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September 18, 2017

Darren Christle  
Executive Director and Secretary  
Public Utilities Board of Manitoba  
400 – 330 Portage Avenue  
Winnipeg, Manitoba R3C 0C4

Dear Mr. Christle:

**RE: MANITOBA HYDRO 2017/18 AND 2018/19 GRA – INDEPENDENT EXPERT CONSULTANTS**

Manitoba Hydro requested a meeting with the Independent Expert Consultants (IEC), their counsel, PUB staff, advisors and counsel for the purpose of gaining an understanding of IEC deadlines, their work plan, expectations of Manitoba Hydro and how the IEC's work product will be incorporated into the GRA schedule. Manitoba Hydro also wished to confirm that its list of IEC staff is accurate and that documentation allowing IECs access to Manitoba Hydro sites and information technology has been or is in the process of being secured. This meeting took place at Manitoba Hydro's offices on Thursday September 14, 2017. The meeting was productive. Board Counsel invited Manitoba Hydro and MGF to make suggestions regarding the timing and scope of the review. While Manitoba Hydro and the IEC expressed some reservations in commenting on the scope of an IEC's assignment, given the need to manage a significant amount of information in a timely manner Manitoba Hydro believes its comments and observations may assist the PUB.

Manitoba Hydro's comments are guided by the recognition that there must be a thorough and transparent review of matters within the mandate of the PUB in order for the requested rate relief to be considered. In this context, and as required by the PUB Manitoba Hydro is fully prepared to engage in regulatory review of its decisions, recognizing that such review must be forward looking. Manitoba Hydro suggests the PUB ought to be guided in its review by the considerable efforts and conclusions of earlier reviews; whether there exists the

ability to effect change with respect to the subject matter; whether the subject matter impacts current rate decisions and of course, whether the subject matter falls within the mandate of the PUB as defined by legislation and OIC 92/17.

#### Participating IECs

Manitoba Hydro has been advised that the following IECs have been retained to participate in the GRA:

1. MGF Project Services (July 4, 2017)
2. Daymark Energy Consultants Inc. (August 16, 2017)
3. Dr. Adonis Yatchew (August 28, 2017)

Several sub-IECs have been retained by the PUB to assist MGF in carrying out its scope of work. Manitoba Hydro understands that these efforts have been challenged by the fact that the Corporation utilized the services of many of the best known subject matter experts in North America. Manitoba Hydro understands the following sub-IECs will be assisting MGF's participation in the GRA:

1. Klohn Crippen Berger Ltd. (confirmed September 7, 2017)
2. Amplitude Consulting Pty. Ltd. (confirmed September 13, 2017)
3. Stanley Consultants (Manitoba Hydro understands is a sub-contractor to Klohn Crippen Berger as referenced in Klohn Crippen Berger's Scope of Work )

#### Preliminary Matters – Non-Disclosure Agreements and Personnel Risk Assessments

As contemplated in PUB Order 82/17, the IECs require access to Manitoba Hydro and Third Party commercially sensitive information (CSI), which information is to be shared pursuant to a non-disclosure agreement (NDA). Manitoba Hydro established a SharePoint site for the purpose of sharing confidential information with IECs. In addition, it is of note that MGF requested site visits be arranged to Keeyask, Keewatinohk and Riel Stations.

In order to meet NERC security requirements with respect to critical infrastructure, Manitoba Hydro requires a Personnel Risk Assessment (PRA) be completed by each individual prior to providing access to the Corporation's information technology systems or existing generation or transmission stations, including visitors to worksites under construction. PRAs are submitted to the Winnipeg Police Service following completion of a single page form which serves to verify the individual's identity.

The NDA presented to IECs is based on that used in the 2015 Centra Cost of Gas proceeding. Many of the IECs proposed changes be made to the non-disclosure agreements, often in a series of requests. Non-Disclosure Agreements have been finalized with MGF (July 29, 2017), Daymark (September 5, 2017), Amplitude Consulting (Sept. 14, 2017) and Klohn Crippen Berger (September 15, 2017). Manitoba Hydro was advised at the September 14, 2017 meeting that Dr. Yatchew was reviewing the NDA with his personal attorney and that he anticipated an agreement would be forthcoming in the near term. Manitoba Hydro has maintained logs detailing requests for changes to the NDA and the corporation's response to same if the PUB requires further information in this regard.

Manitoba Hydro can advise that to date it has submitted a total of 38 PRA requests on behalf of the IECs, 35 of the PRAs have cleared and three (submitted September 5, 2017 or later) remain outstanding. Manitoba Hydro typically expects a seven day turn-around time for North American PRAs, with an additional 7 to 14 days when international checks are required. Manitoba Hydro has maintained a log of when PRA requests were received, submitted and returned if the PUB requires same.

#### GRA Schedule

The schedule for the current GRA contemplates a hearing from December 4, 2017 to February 9, 2018. The process and schedule for the filing and review of IEC Reports is not included in the PUB's Timetable for the Orderly Exchange of Evidence (Appendix B to Order 70/17) nor is it referenced in the IEC's Scopes of Work published on the PUB's website. At the September 14, 2017 meeting Manitoba Hydro sought information regarding how the reports will fit into the GRA schedule and whether consideration had been given to the requirement that time be allotted for Manitoba Hydro to review the reports in an effort to identify and redact CSI prior to their being released on the public record.

As a result of the September 14, 2017 meeting, Manitoba Hydro now understands that the deadline for submission of the IEC Reports has not been finalized, that late October or early November has been targeted although PUB Counsel was not able to provide specific dates for each report, and suggested that consideration is being given to extending the due dates, particularly in the case of MGF. Manitoba Hydro concurs with the notion that the IEC's and in particular MGF will be challenged to provide quality reviews of all of the matters identified for review in current Scopes of Work. Manitoba Hydro has now carefully considered options for extending the time for completion of the IEC's reports. Manitoba Hydro has concluded that an extension of time does not address the fundamental problem, which is that the

scopes of work are extremely broad and that the addition of days or weeks (or even months in the case of MGF) to the time allotted for submission of their report is unlikely to resolve the problem.

In addition to Manitoba Hydro comments on the IEC's scopes of work (detailed below), Manitoba Hydro does not believe extensions of time for the provision of IEC reports can be accommodated within the GRA schedule. Intervenors have expressed an interest in MGF's work that is germane to the proposed rate increase, notably the reliability of the Capital Expenditure Forecast and in particular the reliability of the control budgets for Keeyask and Bipole III. Natural justice dictates that this work be available to Intervenors and Manitoba Hydro for review and discovery prior to the start of the oral hearing. This will only occur if the reports are completed in early November.

In its comments below, Manitoba Hydro focuses on MGF's Scope of Work. While there may also be opportunities to make similar refinements to the Scope of Work assigned to Daymark, meetings between Manitoba Hydro staff and Daymark (who participated in the NFAT review) to date suggest that the nature and level of review being undertaken is appropriate in the circumstances. Manitoba Hydro's understanding is that Daymark intends to focus its efforts on what has changed since these same matters were reviewed at the NFAT and how such changes impact the current rate application.

Interactions with Dr. Yatchew have, to date, been fairly limited. A number of the topics assigned to Dr. Yatchew extend beyond Manitoba Hydro's mandate and as such the Corporation has limited ability to contribute to this work. Manitoba Hydro notes that the Scopes of Work of Dr. Yatchew and Daymark have some overlap and that the PUB directed that the IECs minimize duplication of analysis. Manitoba Hydro is unable to comment on what efforts, if any, have been undertaken in this regard and views this as an area where efficiencies can be achieved.

#### MGF Inquiries To Date and OIC 92/17

To date Manitoba Hydro estimates that it has responded to MGF document requests with roughly 1100 documents related to Keeyask and 1000 documents related to the Bipole III project which represents between 150,000 – 200,000 pages of information. In addition several thousand pages of information have been provided with respect to the Great Northern Transmission Line and Manitoba – Minnesota Transmission Line projects. It is not reasonable to expect MGF to review, and begin to digest and understand this volume of

information whether it be given weeks or months to do so. More importantly, the question must be asked, what is the purpose of such review?

The IEC reports requested by the PUB will be required to assist in the Board's review of Hydro's rate application, and to fulfil the requirements of Order in Council 00092/2017 (OIC 92/17) which provides:

The Public Utilities Board (the "PUB") is assigned the duty of considering capital expenditures by The Manitoba Hydro-Electric Board ("Manitoba Hydro") as a factor in reaching a decision regarding rates for service under Part IV of *The Crown Corporations Review and Accountability Act* to support setting rates for services in a manner that balances the interests of ratepayers and the financial health of Manitoba Hydro.

OIC 92/17 directs the PUB to consider capital expenditures in reaching a decision regarding rates for service. It does not direct the PUB to conduct a historical review of capital projects extending back over a decade nor will such review produce information relevant to rates in the test years of this GRA. Similarly, inquiries into questions such as why a specific technology was chosen, particularly when the project is near completion and there is no possibility of revisiting the decision should not be allowed to derail a meaningful review of factors that will impact rates in the current timeframe. With the work that has been completed to date, Manitoba Hydro is confident that MGF has acquired insights regarding the complexity of the tasks that it has been assigned and is in a position to opine on what matters to the current rate application and what does not.

MGF should be directed to focus on matters that directly impact the current rate application, taking into account and building on the work undertaken and conclusions drawn by the PUB in past. In general terms, this means focusing on what has changed since the NFAT or last major project control budget relied upon by the PUB.

#### MGF Scope of Work – Specific Comments and Suggestions

In an effort to assure that the PUB receives a timely and relevant report, and that the IEC's have the opportunity to sufficiently canvas those areas which will assist the PUB in making its rate determinations, Manitoba Hydro offers the following suggestions to streamline the scope of the report requested from MGF.

Manitoba Hydro has referenced the items according to the numbering in the Scope of Work document currently on the PUB website:

Keeyask

1. **Review, assess, and determine the reasons for project cost overruns with respect to:**
  - i. **Design or project scope changes;**
  - ii. **Deviations from estimated quantities;**
  - iii. **Labour productivity;**
  - iv. **Labour costs;**
  - v. **Labour hiring constraints with respect to:**
    - Competition with other large civil projects in Canada;**
    - Remote location; and**
    - Northern and First Nations jobs.**

This item requests a review of the reasons for project cost overruns with respect to various categories enumerated. An IEC review of pre-2014 cost Keeyask project cost increases was undertaken during the NFAT.<sup>1</sup> In this regard, Manitoba Hydro notes that for the period up to 2014, the PUB reviewed these matters in the course of the NFAT hearing and concluded in its Recommendation:

The actual construction cost of Keeyask will increase beyond Manitoba Hydro's currently projected capital cost of \$6.5 billion. Budgeting at least for Manitoba Hydro's "high" estimate of \$7.2 billion would be prudent.

This conclusion is not reached as a result of the history of past capital cost increases. The panel accepts Manitoba Hydro's argument that the past is not necessarily a predictor of the future. Rather, the panel bases its conclusion on its review of the Keeyask general civil contract, which is a cost reimbursable contract that leaves a significant portion of cost risk with Manitoba Hydro. It would be a fallacy to assume the contract provides anywhere near the same level of certainty as a fixed-price contract, which would be more expensive. (p. 132)

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<sup>1</sup>The NFAT Scope of Work of Knight Piesold included:

"8. Analyze Manitoba Hydro's justifications for increasing direct costs and for increasing indirect costs with respect to:

- (a) Labour productivity and shortages;
- (b) Competition with other large civil projects in Canada;
- (c) Remote location;
- (d) Northern and First Nation jobs; and
- (e) Other contractual hiring constraints"

Manitoba Hydro suggests that the current review should be specifically directed to the period since the 2014 control budget, making clear to the IEC that it is not necessary to repeat the review undertaken during the NFAT.

**2. Determine whether Manitoba Hydro followed best practices for its preconstruction design and engineering work including whether sufficient geotechnical analysis was undertaken.**

Manitoba Hydro submits that it is neither necessary nor practical to review Keeyask pre-construction design and engineering work in the context of the current GRA. The pre-construction design and engineering work was concluded prior to the NFAT. Manitoba Hydro notes that the team responsible for this area disbanded shortly after the NFAT recommendation issued and many have since left the Corporation. There is no new information relating to pre-construction design and engineering work after 2014. There is no merit to requiring MGF to repeat the work done by IEC Knight Piesold in 2014 for the PUB<sup>2</sup> nor will such work impact rates in 2017/2018.

Manitoba Hydro notes that this work has been assigned to Klohn Crippen Berger as part of their subcontracted work from MGF. Accordingly, Manitoba Hydro submits that the Klohn Crippen Berger scope of work should be similarly revised.

**3. Review and assess Manitoba Hydro's cost estimating methodologies, identifying best practices and short-comings. Explain why the cost estimating methodologies resulted in an overly optimistic cost estimate.**

Similar to comments with respect to item 1 above, Manitoba Hydro is of the view that a review of these topics from 2014 forward is relevant and appropriate for the current review. Manitoba Hydro notes that a review of pre-2014 cost estimates was undertaken at the NFAT.<sup>3</sup>

**4. Review and assess Manitoba Hydro's scheduling methodologies, identifying best practices and short-comings.**

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<sup>2</sup>The NFAT Scope of Work of Knight Piesold included:

2. Determine whether Manitoba Hydro followed best practices for its preconstruction design and engineering work including whether sufficient geotechnical analysis was undertaken.

<sup>3</sup> NFAT IEC Knight Piesold Scope of Work included:

1. Review and assess Manitoba Hydro's capital and operation & maintenance (O&M) cost estimates for Conawapa G.S. and Keeyask G.S., including the adequacy of management reserves for the projects.

Manitoba Hydro suggests that the review of this item since 2014 is relevant and appropriate. Manitoba Hydro notes that this topic was reviewed during the NFAT<sup>4</sup> and can confirm that there has been no change in scheduling methodologies since 2014.

- 5. Review and assess Manitoba Hydro's tendering and contracting methodologies, including choices of contract types, decisions to tender versus directly negotiate contracts, and identifying best practices and short-comings. The scope is to include the following contracts: general civil works; turbines and generators; spillway gates, guides, and hoists; intake gates, guides, and hoists; main camp; camp operations and maintenance services; design engineering; site development; South Access Road; and reservoir clearing. Other material contracts identified by the Independent Consultant should be reported to the Board.**

In assessing the appropriate revision to the scope set out in item 5, it is useful to note that the General Civil Contract, engineering contract, and turbines and generator contracts are the three largest contracts in the Keeyask project and were all awarded (subject to regulatory approval) prior to the conclusion of the NFAT. Spillway gates, guides and hoists and intake gates, guides and hoists are the next largest construction contracts and were executed immediately following the NFAT. These contracts comprise a substantial percentage of the total project cost (interest and escalation and pre-project costs aside). Considering choice of contract types post-2014 does not offer new information, it simply suggests a hind-sight review of past decisions, the most substantial of which were reviewed in the context of the NFAT. Manitoba Hydro notes that the PUB concluded:

The panel is satisfied that Manitoba Hydro's approach to developing and negotiating the contract, as well as its approach to managing risk, has been appropriate to date. (p. 133)

The South Access Road and reservoir clearing are the only contracts listed in item 5 of the Scope of Work which were not awarded in the NFAT timeframe and not specifically included in its review. Nevertheless, these contracts, as well as the camp operations and maintenance services contracts, were designated within the Joint Keeyask Development Agreement (JKDA) to be direct negotiated contracts to First Nation partners, a factor which was known at the time of the NFAT review.

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<sup>4</sup> NFAT IEC Knight Piesold Scope of Work included:

3. Review and assess Manitoba Hydro's construction management, schedule, and contracting plans for the design, engineering, procurement, construction, start up, commissioning, testing, and commercial operation of Conawapa G.S. and Keeyask G.S.



- 6. Review and assess Manitoba Hydro's and the Keeyask Cree Nations' project governance structure and processes comparing to best practices and shortcomings. Provide an opinion how the governance has affected – both positively and negatively – project management, contractor management, and scheduling.**

The Keeyask Project Development Agreement specifically designates Manitoba Hydro as the Construction Manager for the construction of the Keeyask project. All duties required to undertake the project are the responsibility of Manitoba Hydro, and it acts accordingly. While the Scope of Work suggests comparing to best practices, this direction does not consider that there is no comparable partnership structure in existence and accordingly there will not be a source of "best practices" to refer to for comparison purposes.

- 7. Assess Manitoba Hydro's updated Keeyask cost estimate for reasonableness, including whether appropriate contingencies and reserves have been provisioned.**
- 8. Identify aspects of the updated cost estimate and schedule that are at heightened levels of risk and recommend risk mitigation strategies that Manitoba Hydro should use.**

Manitoba Hydro respectfully submits that items 7 and 8 are the appropriate scope and should be the priority for the MGF review of this topic.

- 9. Identify changes to project governance or project management that would beneficially improve the execution of the remaining work**

Manitoba Hydro does not object to the inclusion of item 9 in the scope of work, but questions the value of its contribution to the hearing.

#### HVDC System Design and Construction

- 10. Review and explain the reasons for the increases in the converter stations cost estimate from \$1.09 billion (2010) to \$2.68 billion (2014).**

This item seeks a review of matters relating to an estimate prepared pre-2010 to be compared to the estimate prepared in 2014. This comparison provides no insight into the costs which underpin the current rate request. A more relevant review for this rate case would be of the current (2016) budget, which is addressed in item 15 of the Scope of Work.

- 11. Review and assess Manitoba Hydro's cost estimating methodologies, identifying best practices and short-comings, with specific attention to the short-comings that resulted in the converter station estimates increasing by 150%.**

This Item essentially requires the same review as is requested in item 10. The detailed assessment currently requested requires MGF to undertake detailed analysis of budgets and estimates which commenced in or about 2008. The practices employed by Manitoba Hydro at that time have changed and are not applicable to the cost estimates presented as part of the current GRA.

Manitoba Hydro suggests that it may be more relevant and useful to have MGF comment on Manitoba Hydro's project stage-gate process and compare the level of detail upon which estimates are based at each stage to best practice stage-gate processes in the major capital project industry. It may also be useful for the PUB to have MGF provide a perspective as to how the Bipole project cost increases compare to those experienced by projects of similar size and complexity and typical reasons for these changes/increases (scope changes, market changes etc).

**12. Review the design specifications and tender documents to determine whether the performance specifications for HVDC equipment established by Manitoba Hydro were appropriate.**

**13. Review and assess the tendering and contracting methodologies for the converter stations, identifying best practices and short-comings.**

**14. Identify reasons why HVDC converter equipment bidders proposed LCC technology and not VSC. Quantify and explain the impact of this on the converter station costs.**

It is Manitoba Hydro's understanding that Items 12 through 14 have been assigned to Amplitude Consultants Pty Ltd. ("Amplitude"). These items require a strong understanding of HVDC systems from both a design and operation perspective, as well as an understanding of the North American HVDC marketplace. The equipment and materials in question have already been procured, and much of the equipment is installed. As such, a review and comment on the technology at this juncture has no bearing on the rate review being undertaken by the PUB. Further, there are no plans on the planning horizon for building of additional HVDC converter stations. As such, it is expected that any recommendations made today will be of questionable significance or assistance in the approach to constructing such facilities many years in the future.

It may be of assistance to understand that the HVDC technology decision was left with the bidders to make as part of the RFP process (i.e. bidders could bid whichever technology gave them the best bid). As such, the technology decision requested to be commented upon suggests that MGF would be required to place themselves in the shoes of bidders to the HVDC project, to understand their bidding rules/practices, their risk tolerance, their views of

Manitoba Hydro evaluation criteria and predict how bidders would choose to bid the technology, including consideration of commercial terms, performance guarantees, warranty and schedule. There can be no suggestion that the technology decision will be reversed at this juncture, recognizing that the equipment has been procured and construction is nearing completion.

**15. Review and assess the reasons for the capital cost increases from the 2014 control budget of \$2.68 billion to the current forecast at completion amount of \$2.78 billion.**

Manitoba Hydro views this as the appropriate question to be posed to MGF on this topic and should be given priority in narrowing the MGF scope of work.

Should the PUB find these comments useful in reducing the Scope of Work for MGF to a manageable workload, achievable in the time allotted, it may also be possible to reduce or eliminate the need for the retainer of Amplitude, which would further assist in keeping the rate review on schedule and eliminate unnecessary expenses ultimately borne by ratepayers.

Transmission Line Construction

For BiPole III:

**16. Determine whether Manitoba Hydro followed best practices for its pre-construction design and engineering work.**

**17. Review and assess Manitoba Hydro's cost estimating methodologies, identifying best practices and short-comings.**

Items 16 and 17 are questions which relate to pre-construction and early construction phases of the Bipole project and how work during these phases was incorporated into Manitoba Hydro's early estimates. BiPole III is nearing completion, equipment has been fully procured, and much of it is installed. These questions do not apply to the current rate review.

**18. Review and assess Manitoba Hydro's tendering and contracting methodologies, including choices of contract types for the major contracts, identifying best practices and short-comings.**

As noted in the discussion of Item 13 above, this question will not assist in assessing rates in the current timeframe and could be eliminated, particularly in the interests of managing the time and expense associated with the IEC review.

**19. Review and assess Manitoba Hydro’s proposed project management, contractor management, construction risk management, and scheduling methodologies, identifying best practices and short-comings.**

Manitoba Hydro is of the view that this question is relevant if it is confined to the risks associated with costs growing or exceeding the current control budget because of project management, contractor management, construction risk management and scheduling methodologies. This request should be narrowed in order to allow MGF to complete relevant work in a timely fashion.

**20. Review, assess, and determine the reasons for project cost overruns since the final pre-construction control budget.**

**21. Assess Manitoba Hydro’s updated forecast at completion capital cost for reasonableness, including whether appropriate contingencies and reserves have been provisioned.**

**22. Identify aspects of the updated cost estimate and schedule that are at heightened levels of risk and recommend risk mitigation strategies that Manitoba Hydro should use.**

The referenced “final pre-construction control budget” in this Item requires clarification in order to ensure that all parties are referencing the same document. If this is intended to reference the control budget established in 2014, at which time there was a large portion of construction still to occur, and several Transmission Line construction contracts still to be awarded, Manitoba Hydro would view this as the appropriate question. The analysis from this timeframe would support MGF’s responses to Items 21 and 22, which are in Manitoba Hydro’s view appropriate questions for consideration in the context of the GRA.

It may also be useful for the PUB and IECs to be aware that in the 2014 control budget and thereafter, Manitoba Hydro used the same methodology for budgeting of BiPole, MMTP and Keeyask, which may assist in streamlining the review of these items in the context of considering the impact on rates and the current review.

Manitoba-Minnesota Transmission Project (MMTP) and the Manitoba-Saskatchewan Transmission Project:

- 23. Determine whether Manitoba Hydro followed best practices for its preconstruction design and engineering work.**
- 24. Review and assess Manitoba Hydro's cost estimating methodologies, identifying best practices and short-comings.**
- 25. Review and assess Manitoba Hydro's proposed tendering and contracting methodologies, including choices of contract types for the major contracts.**
- 26. Review and assess Manitoba Hydro's proposed construction management, contractor management, construction risk management, and scheduling methodologies.**
- 27. Assess Manitoba Hydro's updated capital cost estimates for reasonableness, including whether appropriate contingencies and reserves have been provisioned.**

Items 23 through 27 relate to the MMTP and Manitoba – Saskatchewan Transmission line. These projects, and the related Interconnection project, by virtue of the levels of expenditure, are not material to the capital review mandated by OIC 92/17. Manitoba Hydro suggests that these projects could be omitted from the review and from the IEC Scope of Work. In particular, it is of note that the Manitoba-Saskatchewan line is a relatively small project in the very early stages of development. MMTP is in the environmental licensing stage of the project with no significant contracts for material or construction issued to date. Any attempt to review these projects given their current status is likely to yield little new and material information which impacts the current rate requests before the Board.

Specifically with respect to Items 23, 24, 25 and 26 the comments on best practices for pre-construction design and engineering work and cost-estimating methodologies have been canvassed for AC transmission projects during the NFAT.<sup>5</sup> Hydro's proposed tendering and

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<sup>5</sup> The NFAT Scope of Work for IEC Power Engineers included:

1. Review and assess the completeness and reasonableness of Manitoba Hydro's AC transmission line capital cost and O&M estimates including the adequacy of management reserves for the project.
2. Review and assess the completeness and reasonableness of Manitoba Hydro's AC transmission line construction indirect costs, including access roads, campsites and off-site mitigation costs.
3. Review and assess Manitoba Hydro's construction management, schedule, and contracting plans for the design, engineering, procurement, construction, start up, commissioning, testing, and commercial operation of the AC transmission system.
4. Review and assess Manitoba Hydro's cost estimating risks and risk management practices, sensitivity analysis in construction cost estimates, contingencies, and construction cost indices for the AC transmission system.
5. Provide comparable estimates of costs for each of the foregoing new transmission projects, including Bipole III as suggested by Manitoba Hydro's NFAT filings.

contracting methodologies were “found reasonable” by the PUB in its Recommendations (see Item 5 above). With respect to cost estimates for transmission facilities the Panel concluded

...that such estimates are reasonable and recommends that Manitoba Hydro be given approval to proceed with the construction of a 750 MW transmission interconnection to the United States for a 2020 in-service date.  
(p. 133)

Manitoba Hydro’s construction management, contractor management, construction risk management and scheduling methodologies were also reviewed at the NFAT, and will be considered in the major projects for the period post- 2014 (as per the Items in the Scope of Work above).

If any area of the MMTP and Manitoba-Saskatchewan project are to be considered in the context of the current rate review, (which due to the materiality concerns noted above is not in Manitoba Hydro’s view necessary or appropriate) Item 27 is the most appropriate of the considerations enumerated in the Scope of Work as it focuses on the post-2014 time period relevant to the GRA..

For the Great Northern Transmission Line:

- 28. Compare the GNTL estimated capital costs with estimates for similar projects and assess whether the estimated cost is reasonable.**
- 29. Review and assess the Facilities Construction Agreement and the Project Development Agreement between Minnesota Power and Manitoba Hydro’s subsidiary for reasonableness, identifying whether the agreements follow best practices or have short-comings.**

Manitoba Hydro views Items 28 and 29 as the appropriate scope for the IEC’s on this topic.

For clarity purposes, and to ensure that the appropriate agreements are reviewed, Manitoba Hydro notes that Item 29 should refer only to the Construction Management Agreement rather than the Project Development Agreement (the Project Development Agreement was a short term agreement intended to address certification activities which was superseded in a very short time period by the Construction Management Agreement). With respect to best practices, it should be noted that the GNTL is the first large transmission project in MISO that connects a new transmission line in Canada to be built under a MISO Facilities Construction

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Agreement. As such, the MISO Facilities Construction Agreement and the Construction Management Agreement include this unique purpose and direct comparables will not be available. Manitoba Hydro suggests that this area of inquiry be focused upon whether the agreement adequately addresses the key elements of project description, ownership, payment obligations and service rights.

**30. Review, assess, and explain the reasons for cost estimate increases since 2014.**

Manitoba Hydro views this question as appropriate for the current hearing. It is useful to recognize that the 2014 estimate was a high level estimate, prepared from a top down perspective. The first detailed estimate was undertaken in 2016, once the route was established. As such, it will be more informative to the PUB if the comparison is undertaken from the 2016 estimate moving forward to the current estimate.

**31. Compare and contrast Minnesota Power's cost estimating methodology with Manitoba Hydro's.**

Manitoba Hydro notes that the PUB itself requested this information from Manitoba Hydro, and Manitoba Hydro has provided a detailed response in its response to MFR 191. This information does not enhance or contribute to the review of rates in the context of the GRA, and the request for MGF to repeat the analysis undertaken by Manitoba Hydro is unnecessary, particularly given current time constraints. While the cost estimating methodologies used by Manitoba Hydro and Minnesota Power are not identical, the fact that the estimates produced were comparable should offer comfort that there can be confidence in the estimates. Manitoba Hydro cautions that the PUB reviewing and commenting on the estimating practices of Minnesota Power, a utility subject to oversight by its own regulator, may not be viewed favourably by either Manitoba Hydro's customer or the US regulator.

**Klohn Crippen Berger Scope of Work**

On September 14, 2017 Manitoba Hydro received the Scope of Work for Klohn Crippen Berger.

**For Manitoba Hydro's Major New Generation Capital Projects, specifically the Keeyask Generating Station, Klohn Crippen Berger will:**

- 1. Determine whether Manitoba Hydro followed best practices for its pre-construction design and engineering work including whether sufficient geotechnical analysis was undertaken.**

- 2. Assist in the review of the project execution, construction management, estimating, tendering and contracting methodology, scheduling and design, and project scope changes, as directed by MGF. The review of bids for the Keeyask General Civil Contract are outside the scope for services.**

Manitoba Hydro's comments on item 1 are included above in the discussion of MGF Scope of Work Item 2. With respect to Item 2 of Klohn Crippen Berger's Scope of Work, Manitoba Hydro views this as the appropriate scope of review provided that it is limited to the period from 2014 forward, and does not require a review of matters up to and including 2014 which were the subject of review at the NFAT.

#### Stanley Scope of Work

Included in Klohn Crippen Berger's Scope of Work is a reference to a Scope of Work for Stanley Consultants who Manitoba Hydro understands is a sub-consultant to Klohn Crippen Berger.

**For Manitoba Hydro's Major New Transmission Capital Projects, specifically the BiPole III transmission and collector lines, Manitoba Minnesota Transmission Project, Great Northern Transmission Line, and Manitoba-Saskatchewan Transmission Line:**

- 1. Determine whether Manitoba Hydro followed best practices for its pre-construction design and engineering work.**

This same question is posed with respect to BiPole III in Item 16 of MGF's scope of work, and Manitoba Hydro's comments are included above. Manitoba Hydro's comments with respect to MMTP and Manitoba-Saskatchewan Transmission Line are noted in items 23 above. The remaining project is GNTL. The Board should be aware that Manitoba Hydro is not responsible for and did not undertake pre-construction design and engineering work for this project and accordingly, this request is not relevant to the current review. Should the Board be interested in considering matters related to the GNTL which are within the scope of this review, Manitoba Hydro respectfully suggests that the more appropriate question is whether Manitoba Hydro has adequately protected its interests in the agreements for construction of GNTL. Manitoba Hydro also submits that the appropriate standard for review is to ensure that GNTL is designed and built consistent with good utility practice, as best practice could imply over building or "gold-plating" the project which is not in Manitoba ratepayers best interests.



**2. Assist in the review of project execution, construction management, estimating tendering and contracting methodology, scheduling and design, and project scope changes, as directed by MGF.**

The question posed in Item 2 as it relates to GNTL (comments regarding BiPole III, MMTP and Manitoba-Saskatchewan Transmission Lines are included under the headings above) is relevant if it is confined to the risks associated with costs growing or exceeding the current control budget because of project execution, construction management, estimating, tendering and contracting methodology, scheduling and design, and project scope changes. It should be made clear to Stanley (and to MGF) that this should not be construed as a request for a critique of MP's construction practices.

Manitoba Hydro notes that there is a governance structure and controls in place for the GNTL Project which include the Owner's Engineer (Power Engineers who is known to the PUB), the Independent Third Party Oversight Engineer, as well as the professionals associated with Manitoba Hydro's subsidiary 6690271 Manitoba Ltd. Rather than having the IECs review the same design and construction issues which are reviewed by these parties, it may be more useful to the Board to consider and satisfy itself as to the appropriateness of the governance structure in place.

Conclusion

The mandate of the PUB in the context of this hearing is to consider Manitoba Hydro's capital expenditures as a factor in determining electric rates in a manner that balances the interests of ratepayers and the financial health of Manitoba Hydro. The interests of ratepayers must take into account the need for a timely review and the need for the costs of the review to be reasonable and managed. It should not be forgotten that Manitoba Hydro staff working with the IECs must balance the demands of this work with the ongoing demands of running the utility and in particular ensuring that the projects are delivered on time and on budget. Refining the current scope of work assigned to MGF will permit MGF the opportunity to produce a report which will focus on the issues of significance to the PUB in determining rates for the 2017/18 and 2018/19 Test Years within the time allotted and facilitate a reasonable level of participation on the part of Manitoba Hydro.

Should you have any questions with respect to the forgoing, please do not hesitate to contact the writer at 204-360-3946 or Marla Boyd at 360-3468.

Yours truly,

**MANITOBA HYDRO**

Per:



**PATRICIA J. RAMAGE**

Barrister and Solicitor

cc : Bob Peters, Board Counsel  
Dayna Steinfeld, Board Counsel  
Intervenors of Record