the recommendation that, the proponent "provide to the Manitoba Government an annual report on the…< MMTP> containing information in such detail that past, current and future assessments can be made as to the accuracy of predictions, success of mitigation actions and commitments to future actions. These reports will provide assessment of any trends detected over the entire reporting period. These reports shall be made public.

That being said, the quality of monitoring data available differs greatly between projects. Table 5 illustrates the monitoring reports available as of March 1, 2017 for the Bipole III and Keeyask project. As perhaps inferred from this table, the monitoring reports for the Keeyask project have significantly more detail than those posted for Bipole III.

As noted by the CEC in each of the Bipole III and Keeyask Report:[84]

> "Manitoba Hydro is a large corporation … Within the Corporation are a number of large divisions, some of which are responsible for their own developments, including responsibility for the attendant environmental assessments. The Commission is of the view that this can lead to inconsistency in standards and practice….To address such concerns, Manitoba Hydro should establish a centralized environmental assessment process to set standards, and to guide, manage and co-ordinate all environmental assessment and monitoring processes conducted by the Corporation. While each project team would continue to carry out the necessary assessments based on their priorities, they would be guided by consistent corporate environmental assessment standards and procedures"

During my meeting with Manitoba Hydro personnel[85], we discussed the differences between reporting for projects. I learned that it is possible to request more detailed reports for the Bipole III project, but as of March 17, 2017, no one had done so.

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[84] Clean Environment Commission. (2014). Keeyask generating project: Report on public hearing. Winnipeg, MB, Canada: Clean Environment Commission at p.157-158; see also Clean Environment Commission. (2013). Report on public hearings Bipole III transmission project. Winnipeg, MB, Canada: Clean Environment Commission at p. 124.

[85] *Personal communication, March 17 (2017)*

Table 5: Publically available monitoring reports. Reports in bold, in particular, may serve as useful models for reporting monitoring results for the MMTP

BIPOLE III		KEEYASK	
2014	2015	2014-2015	2015-2016
		Aboriginal Traditional Knowledge	
			Aboriginal Traditional Knowledge Monitoring
		Aquatic Effects Monitoring	
		Adult Lake Sturgeon Movement	Adult Lake Sturgeon Movement
		Adult Lake Sturgeon Population Monitoring	Adult Lake Sturgeon Population Monitoring
		Benthic Macroinvertebrate Monitoring	Benthic Macroinvertebrate Monitoring
			Fish Community Monitoring
		Juvenile Lake Sturgeon Movement Monitoring	Juvenile Lake Sturgeon Movement Monitoring
		Juvenile Lake Sturgeon Population Monitoring	Juvenile Lake Sturgeon Population Monitoring
		Lake Whitefish Movement Monitoring	Lake Whitefish Movement Monitoring
			Mercury in Fish Flesh from Aiken River
			Mercury in Fish Flesh from Gull Lake
		Walleye Movement Monitoring	Walleye Movement Monitoring
		Water Quality Monitoring	Water Quality Monitoring
		Physical Environment Monitoring	
Biophysical Monitoring and Mitigation	Biophysical Monitoring and Mitigation	**Physical Environment Monitoring**	**Physical Environment Monitoring**
		Resource Use Monitoring	
		Resource Use Monitoring	**Resource Use Monitoring**
		Socio-Economic Monitoring	
		Socio-Economic Monitoring	**Socio-Economic Monitoring**
		Terrestrial Effects Monitoring	
			Bald Eagle Habitat Effects Monitoring
			Bat Survey
		Bear Den Survey	Bear and Wolf Den Surveys
			Caribou Sensory Disturbance Monitoring
			Caribou Winter Abundance Estimates
			Colonial Waterbird Habitat Effects Monitoring
			Colonial Waterbird Habitat Enhancement Monitoring
			Moose Population Estimate
		Rare Plant Survey	
			Summer Resident Caribou Range Monitoring
			Terrestrial Plant, Habitat and Ecosystem Monitoring
			Waterfowl Habitat Effects Monitoring

While it is important to have concise findings, communicated in a publically digestible manner, it is also important to ensure that the monitoring reports have sufficient detail to meet expectations. To this end, I find that that Keeyask monitoring reports, serve as a

useful model for the corporation. These reports, in general, integrate different aspects to inform the understanding of the effects of the project on key VCs. The reports have sufficient detail of the methods and results for those interested to understand how annual findings contribute to overall potential impacts. Importantly, many of the reports include a reader-friendly executive summary which canvases the following information:[86]

- What the purpose of the specific monitoring program;
- Methods used;
- Results;
- Implication for next year's monitoring; and
- Reflection on how these findings match (or deviate) from predictions.

Having consistent monitoring reports between projects will aid in transparency of findings, provide more clear information for the public as to what is happening in the environment, allow for comparison between projects, and ultimately, make the ex-post evaluation audit a much less rigourous process.

Recommendation 4: Manitoba Hydro commit to developing a more standardized monitoring format across projects, which includes the following components: the purpose of the monitoring, details on the methods used, annual results, implications for the next year of monitoring and reflection on how these findings match (or deviate) from predictions. While a separate report is not necessary for each VC, the proponent should include a more detailed, separate report for VCs of particular concern.

[86] See for example ECOSTEM Ltd. (2016). Terrestrial plan, habitat, and ecosystem monitoring report: Keeyask generation project terrestrial effects monitoring plan A report prepared for Manitoba Hydro by ECOSTEM Ltd, June 2016.

4.0 Strengthening Monitoring and Follow-up in the MMTP

4.1 Key Messages

- The approach to AM is a marked improvement over the approach submitted for the Bipole III project. The plan demonstrates clear effort to implement AM, including recognition of the concept in draft follow-up and monitoring plans, and purposeful implementation of experimentation for six VCs.

- A strong feature of the EIS and the Monitoring program is the explicit recognition of learning from past experiences.

- Based on the information presented as part of the hearings, the CEC may need to recommend the proponent include additional VCs, and/or modify indicators and parameters identified in the Draft Environmental Monitoring Project. Particular attention should be paid to VCs:

    - where the impacts may go beyond risk (e.g., characterized as uncertainty, ignorance, and indeterminacy);
    - identified through the First Nations and Metis Engagement Program (FNMEP); and,
    - related to cumulative effects.

- The time horizon for monitoring of VCs should be carefully considered in the context of evidence and testimony of hearing participants, and recommendations in the Traditional Land Use Studies.

- There is a critical lack of information as to how First Nations and the Metis Nation will be involved in the development and implementation of follow-up and monitoring programs. I recommend the CEC makes a recommendation that Manitoba Hydro formalize its relationship with First Nations and the Metis Nation through an Indigenous Community Monitoring Committee. The process should not be created/ dictated unilaterally by Manitoba Hydro. The roles and responsibilities for each of the parties will need to be identified collaboratively and in conversation, based on recognition that each of the parties brings forward different worldviews, which need to be equally respected in the design and implementation of the subsequent monitoring program.

- There is a demand for transparency (i.e. the same publically accessible “clear procedures, structured decision-making and clear decision-making criteria”[87]) offered as part of the EA process for post-hearing MMTP decisions related to monitoring and follow-up.

[87] Mitchell, B. (Ed.). (2015). Resource and environmental management in canada (5th ed.). Toronto, ON, Canada: Oxford University Press at p. 487

4.2 Design Characteristics of the Draft MMTP Plans

The follow-up and monitoring programs proposed for the MMTP are documented in chapter 22 of the impact statement[88]; addition information was provided through the IRs. Figure 3, replicated from the EIS, identifies the components of this program.

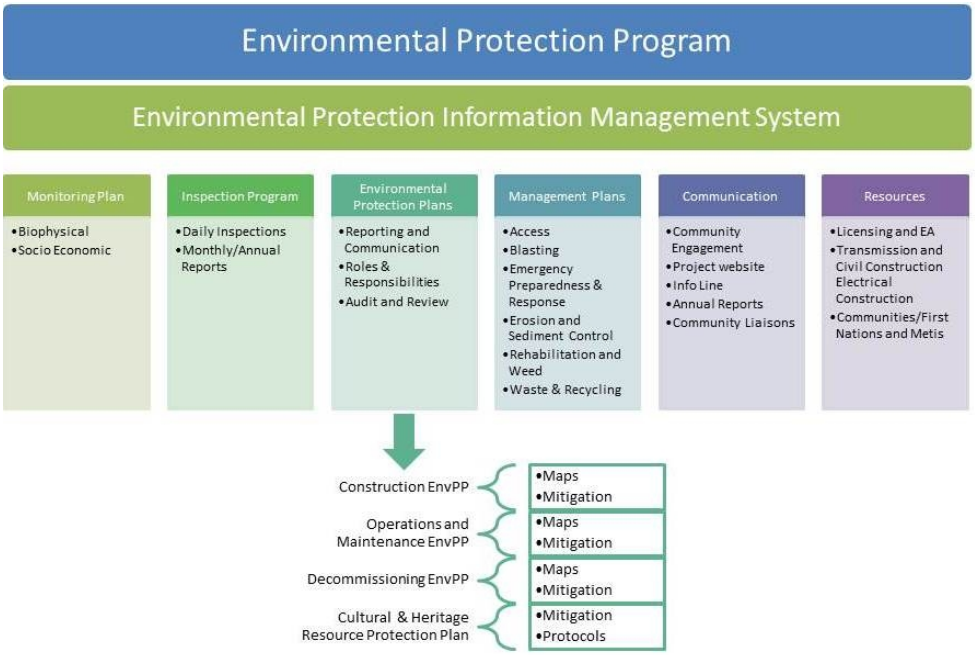

Figure 3: Components of the Environmental Protection Program[89]

As I reviewed the EA documentation, it became clear that this figure provides an abridged list of the follow-up and monitoring documentation referenced. Figure 4 serves as my "running" list of relevant documentation. It is organized based on the colour scheme set out in Figure 3. Documents in bold are part of the CEC hearing record, and have been reviewed for this report.

[88] Manitoba Hydro. (2015a). Manitoba-Minnesota transmission project environmental impact statement: Environmental protection, follow-up and monitoring. Winnipeg, MB, Canada: Manitoba Hydro.
[89] Ibid at p. 22-5.

	Document	Available?	Prepared by	Reference
Monitoring	**Environmental Monitoring Plan (v. 3 04/2017)**	Y	MB Hydro	Appendix 22C (then updated)
Environmental Protection Plans	**Construction (CEnvPP)**	Y	MB Hydro	Appendix 22 A
	Operations & Maintenance EnvPP	N	MB Hydro	
	Decommissioning EnvPP	N	MB Hydro	
	Culture & Heritage Resource Protection Plan	Y	MB Hydro	Diagram, and Appendix 22A: Section 5 (e.g., p. 5-26)
Management Plans	**Access**	Y	MB Hydro	Appendix 22B
	Agricultural Biosecurity Transmission Standard Operating Policy	Y	MB Hydro	Appendix 22A: Appendix F
	Annual Harvest Plan, renamed Clearing Management Plan	N	MB Hydro	Appendix 22A: Section 5 (e.g., p. 5-14)
	Blasting	N	Contractor	Appendix 22A: Section 5 (e.g., p. 5-9)
	Emergency Preparedness & Response	N	Contractor	Appendix 22A: Section 5 (e.g., p. 5-15)
	Erosion and Sediment Control Plans (Appendix 22A: Section 5 (e.g., p. 5-17) aka Erosion Protection and Sediment Control Plan (Appendix 22A: Section 5 (e.g., p. 5-17)	N	Contractor	Appendix 22A: Section 5 (e.g., p. 5-5)
	Hazardous Substances Management Plan	N	Contractor	Appendix 22A: Section 5 (e.g., p. 5-25)
	Rehabilitation and Weed (figure) aka Rehabilitation and Vegetation Management (Appendix 22A: Section 5 (e.g., p. 5-31) aka **Rehabilitation and Invasive Species Management Remediation Plans**	Y	MB Hydro	Appendix 22A: Section 5 (e.g., p. 5-5)
	Remediation Plans	N	Contractor	Appendix 22A: Section 5 (e.g., p. 5-33)
	ROW Habitat Management Plan for Managing Critical Golden-winged Warbler Habitat during Construction and Operation	Y	MB Hydro	See TAC IR EC/MH-003 - April 29, 2016. http://www.gov.mb.ca/sd/eal/registries/5750mbhydrombminnesota/information_request_responses4.pdf
	Site Reclamation Plans	N	MB Hydro or Contractor	Appendix 22A: Section 5 (e.g., p. 5-15)
	Waste & Recycling Management	N	Contractor-specific	Appendix 22A: Section 5 (e.g., p. 5-15)
Communication	Communication Plan	N	MB Hydro	Appendix 22A: Section 5 (e.g., p. 5-9)

Figure 4: Monitoring Plans and Policies referenced in the MMTP documentation. Documents in bold are currently available, and inform the CEC hearing record (prepared with assistance from Mr. Matthewson, Manitoba Hydro).

Of particular importance for this analysis are the Draft CEnvPP and Draft Environmental Monitoring Plan (version 3).[90]

[90] Version 3 is dated 4/12/2017, submitted in response to CAC-IR-020.

As noted in CAC-IR-014, there are different descriptions throughout the document of what the follow-up and monitoring program are designed to achieve. For example, one description focused on accuracy of the assessment and effects mitigation.[91] At another place, the proponent emphasizes the accuracy of the assessment and effects mitigation, and compliance monitoring.[92] Section 2.2 of the Draft Environmental Monitoring Plan (2nd and 3rd versions) has the most robust suite of objectives:

> "the objectives of the monitoring plan are:
> - Confirm the nature and magnitude of predicted environmental effects as stated in the EIS;
> - Assess effectiveness of mitigation measures implemented;
> - *Establish decision-triggers for action;*[93]
> - Identify unexpected environmental effects of the project, if they occur;
> - Identify additional mitigation measures to address unanticipated environmental effects, if required;
> - Confirm compliance with regulatory requirements including approval terms and conditions; and
> - Provide baseline information to evaluate long-term changes or trends." (Appendix C page 5)

When probed about the most appropriate definition[94], the proponent indicated that the "explanation as outlined on page 4 and 5 of Appendix C of Chapter 22… provides the most detailed explanation".

While this description meets most of the aspects outlined the CEA Agency[95], there are two areas which merit reconsideration:

- AM; and

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[91] i.e. "Information gathered during follow up and monitoring activities will be used to verify the accuracy of the environmental assessment (EA) effects predictions and the effectiveness of implemented mitigation measures." ibid at p. 22-2.

[92] i.e. "The EPP includes two main types of monitoring:
- Environmental monitoring – periodic or continuous surveillance or testing, according to a predetermined schedule, or one or more environmental indicators to establish/enhance knowledge of baseline conditions or to verify the accuracy of an environmental assessment and the effectiveness of mitigation measures. Pre and post disturbance and control-impact monitoring are the preferred approaches to monitoring effects
- Compliance monitoring – observation or testing conducted to verify whether a practice or procedures meets the applicable requirements prescribed by legislation, licence conditions, and/or Environmental Protection Plans" ibid at Appendix C, Section 4. Replicated in Version 3 of the Draft Monitoring Programs."

[93] Emphasis added, as this aspect is new to the third draft of the document.

[94] CAC-IR-014.

[95] Canadian Environmental Assessment Agency. (2011, December). Operational policy statement: Follow-up programs under the Canadian Environmental Assessment Act. Retrieved July 09, 2015, from https://www.ceaa-acee.gc.ca/default.asp?lang=En&n=499F0D58-1.

- baseline information.

Although AM is implicitly acknowledged through referencing key elements (such as the potential for unanticipated environmental effects, and decision-triggers for action, for example), it is important to explicitly recognize that the proponent has designed its follow-up and monitoring program based on AM.[96]

Second, the continued reference to baseline information remains problematic, as it may be confused with the baseline information necessary to complete an assessment. As noted in CAC IR-003, traditionally the Environment & Socio-Economic Setting Chapter is considered to be a summary of the baseline conditions.

This interpretation is supported by the proponent, when it clarified:

> Manitoba Hydro's position that current baseline information for the purposes of the environment impact assessment is extensive and more than adequate to support the conclusions of the EIS.[97]

In order to minimize confusion, reference to baseline information should be removed from the objectives of the monitoring program.

[96] Manitoba Hydro. (2015a). Manitoba-Minnesota transmission project environmental impact statement: Environmental protection, follow-up and monitoring. Winnipeg, MB, Canada: Manitoba Hydro at section 22.1.2.
[97] CAC-IR-020.

In order to fully reflect the commitments made as part of these hearings, and design characteristics of follow-up and monitoring (including AM), the objectives should be modified. I recommend three additions (which are underlined), and one deletion.

Specifically:

> "the objectives of the monitoring plan are *to*:
> - Confirm the nature and magnitude of predicted environmental effects as stated in the EIS;
> - Assess effectiveness of mitigation measures implemented;
> - Establish decision-triggers for action;
> - *Support the implementation of adaptive management, through measures designed to* [i]dentify unexpected environmental effects of the project, if they occur;
> - Identify additional mitigation measures to address unanticipated environmental effects, if required;
> - Confirm compliance with regulatory requirements including approval terms and conditions;
> - ~~Provide baseline information to evaluate long-term changes or trends.~~
> - *Provide information on environmental effects and mitigation that can be used to improve and/or support future environmental assessments including cumulative environmental effects assessments; and*
> - *Support environmental management systems used to manage the environmental effects of projects."*

Recommendation 5: Manitoba Hydro modifies the objectives of the Monitoring program to add reference to adaptive management, and remove reference to baseline information (see above).

4.3 Adaptive Management (AM)

As described in section 3.4, AM programs should reflect at least five design elements (e.g., iterative, feedback & learning, etc), and address five characteristics (e.g., Evidence that the program design and implementation is deliberate, Transparent decision-making and communication of results, etc).

This section reviews the follow-up and monitoring program against the set of probative questions around the AM cycle, introduced in section 3.4. These questions, and hence this analysis is intended to offer guidance for AM plans, strategies and practices.

In reviewing the evidence, I found the answer to the question for the last two phases of the cycle – Evaluate (and Learn) and Adjust were repetitive.

For the Keeyask Project, the follow-up and monitoring documentation had a much longer timeframe (e.g., up to thirty years), and significantly more VCs. The resultant documentation provided more detail related to implementation over the long term.

Furthermore, for the Keeyask project, Dr. Alan Diduck and I had access to experts reviewing specific VCs (including Sturgeon and cumulative effects), which allowed for a more robust consideration of the plans. In the absence of a detailed technical review from MMTP Hearing Participants, and without access to government scientists, I can say little about monitoring for specific VC

Given the time frame of the draft CEnvPP and monitoring plan, and a lack of access to other independent experts, responses to the last eight AM were not specifically included in this report.

Plan

A-1: To what degree does the proponent's management strategy recognize and accept uncertainty and thereby create safe and rewarding conditions to experiment carefully (and to make occasional errors as long as the errors result in learning that leads to an improved project or better management)?

Uncertainty is recognized at different places throughout the EIS; but I was unable to find a definition, nor systematic application of the concept.[98] Nonetheless, I have confidence that uncertainty informed the selection of the VCs.[99]

As the level of uncertainty increases, monitoring becomes more essential in design. VCs were selected for monitoring because they:[100]

> "represent a broad environmental, ecological or human environmental component that might be affected by the Project;
>
> are a part of the heritage of Frist Nations and Metis or a part of their current use of lands for traditional purposes;
>
> are of scientific, historical, archaeological importance; [and/or]
>
> have been identified as important issues or concerns by stakeholders or by other effects assessment in the region."

As uncertainty does not explicitly inform the rationale, it is difficult to know follow the decision-making that led to the VCs, indicators and parameters, selected for monitoring.

One issue that has emerged during the hearing is that Manitoba Hydro learned that it is important to have a more holistic understanding of the environment. As such, there was an effort to limit the number of VCs. However, the current list of VCs may now be too brief.

Over the course of the hearing, based on the evidence brought forward by participants, there may be a need to include additional VCs, and/or the modify indicators and parameters selected.

[98] See also the Hearing Transcript, May 16, 207 at p.1294 (line 15-25).
[99] See Hearing Transcript, May 16, 207 at pp.1298 (line 8) -1299(line 7).
[100] See Draft Environmental Monitoring Plan (version 3, submitted 4/12/2017) at p.11.

A strong feature of the MMTP is the proponent's commitment to AM. Multiple definitions of AM were included in the EIS,[101] which led to a question as to which definition guided the development of the follow-up and monitoring programs. The proponent's response noted: [102]

> "these statements were considered to be mutually inclusive rather than exclusive."

When read in whole, the description of AM adopted by the proponent explicitly addresses three of the five best practice design elements described in section 3.4: iterative, systematic, and focused on learning. As will be described in A-4, there is some effort to include experimentation in the program. And, as discussed in A-6, the proposed follow-up and monitoring program makes some inroads with respect to transparency.

More importantly, in the monitoring tables, beginning section 4.3 of the draft Environmental Monitoring Program, specify the approach to AM employed for each VC (e.g., passive vs. active).[103]

That being said, I found at least one instance where the proponent characterized an action as "adaptive management" when, in fact, it appears more aptly described as "managing adaptively."[104]

Overall, this description, and application of AM is a clear improvement on that provided in the Bipole III project,[105] and later the Keeyask project.[106]

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[101] As noted in CAC-IR-010, Definitions of AM include: "an iterative process that involves planning, implementation, evaluation and learning, with adjustments made at any state of the process where needed" (Impact statement at p 22-2); involving, as identified McLean and Lee (1996): rapid knowledge acquisition, effective information flow, and processes for creating shared understanding, that were used in the "design and implementation of the Environmental Protection Plans". In the Draft CEnvPP, the following definition, based on a 2015 CEAA document "the implementation of new or modified processes, procedures and or mitigation measures over the construction and operation phases of a project to address unanticipated environmental effects"; later, the Draft CEnvPP sates that while the definition of adaptive management vary, characteristics include "Learning and reducing key uncertainties; Using what is learned to change policy and practice; Focus is on improving management; Adaptive management is formal, structured and systematic."

[102] CAC-IR-010.

[103] E.g., section 4.3.1, 4.4.1, etc.

[104] Appendix 22 B: Access Management Plan (p.20): it is noted that Follow-up and monitoring will be used To determine whether the measures set out in the AMP are effective; and To adapt and improve measuring in this AMP *in response to actual experiences* (Adaptive Management)" (italics added). Adaptive management involves purposeful, pre-planned, systematic learning, rather than simply responding to events.

[105] Diduck, Fitzpatrick & Robson which found that the approach to AM addresses, in "at least a rudimentary way," each phase of the AM cycle see Diduck, A.P., Fitzpatrick, P., & Robson, J.P. (2012). Guidance from adaptive environmental management, monitoring and independent oversight for Manitoba hydro's upcoming development proposals: A report prepared for the consumers association of canada (Manitoba) and the public interest law centre of legal aid Manitoba. Winnipeg, MB: Public Interest Law Centre at p. 16

[106] In the Keeyask assessment, the proponents added more information through IRs, which brought forward that AM served to address unforeseen effects (i.e. CEC Rd 1 CAC-061), serves to "gain confidence in dealing with uncertainty and the effectiveness of alternate measures (CEC Rd 1 CAC-0062)

The third aspect of this probative question relates to internal culture – specifically establishing safe and rewarding conditions for experimentation which may lead to learning. There is no specific documentation or testimony about Manitoba Hydro's internal culture vis a vis learning. Testimony indicated the Corporation had no formal organizational learning policy[107], nor a specific procedure for incorporating lessons into organizational memory.[108]

There is evidence that the MMTP project team has made real efforts to learn from experience, and develop tools to incorporate learning moving forward. For example

- The impact statement prefaces many chapters with a section identifying lessons learned from previous assessments;
- There was testimony surrounding different ways members of the project team integrate learning into the environmental management system;[109]
- "[E]ach Environmental Inspector is required to submit an end of season review report…[identifying].. things that work and what didn't as well as providing suggestions for improvement in environmental protection during construction"[110] and,
- There is evidence of long-term research projects (see section A-4),[111] which demonstrates the proponent's interest in creating knowledge.

It is important that the larger corporation support, encourage, and reward learning.

and provided a description of how AM can change based on monitoring results (CEC Rd 1 MMF-0013). See Diduck, A.P., & Fitzpatrick, P. (2013). Assessing adaptive management in the keeyask EIS: A report prepared for the Consumers Association of Canada (Manitoba) and the Public Interest Law Centre of Legal Aid Manitoba. Winnipeg, MB: Public Interest Law Centre at p. 7.

[107] Hearing Transcript, May 16, 207 at p.1131 (lines 3-6).

[108] Hearing Transcript, May 16, 207 at p.1133 (lines 8-16).

[109] Hearing Transcript, May 16, 207 at pp.1131 (line 13)- pp.1133 (line 7).

[110] CAC-IR-021 (c).

[111] CAC-IR-024(i).

This could be enshrined using a corporate organizational learning policy, which should canvas a variety of aspects, including (but not limited to):

- Learning - amongst projects; across business units; and from different non-state market driven initiatives (including ISO 14001)
- Processes for encoding learning outcomes in organizational memory; and,
- Support for personnel who take the initiative to engage in learning.

Respectfully, systematic learning is also important within the context of government regulators and administrative tribunals tasked with environmental decision making.

A-2: To what extent does the management strategy take a long-term, multi-scale, and integrative view of the environment?

Different components of the follow-up and monitoring program adopt different time frames, as illustrated in section 4.2.2 of the Draft Environmental Monitoring Plan (specifically Figure 4-1). Figure 4.1 needs to be re-calibrated to reflect the material in the monitoring tables with respect to time frames, as there are some errors in the Gantt-like Chart.[112]

The majority of monitoring programs end within 2 years of construction.[113] While this may be appropriate, there may be a need to develop more long-term monitoring for specific VCs that are impacted during operations.

For example, there may be a need to monitoring vegetation, particularly sites for Traditional Medicines and gathering traditional food, well into operation (e.g., as the Corporation engages in line maintenance and clearing over the life of the project). This could be part of the "Vegetation Management Plan"[114], currently described as:

> "The line patrol information is analyzed and complied to develop a long term plan and approach, including budget estimates, scheduling information and a prescription for method(s) that could be used for controlling the tree re-growth"

The Peguis First Nation Land Use and Occupancy Interview Project, for example, has several recommendations related to the time scale for monitoring, including: that trail cameras "should be installed and function for at least five years to monitor wildlife."[115]

During the hearings, Mr. Valdron highlighted the importance of seasonality[116], which left significant opening with respect to revising the draft Environmental Monitoring Plans:

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[112] E.g., the Sharp-tailed Grouse Lek Survey table indicates post-construction monitoring may occur up to ten years post construction; the Bird Species of Concern survey indicates it will conducted for 2 years, post-construction; the Employment and Economy tables indicate no post-construction monitoring, etc.
[113] The Sharp-tailed Grouse Lek Survey table indicates post-construction monitoring may occur up to ten years post construction.
[114] CEC-IR-084 – Vegetation Management Practices at pg. 14.
[115] The Peguis First Nation Land Use and Occupancy Interview Project, at p. 29.
[116] Hearing Transcripts, May 9, 2017 pp. 352 (line 12)-355 (line 11).

> [Ms. Coughlin] Again, we want the group to be making decisions about the schedule of when monitoring may occur. I think the general statement that you have made, we would agree with. There is a seasonality that we want to be cognizant of. And if I was to predict, I would think that the group might want to monitor seasonally.

Unfortunately, I was not able to determine which group Ms. Coughlin referred to.

The time horizon for monitoring of VCs should be carefully considered in the context of evidence and testimony of hearing participants, and recommendations in the Traditional Land Use Studies.

The documentation had little direct evidence concerning a multi-scale perspective. This may be a function of the direct footprint of the project area; however, some VCs are not confined with the footprint, but move through it (e.g., water, birds, etc). There is an opportunity, particularly in the analysis and reporting, for Manitoba Hydro to compare monitoring outcomes for specific VCs between different sites in the province, thereby adding more robust evidence to understand long-term change.

Importantly, the responsibility for monitoring cannot rest solely with the proponent. Governments have an important role in, and responsibility for, monitoring, particularly at a regional scale. Project-specific monitoring results need to feed into a regional understanding of what is occurring on the landscape, including cumulative effects, and long-term changes to the ecosystem.

There is a critical gap in information available as part of this record; specifically, we have not heard from government departments, such as Environment Canada, the Department of Sustainable Development, etc., as to how the outcomes of monitoring for the MMTP will be used.

With respect to integration, there is little explicit discussion as to how the findings from one VC may inform another. I presume that the wetlands survey described in 4.4.1 will inform the wetland amphibian survey (4.5.1), and the vegetation surveys will not be carried out in isolation, but in concert with the wildlife habitat work. This is not clear in the current version of the Draft Environmental Monitoring Plan.

This should be explicitly addressed in the annual monitoring reports prepared for the project. Following the model used for the Keeyask Project annual monitoring reports (described in section 3.5), would strengthen the integrative approach to monitoring for the MMTP.

I also see little integration between the recommendations related to monitoring from the Traditional Land Use Studies and the Draft Environmental Monitoring Plan (released April 2017). While some of this may be attributable to the desire for flexibility following more comprehensive meetings with affect First Nations and the Metis Nation, there are clear recommendations from these reports (partially described above) which should inform VC selection and monitoring methods.

Manitoba Hydro has an important responsibility to go back to First Nations and the Metis Nation to find out how to best integrate their recommendations. These decisions cannot be made unilaterally by the corporation.

A-3: Are the right people involved for developing a deep and nuanced understanding of ecological, social, economic, and cultural contexts?

Figure 22-2 of the EIS illustrates the Environmental Protection Organizational Structure. Unfortunately, this figure does not appear to include the most up-to-date positions and/or position titles for those involved in monitoring. Given the timing of my report, I am unable to provide a schematic.

Perhaps the clearest description of who will be involved in the monitoring emerged from a line of questioning by Mr. Mills regarding team size:[117]

> Typically we will have a supervisor. So if we end up with two contracts, looking after two sections, we would have a supervisor looking after each, we would have an environmental inspector, we would have a safety officer, probably some admin. Staff in each section in a field office, and then there would be a handful of inspectors that would be available to look after, they'd be part of the clearing, an inspector for the foundations.

In addition, I presume, are the environmental monitors, (as described in a Round 2 IR), with "responsibilities outlined within each section of the Valued Component Monitoring Tables…[potentially filled by] Manitoba Hydro staff, a Manitoba Hydro retained consultant, an Indigenous community member selected through the Indigenous Community Monitoring Working Group, or a University student pursing a bachelors or masters degree."[118]

Environmental monitors served an important role in monitoring for the Bipole III project[119], and so the decision to include these positions is important.[120]

[117] Hearing Transcript May 15, 2017 pp. 1073 (line 8)- 1074 (line 1).
[118] CAC-IR-021 (a).
[119] Manitoba Hydro. (2015a). Manitoba-Minnesota transmission project environmental impact statement: Environmental protection, follow-up and monitoring. Winnipeg, MB, Canada: Manitoba Hydro at 22-3: "Environmental Inspectors and monitors that were on the ground during construction participate in the summer monitoring by discipline specialists (i.e. aquatics and heritage). This closed the feedback loop, fostering improvement and seeing results from Winter Construction."
[120] In response to a Round 1 question, CAC-IR-004, the proponent noted "the position of Environmental Monitor as described in the Bipole III Project is something that while under consideration for the MMTP has not been determined so it was excluded from the Organizational chart Figure 22-3." We appreciate these positions are now part of the process, given the response to the Round 2 question (CAC-IR-021 (a)).

Perhaps the most significant question I have, surrounding the follow-up and monitoring personnel, involves the role of First Nations and the Metis Nation in this process. The Chapter 22 of the EIS describes the approach as guided by five objectives: [121]

- "Create awareness about the Project and EPP;
- Develop Manitoba Hydro's awareness about community concerns, and communication back on how they are being addressed;
- Provide 'boots on the ground' field experiences;
- Involve multiple First Nations and the MMF; and,
- Include a Youth and Elder component."[122]

Information about the FNMEP in developing the EIS is provided in Chapter 4.[123] During my meeting with Hydro personnel,[124] we briefly discussed Manitoba Hydro's work to develop a holistic approach to monitoring with First Nations and Metis communities, described in the IRs.[125]

Section 2.6.2 of Draft Environmental Monitoring Plan explores ongoing First Nations and Metis Engagement in follow-up and monitoring. This approach focuses largely on field trips, during different times, and with different groups[126].

The new draft Cultural and Heritage Resources Protection Plan notes that communities "will be invited to participate alongside the archaeological team to assess and mitigate any cultural or heritage resources that may be discovered over the course of the project.[127]

I am unclear about the details of the Indigenous Community Monitoring Working Group[128], as I could not locate additional details.

It is my understanding that Manitoba Hydro is open to working with First Nations and the Metis Nation with respect to follow-up and monitoring. For example, when asked about the community monitoring process, Manitoba Hydro responded:[129]

> "We're open to what the process might be. So we have asked communities if they want to participate."

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[121] Manitoba Hydro. (2015a). Manitoba-Minnesota transmission project environmental impact statement: Environmental protection, follow-up and monitoring. Winnipeg, MB, Canada: Manitoba Hydro at 22-18.
[122] These objectives are restated, albeit with slightly different language.
[123] Manitoba Hydro. (2015c). Manitoba-Minnesota transmission project environmental impact statement: First Nation and Metis Engagement. Winnipeg, MB, Canada: Manitoba Hydro.
[124] *Personal communication, March 17 (2017).*
[125] CEC-IR-079.
[126] Version 3 (4/12/2017) at p.6-8.
[127] Manitoba Hydro. (2017). Manitoba-Minnesota transmission project: Draft cultural and heritage resources protection plan. Winnipeg, MB, Canada: Manitoba Hydro Retrieved from https://www.hydro.mb.ca/projects/mb_mn_transmission/pdfs/cultural_and_heritage_resources_protection_plan_draft.pdf at p. 1-2.
[128] CAC-IR-021 (a).
[129] Hearing Transcripts May 9, pp. 351 (line 23)-352 line 3.

Unfortunately, we also learned that resources have not been allocated for this:[130]

> "We don't even know for sure if the group wants to continue having a community monitoring group, so we haven't gone to the next stage of resources yet at this point. […] We of course have a budget for regulatory monitoring. But yeah, we're not really sure what the group want[s] to do yet, so we haven't budgeted that out."

Presumably, then, the updated costs associated with this project[131] reflect the monitoring program as currently designed.

This plan does not reflect the spirit of the guidance of the Truth and Reconciliation Commission referenced in Manitoba Hydro's opening statement.[132] For example, Call to Action 92 looks to the corporate sector in Canada to adopt the *United Nations Declaration on the Rights of Indigenous People* as a framework for reconciliation framework, and commit to meaningful consultation building respectful relationships and obtain "the free, prior and informed consent of Indigenous people before proceeding"[133] with development.

It does not reflect the corporation's approach employed in the recent Keeyask operating project, which included a Monitoring Advisory Committee.[134]

It does not reflect the *spirit* of the approach outlined in a recommendation by the National Energy Board surrounding large pipeline developments.[135] As part of approval,

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[130] Hearing Transcript May 9, pp. 355 (line 12) – p. 356 (line 4).

[131] SCO IR 028(e).

[132] Hearing Transcript, May 8, 2017, p.23-25: "At Manitoba Hydro we have tried to improve our recognition and integration of indigenous knowledge in our work. We have, arguable more than with previous projects, tried to listen and to avoid impacting lands that indigenous people told us were of a special value to them. It is no easy task to understand another culture's legal traditions when one does not speak the language and knows little of the history.

I have learned that Anishinaabe law is about relationships. These relationships, person to person, nation to nation, mankind to mammal, mankind to flora, mankind and water, give rise to rights and their corollary responsibilities and obligations.

Each person in Manitoba is a participant in Anishinaabe legal relationship to co-exist peacefully and to share the land as confirmed in treaties. Anishinaabe legal tradition, as I understand it, provides that we must not leave all responsibility for the future to those not yet born to whom someday the future will belong.

The work we at Manitoba Hydro have done, and the work you will do, has much to do with satisfying ourselves that this project will not result in any significant loss to the environment for future generations, and that it will help to provide for the future energy needs of all of the people of this province."

[133] Truth and Reconciliation Commission of Canada. (2015). Honouring the truth, reconciling for the future: Summary of the final report of the Truth and Reconciliation Commission of Canada, see http://nctr.ca/assets/reports/Final%20Reports/Executive_Summary_English_Web.pdf at p.336.

[134] Please see the terms of reference for the Monitoring Advisory Committee, Schedule 4-7 at https://www.hydro.mb.ca/projects/keeyask/pdf/Schedule_4_7_090529.pdf .

[135] See National Energy Board Report Enbridge Pipelines Inc. OH-002-2015 Volume I: Our Decisions and Recommendations April 2016 (volume 1, p. 12: Recommendation 1.6.2 "The Panel recommends that the NEB, the pipeline industry, and Aboriginal groups work together to create a set of principles, objectives or a framework approach that can be used to assist the development of Aboriginal monitoring programs for

the Government of Canada announced it would “co-develop advisory and monitoring committees with Indigenous communities to provide ongoing environmental monitoring for each of the two projects.”[136]

It does not reflect a key recommendation made by the Expert Panel appointed to consider modernizing the National Energy Board: [137]

> 5.2.2 That the government enter into formal agreements with Indigenous nations who wish to participate, in order to deliver local Indigenous energy infrastructure monitoring programs which are considered as a vital input to existing monitoring tools and systems.

Based on what I have learned from elders and knowledge holders -my understanding of nation to nation relationships within this context is that Indigenous people should have an equal say in how monitoring and follow up will happen. It should not just be imposed on them.

I have concerns that, in the absence of a regulatory requirement (i.e., a licensing condition stemming from a recommendation by the CEC), there may not be sufficient resources moving forward.

Recommendations by the CEC would highlight the importance of the FNMEP in follow-up and monitoring. These could be included in licensing conditions by the Province and/or the National Energy Board, thereby making this engagement a strong component of regulatory compliance.

Recommendation 6: The CEC make a recommendation that Manitoba Hydro formalize its relationship with First Nations and the Metis Nation through an Indigenous Community Monitoring Committee. The roles and responsibilities for each of the parties will need to be identified in conversation, based on recognition that each of the parties brings forward different worldviews, which need to be equally respected in the design and implementation of the subsequent monitoring program.

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large pipeline projects. In the case of this Project, the Board will exercise its regulatory oversight to carefully examine Enbridge’s Aboriginal Monitoring Plan, how it was developed, and how it will be implemented. In addition to its direct regulatory oversight, the Board will consider the ultimate effectiveness of the Aboriginal Monitoring Plan to support continual improvement. More can be done outside of Project condition-compliance, however, to support Aboriginal monitoring of pipeline projects. The Panel believes that Aboriginal monitoring of pipeline projects will happen successfully through the concerted effort and partnership of all parties, including the NEB, over time. The Panel recommends that the NEB work with all parties to facilitate an open dialogue concerning this issue. The Panel is of the view that a set of principles, objectives or a framework approach could be created collaboratively to assist with the development of Aboriginal monitoring programs for large pipeline projects.”

[136] See Government of Canada. (2016). Government of Canada announces pipeline plan that will protect the environment and grow the economy. from http://news.gc.ca/web/article-en.do?nid=1162449

[137] Expert Panel on the Modernization of the National Energy Board. (2017). Forward, together: Enabling Canada's clean, safe, and secure energy future at p.80.

A-4: Are opportunities being taken for active experimentation using questions and hypotheses that are testable, quantifiable and replicable? And are the experiments focused on the uncertainties most likely to influence management decisions?

A very strong feature of the Draft Environmental Monitoring Plan is the purposeful implementation of experimentation for select VCs and/or potential impacts:

- Bird wire collision (p. 71)
- Sharp-tailed Grouse Lekking Site (p.75)
- Golden-winged warblers (p. 77)
- Elk (p.80)
- White-tailed deer (p. 83)
- Black Bear (p. 85)
- Wolves and Coyotes (p.85)
- Peregrine falcons (p.88)

It is important to acknowledge that I do not have expertise related to these specific VCs, nor formal training surrounding experimental design as it relates to wildlife. IRs directed at this aspect of the monitoring program[138] were written from a generalist perspective, meant to ensure that the experimental design espoused in the Draft Environmental Monitoring Plan could be achieved in the context of the identified methods. I defer to the experts to provide a more holistic review of experimental design.

Notably, there were significant improvements to this section between version 2 (9/13/2016) and version 3 (4/12/2017) of the Draft Environmental Monitoring Plan.[139] This illustrates that the proponent has given significant though to the hypothetical problems that may create the need for adaptation. Importantly, the inclusion of experimental design, demonstrates a genuine intent to generate evidence surrounding potential effects and/or mitigations strategies that can be used to improve follow-up and monitoring for the MMTP and/or support future EAs.

As briefly mentioned in section 4.3 A-1, the proponent identified a variety of funded research programs "to further its understanding of the environment in which it operates…[and] better inform[ing] and mitigate[ing] the Corporation's effects on the environment."[140] The list of programs included this response have clear links to VCs identified in the MMTP.

Furthermore, the surveys conducted since the submission of the impact statement[141] provide additional evidence that the proponent has engaged in research activities designed to inform project management decisions.

[138] i.e., CAC-IR-013 and CAC-IR-025.
[139] Notable changes were made sections to the sections canvasing bird wire collisions, sharped-tailed Grouse Lekking Sites, Golden-winged warblers; and Peregrine Falcons.
[140] CAC-IR-024 (i)
[141] E.g., CAC-IR-20

A-5: Is the design of the undertaking and its implementation as well as the AM strategy sufficiently flexible to make adjustments in response to lessons learned?

With respect to the AM strategy, there is evidence on the record as to how the proponent has altered its approach, (i.e., learned and adjusted) based on past experience. Each of the follow-up and monitoring plans reviewed for this document acknowledge AM (see section 4.3 A-1), and recognize its role to "improve both mitigation measure effectiveness and monitoring program design."[142] Each plan is marked draft, with the opportunity to make changes based on the outcomes of the EA(s).

A key example of how learning resulted in changes in action articulated by the proponent relates to the development of the biosecurity plan.[143] Flexibility – related to producer-specific and site-specific concerns, as well as changing conditions – was identified as an important feature of biosecurity plan.

A-6: Is planning transparent, open to scrutiny, and designed to encourage thoughtful and constructive debate? And does the strategy explicitly address the multiple goals of stakeholders?

This criterion focuses on the planning to date, namely, the process used to develop the project, and submit the documentation necessary for regulatory approval. This includes modifications in the period since the EIS was submitted (i.e., information related to follow-up and monitoring emerging between September 2015 and May 2017).

A strong feature of the approach outlined by Manitoba Hydro is its commitment to make annual monitoring reports publically available on the project website (see Section 3.5). I note that the project website has been updated several times during the course of the hearings, making supplemental filings broadly accessible.

One aspect of transparency relates specifically to interactions between divisions within Manitoba Hydro. As noted in section 3.5, the CEC recommended developing a centralized approach, "to set standards, and to guide, manage, and co-ordinate all environmental assessment and monitoring processes" which could facilitate an easy and timely transfer of knowledge between divisions. [144] When asked about the potential silos, Ms. Zebrowski, from the engagement panel remarked, since the EA for Bipole III and Keeyask,[145]

> [Manitoba Hydro] "internally undertake a number of database processes, where information is collected and maintained, so that there is a common understanding…

[142] Draft Environmental Monitoring Program (4/12/17) at p. 10
[143] See Hearing Transcripts, May 11 starting p. 966, line 12.
[144]Clean Environment Commission. (2014). Keeyask generating project: Report on public hearing. Winnipeg, MB, Canada: Clean Environment Commission at p.157-158; see also Clean Environment Commission. (2013). Report on public hearings Bipole III transmission project. Winnipeg, MB, Canada: Clean Environment Commission at p. 124.
[145] Hearing Transcripts, May 9 p.472 (lines 10-23).

However, when probed, we learned the Indigenous Relations Department is not involved in VC selection.[146] The description of organization structure provided, at least in the context of VC selection, appears to remain siloed:[147]

> So certainly Indigenous Relations, we have currently had a restructuring, so now we are a separate group. Prior to this, we fit under the title of Corporate Relations. And so when it comes to specifically designing environmental assessment and undertaking specific projects, those are generally undertaken by other parts of the company. And Indigenous Relations would intersect with those processes in different ways…But in terms of the practice of environmental assessment and the selection of VCs, those are generally done by the environmental assessment practitioners within Manitoba Hydro.

So an area which may need more attention involves ensuring more interaction between divisions with Manitoba Hydro itself. A small, but important change would be to ensure that, moving forward members of Indigenous Relations are involved in VC selection, and actively participate in the development and implementation of indicators and parameters for monitoring plans.

A-7: To what degree does the strategy cover adaptive capacity to pursue emerging opportunities for new or enhanced positive effects as well as unexpected risks or damages?

The approach to AM, described in previous sections (e.g., 4.3 A-1, A-4), including the concerted effort to learn from past projects show evidence of an effort to embrace new or enhanced positive effects related to potential future mitigation policies or tools, and opportunities for new technologies.

Unfortunately, there is no information on the record as to the funding available to implement the monitoring, beyond the commitment that the plans submitted as part of the EIS "are considered a commitment from Manitoba Hydro and enforceable under the license for the project."[148]

The information that Manitoba Hydro has shared on the record is that:[149]

> "Decisions have not yet been made on the level of funding associated with each phase of the plan.
>
> Should additional funds be needed in order to meet Manitoba Hydro's commitment, approvals will be sought from Manitoba Hydro Executive."

This element is particularly important given the weaknesses in the Draft Environmental Monitoring Plan described in section 4.3 A-3.

Do (and Monitor)

[146] Hearing Transcripts, May 9 p.474 (lines 8-9).
[147] Hearing Transcripts, May 9 pp.477 (line 9) - 478(line 5).
[148] CAC-IR-022 (a).
[149] CAC-IR-022 (b)-(c).

B-1: Are the right people involved for regular monitoring of ecological, social, economic, and cultural effects and for effective sharing and application of associated learning?

With the information gaps outlined in section 4.3-A-3, it is problematic to address this criterion specifically.

That being said, some clarity has emerged, through IRs[150] and testimony[151], with respect to how the landowners will interact with Manitoba Hydro moving forward. The contact person[152] (currently Mr. Joyal) is reachable by phone, or specific project email address (mmtp@hydro.mb.ca), and this information was communicated to residents throughout the region, through a variety of means, such as postcard.

Should a complaint emerge (through the website, or recorded by the project contact, as outlined in 4.3 B-1), it will be sent to the Environmental Project Management Team.

When probed about how the proponent determined its response to complaints has been satisfactorily resolved, three tools/mechanisms were noted:[153]

> "a. maintaining continuous relationships with landowners, Indigenous communities, and regulators throughout the development of the project
> b. using of Microsoft Sharepoint based landowner and indigenous relationship management systems; and
> c. incorporating Customer Service as part of the core competencies required of Manitoba Hydro staff to achieve successful job performance."

Importantly, "There is no centralized project focused system for these types of complaints… there may be an opportunity through the Indigenous Community Monitoring Working Group to track complaints and resolution and publish them in annual reports."[154]

Maintaining an issues tracking table, and summarizing the outcomes in the Annual report would strengthen the transparency moving forward.

During the planning phase, community coordinators[155] were offered First Nations and Metis "communities to facilities the community engagement process during the project planning phase"[156] , but it is unclear as to if those positions will continue to exist as "engagement interest transition toward project construction and monitoring."[157]

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[150] CAC-IR-002; CAC-IR-019.
[151] Hearing Transcript, May 9, pp. 269 (line11)- 270 (line 17).
[152] This may or may not be the Community liaison, which is listed under the communication box of the Environmental Protection Program Components (Figure 22-1), replicated in Figure 3 of this report. As noted in the transcription, confusion about the title may be because this title was also used "used for a position hired for the BIpole III project" as noted in the Hearing Transcripts May 9, p.469 (lines 7-10).
[153] CAC-IR-002 (a).
[154] CAC-IR-002 (b).
[155] For the MMF, this position was called a "Manitoba Hydro Liaison officer"(Hearing Transcript May 9, p290 (line7-9)).
[156] CAC-IR-011.
[157] CAC-IR-011.

B-2: Are the timelines to obtain verified results compatible with management decision-making requirements?

Section 4.3 A-2 describes the time frame proposed for monitoring activities, noting that most end within 2 years of construction (i.e. by 2022).

Learning from Officers/Inspectors will be captured through "regular conference calls that occur between the Environmental Protection Management Team and the Environmental Protection Implementation Team (see Chapter 22 section 22.2.2.) which is said to provide an opportunity for direct communication and relaying information during construction."[158]

If the annual monitoring reports, discussed in section 3.5, become publically available in a more timely manner, and have more detail as recommended, it is reasonable to assume that monitoring outcomes will inform management decision-making.

B-3: Will monitoring differentiate among different hypothesized outcomes from a particular strategy, and thus contribute to learning about how the managed system works?

The approach to monitoring, in particular the experimentation described in section 4.3 A4 is structured in such a way that the monitoring of six VCs should add to an increased understanding of how the managed system works.

B-4: To what degree is implementation and monitoring transparent, open to scrutiny, and designed to encourage thoughtful and constructive debate?

While section 4.3 A-6 considers the planning to date, this criterion focuses on transparency while doing.

During the policy community workshop, hosted by CAC (MB) Inc,[159] questions emerged about the potential role of independent oversight for this project. Participants expressed a variety of concerns about the monitoring process, including questions related to accountability (e.g., if it is the government's job to ensure the monitoring is done, who ensures the government is doing its job?) and transparency (e.g., when changes to monitoring systems, what how does the government make a decision to approve changes? How are members of the policy community involved in those decisions? Is simple notification of approved revisions on the public registry transparent?)

A key component of transparency for follow-up and monitoring rests with making annual reports to the Government of Manitoba, and Manitoba Hydro's commitment to make the publically available on the project website (see section3.5).

[158] CAC-IR-021 (c)
[159] *CAC (MB) Inc., April 10 (2017).*

However, the questions above demonstrate that the need for transparency extends beyond the EA, into follow-up and monitoring for the project. There is a demand for the same publically accessible "clear procedures, structured decision-making and clear decision-making criteria"[160] offered as part of EA for post-hearing MMTP decisions.

As part of the CEC hearing into the Bipole III project, Dr. Alan Diduck and I provided a detailed analysis of the potential role for independent oversight.[161] This included elements necessary for effective independent oversight for follow-up and monitoring programs, as drawing from a detailed review of nine existing, and two proposed independent oversight bodies. As this information has been presented to the CEC, I will not replicate it here.

However, if the CEC determines that there is a need for independent oversight – I would draw its attention to section 4.0 of the report Dr Diduck and I provided for Bipole III hearing, which identifies seven elements that contribute to an effective oversight program. This includes, importantly, establishing a clear mandate for that organization, ensuring it has independent authority and making provisions for adequate, long-term funding.

The Construction EnvPP also specifies that Construction Contractors "will be required to develop environmental management plans as part of the Environmental Protection Program for this project component…." Including **an emergency preparedness and response plan** (to become Appendix H of the Construction EnvPP once approved).[162]

Appendix A of this document includes a draft contact sheet, but I note the only telephone number populated in this table is that of the 24 hour Environmental Emergency Response reporting line of Manitoba Conservation. I would note that the contact list does not yet list specific First Nations and Metis Communities, but rather just the heading. It also does not include a heading for non-Indigenous Communities in the contact area. Given the engagement process carried out as part of the EIS, I would suggest that the next version of this document list specifically identify the communities, if not include the contact information.

[160] Mitchell, B. (Ed.). (2015). Resource and environmental management in canada (5th ed.). Toronto, ON, Canada: Oxford University Press at p. 487.
[161] Diduck, A.P., Fitzpatrick, P., & Robson, J.P. (2012). Guidance from adaptive environmental management, monitoring and independent oversight for Manitoba hydro's upcoming development proposals: A report prepared for the Consumers Association of Canada (Manitoba) and the Public Interest Law Centre of Legal Aid Manitoba Winnipeg, MB: Public Interest Law Centre at pp. 25-43.
[162] Manitoba Hydro. (2015a). Manitoba-Minnesota transmission project environmental impact statement: Environmental protection, follow-up and monitoring. Winnipeg, MB, Canada: Manitoba Hydro at Appendix A p. 4-1.

B-5: How is the monitoring designed to track and identify indirect and cumulative as well as direct and project-specific effects?

The Draft Environmental Monitoring Program focuses on specific VCs, and does not reference cumulative effects, nor include a cumulative effects monitoring plan.

5.0 ISO 14001 and Manitoba Hydro's Follow-up and Monitoring Plans

- The past three decades have seen a proliferation of voluntary, non-state, market-driven (NSMD) instruments designed to implement elements of environmental policy outside traditional government tools.

- There is significant variability among different NSMD initiatives, and thus it is necessary to understand the strengths and limitations of any given initiative, in order to fully understand what it is designed to achieve.

- The 14001 series was introduced in 1996 to focus on a standard for corporate environmental management systems. It focuses on the development and implementation of a high level EMS.

- The system does not include absolute requirements for environmental performance. Rather, it includes a commitment for continual improvement, and a requirement to comply with applicable legislation and regulation.

- Evidence surrounding Manitoba Hydro's ISO 14001 certification system shows that while it likely serves an important function for Manitoba Hydro, it is not transparent. There is insufficient evidence to show that this system serves as "verif[ication] of environmental performance."[163]

- Given the structure of the corporate-focused EMS, audits under ISO 14001 will not achieve the same objectives of a post-hoc evaluation audits (as described in section 3.5).

The past three decades have witnessed the emergence of a variety of voluntary, non-state market-driven instruments designed to implement elements of environmental policy outside the traditional government tools (e.g., regulation, economic incentives including taxation and subsidies, and government-led campaigns and agencies).[164] Faced with mounting pressures to implement sustainable development, different sectors developed specific reporting initiatives, policies and practices designed to demonstrate collective efforts related to environmental and social responsibility.

Today, there is a variety of voluntary, non-state market driven initiatives which could apply to Manitoba Hydro. This includes, but is not limited to frameworks prepared by international organizations such as the International Organization for Standardization

[163] Manitoba Hydro. (2015a). Manitoba-Minnesota transmission project environmental impact statement: Environmental protection, follow-up and monitoring. Winnipeg, MB, Canada: Manitoba Hydro at p. 22-22

[164] Winfield, M. (2016). Implementing environmental policy in Canada. In D. L. VanNijnatten (Ed.), Canadian environmental politics and policy: The challenges of austerity and ambivalence (4th ed., pp. 74-96). Don Mills, ON: Oxford University Press.

(ISO) 14001; the Global Reporting Initiative (GRI) Electric Utilities Sector Supplement; the International Hydropower Association's Hydropower Sustainability Assessment Protocol, as well as company-specific corporate social responsibility policies.

There is significant variation between different initiatives, including but not limited to:

- Timeframe. Some initiatives focus on what has been done, others consider what will be done, and some consider both the past and the future;
- Purpose and objectives. There are differences in what the NSMD are designed to achieve, the level of detail included, and the type of guidance provided in the framework (from general guidance to highly detailed);
- Verification systems. Some NSMD initiatives are based on self-evaluation, while others require external verification; and,
- Consequences for non-compliance. There is a range of consequence for non-adherence to the frameworks, from no consequences to a loss of membership in an organization. NSMD frameworks with consequences have different timeframes for implementing consequences, among others.

Although voluntary, companies have different reasons, or motivations for choosing to subscribe to a specific NSMD initiative. For example, adherence may be a requirement for business relationships (i.e., "we will only do business with those companies who comply with "Initiative X"). Consumers may also use voluntary NSMD initiatives in their purchasing decisions. In other instances, companies may select a NSMD framework as that particularly program provides guidance with respect to practices businesses have identified as important.

Ultimately, it is necessary to understand the effectiveness and limitations of each NSMD, in order to fully understand what it is designed to achieve, particularly with respect to environmental sustainability.[165]

[165] E.g., Boerchers, M., Fitzpatrick, P., Storie, C., & Hostetler, G. (2016). Reinvention through regreening: Examining environmental change in Sudbury, Ontario. The Extractive Industries and Society, 3(3), 793–801 doi: http://dx.doi.org/10.1016/j.exis.2016.03.005;Fitzpatrick, P., McAllister, M. L., & Fonseca, A. (2014). From the Global to the Local: The impact of CSR policies at the community level. Paper presented at the Canadian International Institute of Mining and Metallurgy 2014, Vancouver, BC.; Fonseca, A., McAllister, M. L., & Fitzpatrick, P. (2013). Measuring what? A comparative anatomy of five mining sustainability frameworks. Mining Engineering, 46-47, 180-186, etc.

ISO 14001 and Environmental Management Systems (EMS)

In section 22.1.1 of the EIS, Manitoba Hydro identifies that the corporation is ISO 14001 certified.[166] ISO 14001 is one of the longest-established voluntary, NSMD initiatives with a focus on environmental elements.

The parent association, the International Standards Organization, was (arguably) established in 1947 to create and promote worldwide manufacturing standards (i.e., technical and quality assurance mechanisms to ensure common manufacturing specifications across jurisdictions).

The 14001 series was introduced in 1996 to focus on a standard for corporate environmental management systems.

As summarized by Rondinelli and Vastag:[167]

> "ISO 14001 provides guidance on EMS requirements, based on a simple 'plan-do-check' framework. It focuses on five major components:
>
> - the development and adoption of an environmental policy to which senior management is committed;
> - a planning process that identifies all of the environmental aspects of a facility's operations, legal and other requirements, a set of clearly defined objectives and targets for environmental improvement, and a set of environmental management programs;
> - a system of implementation and operation that includes a clear structure of responsibility for environmental management, programs for training, awareness and competence among all employees of the facility, internal and external communication of the EMS, a system of environ-mental management documentation, a documentation control system, procedures for operational controls of environmental impacts, and emergency preparedness and response;
> - creation of a system of checking and corrective action that includes monitoring and measurement, for reporting non-conformance and for taking corrective and preventive action, of record-keeping with regard to environmental management, and EMS audits;
> - a management review process through which senior management reassesses the suitability, effectiveness and adequacy of the EMS at appropriate intervals to assure continuous improvement."

ISO 14001, then, serves as an important system for companies looking to develop and implement and environmental management framework.

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[166] Manitoba Hydro. (2015a). Manitoba-Minnesota transmission project environmental impact statement: Environmental protection, follow-up and monitoring. Winnipeg, MB, Canada: Manitoba Hydro.

[167] Rondinelli, D., & Vastag, G. (2000). Panacea, common sense, or just a label?: The value of iso 14001 environmental management systems. European Management Journal, 18(5), 499-510. doi: http://doi.org/10.1016/S0263-2373(00)00039-6 at p. 501.

However, certification alone is neither indicative of, nor a pre-requirement for environmental performance.

Although ISO 14001 includes direction that companies must demonstrate continued environmental improvement, the standard sets no **absolute requirements**[168] for environmental performance (beyond compliance with applicable government legislation and regulation, and a general need for continued improvement). [169]

This is problematic. As noted by Lundberg [170] as there is no

> "operational definition of what continual improvement is and how it should be assessed… environmental audits in EMS do not measure the actual environmental performance. Instead environmental audit are used for validating the implementation of the management system or for checking compliance."

Theoretically, any company could become certified once it developed its management system, regardless of its environmental record. "Rather than emphasizing actual environmental performance outcomes, ISO 14001 emphasizes the processes that facilities should undertake to manage their environmental impacts."[171]

ISO 14001 and the MMTP

In introducing environmental management, the impact statement focuses on how the corporation is ISO 14001 certified. The remainder of this section/paragraph explains what this certification means, including the following statement:[172]

> "The Environmental Management System includes commitments to comply with legislation, licenses, permits and guidelines, conduct inspections and monitoring, and review the results for adherence to the requirements. The ISO standard ensure quality, performance, and continual improvement in the delivery of Manitoba Hydro's Environmental Protection Program"

Unfortunately, as described above, certification cannot be equated to environmental stewardship.

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[168]Lundberg, K. (2009). Monitoring as an instrument for improving environmental performance in public authorities: Experience from Swedish infrastructure management. KTH. at p. 12.
[169]Krut, R., & Gleckman, H. (2013). ISO 14001: A missed opportunity for sustainable global industrial development: Routledge at p. 97.
[170]Lundberg, K. (2009). Monitoring as an instrument for improving environmental performance in public authorities: Experience from Swedish infrastructure management. KTH. at p. 12.
[171]Arimura, T.H., Darnall, N., Ganguli, R., & Katayama, H. (2016). The effect of iso 14001 on environmental performance: Resolving equivocal findings. Journal of Environmental Management, 166, 556-566. doi: https://doi.org/10.1016/j.jenvman.2015.10.032 at p.557.
[172] Manitoba Hydro. (2015a). Manitoba-Minnesota transmission project environmental impact statement: Environmental protection, follow-up and monitoring. Winnipeg, MB, Canada: Manitoba Hydro at p. 22-22.

To that end, CAC-IR-001 sought addition information about Manitoba Hydro's ISO certification. In response to this request, Manitoba Hydro released a copy of selection portions of the 2015 audit of the Riel Station. This was the third Hearing where CAC requested this information, but only the first where information was made available.[173]

While I appreciate the partial audit for the Riel station, and details about the MAC dashboard, a review of this material ultimately reified a number of concerns associated with using this certification as "verif[ication] of environmental performance"[174] in the MMTP.

The material provided lacks detail about the specific targets for environmental continued improvement specified by the proponent, and the there is no baseline available from which to measure absolute performance over time.

When asked about the targets, Manitoba Hydro confirmed that these are self-identified.[175]

When asked what is meant by "continual improvement", Manitoba Hydro's response is reflective of what is established in the literature surrounding ISO 14001. Namely:[176]

> "***I do not believe there is a formal definition***, but it certainly is an understanding that continual improvement essentially means never being satisfied of where you are at, but always looking to improve" (*emphasis added).*

Later, in the transcript, the explanation continues:[177]

> Our environmental management policy, which every organization that subscribes to the ISO standard is required to have, it clearly states that one of the goals for Manitoba Hydro is continually improving the EMS, so continually improving the

[173] See Diduck, A.P., & Fitzpatrick, P. (2013). Assessing adaptive management in the Keeyask EIS: A report prepared for the Consumers Association of Canada (Manitoba) and the Public Interest Law Centre of Legal Aid Manitoba. Winnipeg, MB: Public Interest Law Centre; and, Diduck, A.P., Fitzpatrick, P., & Robson, J.P. (2012). Guidance from adaptive environmental management, monitoring and independent oversight for Manitoba hydro's upcoming development proposals: A report prepared for the Consumers Association of Canada (Manitoba) and the Public Interest Law Centre of Legal Aid Manitoba. Winnipeg, MB: Public Interest Law Centre.

[174] Manitoba Hydro. (2015a). Manitoba-Minnesota transmission project environmental impact statement: Environmental protection, follow-up and monitoring. Winnipeg, MB, Canada: Manitoba Hydro at p. 22-22.

[175] Hearing Transcripts, May 15, pp. 1133 (line24)-1134(line 12), including this exchange beginning p. 1134 line 2

"Mr. Stuart: ISO 14001 includes requirements for targets. So as an example, if an organization has defined what are significant environmental aspects, a key component of that would be to develop targets for those selfsame aspects.

Ms. Pastora Sala: And the targets that would be identified would be left up to the corporation to identify; correct?

Mr. Stuart: Yes. ISO is not prescriptive in that way."

[176] Hearing Transcripts, May 15, p.1135 (lines 18-22).

[177] Hearing Transcripts, May 15, pp.1156 (lines 150) 1157 (line 10).

> system itself as well….So we have commitments to continual improvement, and then we describe an entire cycle which is intended to in itself be continual improvement.

Rather than specify detailed environmental impacts, the emphasis appears to be on the EMS as a whole.

As such, one would require long-term access to the EMS and site audits in order to meaningfully assess the company's environmental performance through ISO 14001 initiative. The snap-shot in time provided through this assessment, is not sufficient.

Unfortunately, as made clear in the IRs:[178]

> The ISO Audit reports are considered confidential information 1 and are intended for the use of management. The reports are generally not made publicly available.
>
> At this point in time, Manitoba Hydro has not considered an additional external audit on MMTP for public consumption.

This was reaffirmed during the hearings.[179]

This is particularly important, as we heard that Manitoba Hydro is currently working on revising the documentation to comply with the revised standard. Material is anticipated for the "third quarter of 2017/18."[180]

Without having access to this material, it is difficult to identify what the new EMS, including the EMAC dashboard will canvas, and how it will be relate to the MMTP.

Importantly, during the hearings, we learned:[181]

> The ISO standard, again, has expectations at a fairly highly level; and again, it is up to each organization to decide how that's best implemented and put into practice[in the EMS].

When asked if specific commitments related to the MMTP would have to be "expressly included in the EMS" the proponent concurred: [182]

> That would be correct, although again, we could include them at a higher level. As opposed to identifying each one individually, we could have a more blanket statement about compliance.

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[178] CAC-IR-018 (a) and (b).
[179] Hearing Transcripts, May 15, p. 1159 (lines 7-29).
[180] CAC-IR-018(i).
[181] Hearing Transcripts, May 15, p. 1137 (lines 15-18).
[182] Hearing Transcripts, May 15, p.1141 (lines 8-12).

In addition, the auditors have discretion with respect to the material they choose to review[183]

> "So it is entirely up to them [the auditors]. But any of the elements of the standard would be up for assessment by the auditors during an ISO 14001 audit."

So, although there is a commitment that "If there are new compliance requirements as a result of MMTP, they will be incorporated into the compliance framework,"[184] it is unclear as to how the project specific requirements would inform the broader management policy. This NSMD initiative as currently implemented lacks transparency.

Overall while ISO 14001 likely serves an important function for Manitoba Hydro, it is difficulty to link this certification with environmental performance, based on the available evidence.

Furthermore, given the structure of the EMS – with a broader corporate focus – audits under ISO 14001 are not designed to fulfil the same function as the post-hoc evaluation audits (the EIS-specific, third party environmental audit to assess whether commitments were met and to assess the accuracy of assumptions and predictions) described in section 3.5.

[183] Hearing Transcripts, May 15, p.1144 (lines 1-4).
[184] CAC-IR-018(I) (a).

6.0 A foundation for the future: Strengthening follow-up and monitoring to ensure robust protection across the province

This section compiles the specific recommendations made through this report.

Recommendation 1: The CEC replicate the recommendation that, upon completion of the project, Manitoba Hydro "undertake a third-party environmental audit to assess whether commitments were met and to assess the accuracy of assumptions and predictions. The results of this audit shall be made public. This is to be repeated five years after the first environmental audit."

Recommendation 2: The CEC replicate the recommendation that, "for the life of the Project, containing all the information the Proponent has already committed to in the EIS and …<MMTP> hearings related to monitoring and assessing environmental impacts, mitigation and management. This information is to be easily retrievable and updated frequently."[185]

Recommendation 3: The CEC replicate the recommendation that, the proponent "provide to the Manitoba Government an annual report on the…< MMTP> containing information in such detail that past, current and future assessments can be made as to the accuracy of predictions, success of mitigation actions and commitments to future actions. These reports will provide assessment of any trends detected over the entire reporting period. These reports shall be made public.

Recommendation 4: Manitoba Hydro commit to developing a more standardized monitoring format across projects, which includes the following components: the purpose of the monitoring, details on the methods used, annual results, implications for the next year of monitoring and reflection on how these findings match (or deviate) from predictions. While a separate report is not necessary for each VC, the proponent should include a more detailed, separate report for VCs of particular concern.

Recommendation 5: Manitoba Hydro modifies the objectives of the Monitoring program to add reference to AM, and remove reference to baseline information. See section 4.2 for suggested wording.

Recommendation 6: The CEC make a recommendation that Manitoba Hydro formalize its relationship with First Nations and the Metis Nation through an Indigenous Community Monitoring Committee. The roles and responsibilities for each of the parties will need to be identified in conversation, based on recognition that each of the parties brings forward different worldviews, which need to be equally respected in the design and implementation of the subsequent monitoring program.

[185] Note this condition was taken from the Keeyask Generating Station Project, as it is for the life the project, rather than "in perpetuity" (the condition for the Bipole III Generating Station).

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