

NEEDS FOR AND  
ALTERNATIVES TO (NFAT)  
REVIEW OF MANITOBA  
HYDRO'S PROPOSAL FOR THE  
KEYYASK AND CONAWAPA  
GENERATING STATIONS

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Technical Appendix 7A

Export Contracts

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# ***Technical Appendix 7A: Export Contracts***

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## Acronyms

### Technical Appendix 7

GRE	Great River Energy
GS	Generating Station
HVDC	High Voltage Direct Current
LCA	La Capra Associates
MH	Manitoba Hydro
MISO	Midcontinent Independent System Operator
MP	Minnesota Power
MW	Megawatt
NFAT	Needs For and Alternatives To
NPS	Northern States Power
PDP	Preferred Development Plan
REC	Renewable Energy Certificate
RPS	Renewable Portfolio Standard
SOW	Scope of Work
WPS	Wisconsin Public Service Corporation

## I. Introduction to Export Contracts

### A. Scope

La Capra Associates (LCA) has prepared this Technical Appendix to address nine elements of our Needs For and Alternatives To (NFAT) Scope of Work (LCA SOW) and to support other elements of our work that take into account the export contracts. The specific LCA SOW elements addressed in this part of the report include the following:

#### *Review of Manitoba Hydro's Export Contracts*

1. *Review and assess Manitoba Hydro's export contracts with US counterparties for:*
  - (a) *Firm energy commitments*
  - (b) *Firm energy pricing*
  - (c) *Peak demand opportunity market sales*
  - (d) *Off-peak period opportunity market sales*
  - (e) *Adverse water clauses*
  - (f) *Drought relief*
  - (g) *Clean energy guarantees*
  - (h) *Treatment of environmental attributes*
  - (i) *Any other commercial obligations in the contracts and the implications on Manitoba Hydro and its counterparties*

The material contained in this Technical Appendix relies on the NFAT Submission, discovery responses from Manitoba Hydro (MH) provided in time to be analyzed for incorporation, as well as information contained in other LCA Technical Appendices, including Technical Appendix 6: Export Markets, and Technical Appendix 8: Transmission. This Appendix also relies on a review of executed power contracts and terms sheets provided by MH on a confidential basis pursuant to a collateral settlement agreement created in a separate proceeding. MH did not file actual copies of the power contracts with the NFAT Submission itself.

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## **B. Background**

MH has entered into power agreements with different counter-parties in order to secure contractual commitments for the dispositions of energy, capacity and related products in connection with the Preferred Development Plan (PDP). There are several agreements including term sheets that have been reviewed, including those between MH and counter parties Wisconsin Public Service (WPS), Northern States Power (NPS), Minnesota Power (MP) and Great River Energy (GRE), and are collectively referred to as the power contracts in this Appendix.<sup>1</sup> The power contracts serve another function critical to the proposed resource expansion since they are tied to the construction of transmission to access MISO markets as well as the construction of the proposed new hydro facilities.<sup>2</sup> These agreements constitute an important part of MH's business case for the NFAT Submission.

The purpose of this Appendix is to review and assess the structure, terms and conditions of the power contracts with US counterparties from a business level perspective, to evaluate whether the agreements contain the contractual features likely to contribute to the revenues that MH modeled as coming from the new resources, and to identify important risks.<sup>3</sup> Examination of these particular agreements and related risk analyses conducted by MH's Resource Planning and Market Analysis Department, and Power Planning Division, have also revealed MH's general contracting practices. Those will be discussed as well in order to put the power contracts into the context of MH's overall business practices as they relate to export sales.

To accomplish these objectives in conjunction with the LCA SOW, this Appendix has been divided into two sections. Part A of the Technical Appendix provided here will review MH's contracting and related risk analysis policies, evidence of application of

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<sup>1</sup> These agreements were provided in two volumes and entitled "Manitoba Hydro Export Contracts and Terms Sheets" and were provided as Trade Secret and Confidential Information. Negotiations on term sheet agreements, and with potential other purchasers, may be ongoing and could have resulted in final power contracts following the filing of the NFAT Submission.

<sup>2</sup> NFAT Submission, Chapter 6, page 28 of 33 (Table 6.4).

<sup>3</sup> This report is not intended to provide, or be relied upon as, a legal opinion regarding the power contracts themselves, and instead reviews the agreements from the perspective of a power planner for commercially reasonable structure and contract features.

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those policies in the power contracts, and encompasses the following topics from the LCA SOW:

- Adverse water clauses
- Drought relief
- Clean energy guarantees
- Treatment of environmental attributes
- Any other commercial obligations in the contracts and the implications on MH and its counterparties (including conditions precedent)

Part B of this Technical Appendix to be filed later will address the LCA SOW issues primarily related to anticipated contract revenues calculated by applying the terms of the agreements as written. Contract modeling, volumes, pricing, transmission and related issues will be covered. This second part of the technical review will encompass the following LCA SOW topics:

- Firm energy commitments
- Firm energy pricing
- Peak demand opportunity market sales
- Off-peak period opportunity market sales
- Revenue projections and variances from NFAT Submission
- Transmission requirements and access

While the NFAT Submission provides general descriptions of the contracts associated with the PDP, the agreements themselves have been deemed confidential. As a result, for context, certain sections of this technical analysis will closely follow parts of the information MH has already made public in connection with these agreements, but analysis of specific contracting practices and terms will be provided on a confidential basis.



## II. Contracting Practices

MH has provided a narrative document that describes a set of contracting practices that it undertakes when entering into power agreements.<sup>4</sup> It has also supplied a copy of its decision matrix entitled "Import & Export of Power - Approval Authority for Wholesale Power Related Transactions, which describes the internal authority needed to execute various agreements.<sup>5</sup> According to this narrative document, the Company undertakes the following analytical activities in connection with sales agreements:

- Supply Analysis
- Transmission Analysis
- Price Analysis
- Market Access Analysis
- Credit Analysis
- Contract Documentation Analysis

Potential contracts that meet certain thresholds require approval by MH's Executive Committee and MH-Electric Board; and, for that purpose, an additional Risk Report is prepared.<sup>6</sup> The following criteria trigger a separate risk analysis of a proposed sale agreement for review by those bodies:

- Dependable energy and/or capacity from a new generating facility; or
- Term that is greater than five years, and

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<sup>4</sup> SP-084 (Confidential) ("Risk Analysis of Export Contracts"). It is unclear when this document was drafted, although it is dated "November 2013".

<sup>5</sup> LCA/MH II-484 (Confidential) (Approval Authority Table).

<sup>6</sup> MH has produced the following confidential Risk Reports: the Power Planning Division Sale Evaluation Reports for the 1) 2010 MH-NSP Sale (SP-085), 2) the 2011 MH-MP Sale (SP-087), and the 3) GRE 200 MW Diversity Exchange Agreement (SP-082). A specific analysis of the WPS Sale Agreements was not provided according to MH as those sales agreements were not yet final. SP-084 (Confidential) ("Risk Analysis of Export Contracts").

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- Capacity obligation greater than 100MW, or
- An annual dependable energy obligation greater than 876 GWh.

MH prepared a summary of these general practices provided in a confidential discovery response.<sup>7</sup>

### **A. Supply Analysis**

MH reports that based on the approved Power Resource Plan, it performs an analysis of system supply to ensure that there are sufficient volumes of capacity and/or energy available for the potential sale. Depending on whether the potential sale is for system power (capacity and energy) or energy only, this supply analysis will include the following:

- Identification of the peak capacity requirements of domestic load and export sale commitments (including the capacity requirements of the proposed sale) during the summer and winter periods to ensure that MH will have sufficient capacity supplies to meet the potential sale, and/or
- Identification of the energy requirements of domestic load and export sale commitments (including the energy requirements of the potential sale) to ensure that MH has sufficient energy supply under dependable flow conditions (if the lowest flow year on record were to occur), or median flow conditions (for surplus energy sales) for each year during the contract term.

If new generating and or transmission facilities are required to meet the combined demand of domestic load and export sales commitments, including the potential sale, conditions precedent in favor of MH must be included in the sale contract to protect itself in the event that these facilities are not constructed. MH's notes that its power contracts contain numerous provisions that are intended to assist in managing the

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<sup>7</sup> SP-084 (Confidential) ("Risk Analysis of Export Contracts").

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supply risk that is associated with these sales. MH represents that typical contract provisions for managing supply risk include:<sup>8</sup>

- The right to supply the sale from markets and/or third parties available to MH.
- The right to curtail MH's obligation to supply during specified events (i.e., forced or scheduled outage to MH's generating/HVDC facilities) in order to ensure that priority is given to meeting the needs of domestic customers.
- The right for MH to reduce its sales commitments during low water conditions.
- The right to suspend sales commitments during a force majeure event.

## **B. Transmission Analysis**

MH states that each time it identifies an opportunity for an export sale or purchase, options for transmission service arrangements required for physical delivery, are explored.<sup>9</sup> According to its policies, transmission arrangements are needed to support one of three sale scenarios:

- **Contract extension/renewal—long term customer.** Transmission service is already in place for the existing agreement, and can be extended (providing certain criteria are met) using provisions of the open access tariffs at the sole discretion of the holder of the transmission service.
- **New contract—existing transmission service.** MH retains access to export markets by holding transmission service, which is eligible for extension at MH's discretion. For MISO specifically, this transmission service provides firm access directly with the MISO market, or with a specific customer in the United States.

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<sup>8</sup> NFAT Submission, Chapter 15, pages 9-11.

<sup>9</sup> A review of contractual terms related to transmission access will be addressed in Part B of this Technical Appendix in connection with firm energy commitments and opportunity sales while transmission projects as a condition precedent are included in Section III (B) (e) of Part A.

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- **New contract—new transmission service.** MH or its sale customer requests transmission service from open access transmission tariff providers, and the service may be available using the existing transmission network.

MH’s policy states that in other cases, the existing transmission system cannot support additional service, and a study is performed to determine the transmission network upgrades that are required in order to provide the service.<sup>10</sup> The cost of the upgrades is assessed to the entities requesting the transmission service.<sup>11</sup>

### C. Price Analysis

MH’s policies direct it to perform detailed pricing analysis for all potential sales using its approved Electricity Export Price Forecast. MH determines the [REDACTED]

Criteria 3a

[REDACTED] to be received from the potential sale using various [REDACTED]. The [REDACTED] from the potential sale is evaluated against [REDACTED].

[REDACTED] According to MH, the goal of the price analysis is to arrive [REDACTED].

### D. Market Access Analysis

MH acknowledges that market rules for the market into which the potential sale is to be made can greatly impact the product to be sold and MH’s obligations during the term of the sale. In order to effectively manage market access risks, MH reports that it actively monitors market tariffs and participates in various market committees, meetings and associations to ensure it has a thorough understanding of the market rules, their impacts and associated responsibilities and advocates when and if necessary. In addition, as part of the Contract Documentation Analysis provided below in item F, potential sales contracts are reviewed by Market Access staff to ensure that

<sup>10</sup> MH notes that “(t)his is the process through which the new 500 kV interconnection was identified as the facility required for new sales of energy and capacity by Manitoba Hydro into the United States.”

<sup>11</sup> For more details regarding the process and studies required when requesting transmission service, see Technical Appendix 8: Transmission.

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MH understands and protects its current and future market access rights and responsibilities with respect to a potential sale.

#### **E. Credit Analysis**

MH notes that it performs a credit analysis for all potential sales to ensure credit risks are appropriately mitigated by evaluating creditworthiness and including credit provisions within the contract. The creditworthiness of an existing or potential counterparty or guarantor is assessed using current financial statement information, agency credit ratings and other qualitative factors. Contract provisions to manage credit risk include items such as the right to: credit review procedures, performance assurances, netting and setoff arrangements, representations & warranties, the suspension of performance and termination events.

#### **F. Contract Documentation Analysis**

MH states that it manages contract documentation risk (defined as incomplete or insufficient documentation that may result in costly dispute resolution or inability to enforce a contract) associated with a potential sale by following an internal review and approval process for sale agreements. Potential sales are required to be reviewed by various areas of the company (i.e., law, transmission access, export billing, export operations, market access) prior to execution. Potential sales also require internal approvals related to authority to enter the transaction, execution authority and volume limits to ensure that transactions are appropriately authorized.

#### **G. LCA Evaluation**

Based on the documents reviewed, MH has produced evidence that it has adopted a reasonable protocol for evaluating potential sales and their primary risks. The extent to which this process is followed, as well as the detail and depth of any need-supporting analysis in this multistep process, will dictate the quality of the resulting information and conclusions. This information is critical since it is intended to assist MH in its contracting decisions.

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Although LCA concluded that MH's contracting and risk evaluation process is generally reasonable, LCA cannot fully validate the adequacy of MH's review, including quantitative analyses of risk, nor conclusions reached in any particular contract evaluation or any ultimate decision to execute or amend any particular export contract.

### III. Review and Analysis of Agreements

Having reviewed the general internal contracting practices supplied by MH, the next step in the review process is to evaluate whether MH has adhered to those guidelines in connection with the PDP. During the course of discovery in this case, MH identified three contractual arrangements that triggered a formal Risk Report in connection with the PDP. The Power Planning Division Sale Evaluation Reports for the 2010 MH-NSP Sale, the 2011 MH-MP Sale and the GRE 200 MW Diversity Exchange Agreement have been provided as separate files.<sup>12</sup> MH notes that a specific analysis of the proposed WPS Sale Agreement has not been performed, as the agreement is still under negotiation.<sup>13</sup> These Risk Reports were examined along with the following power contracts:<sup>14</sup>

Number	Counter Party	Type of Agreement	CSI Reference <sup>15</sup>
1	Wisconsin Public Service	Term Sheet for Energy and Capacity	Vol.1, Tab 1
2	Northern States Power	375/325 MW System Power	Vol.1, Tab 2
3	Northern States Power	350 MW Diversity Sale	Vol.1, Tab 3
4	Northern States Power	125 MW System Power	Vol.1, Tab 4
5	Wisconsin Public Service	100 MW System Power Sale	Vol.2, Tab 5
6	Wisconsin Public Service	108 MW Energy Sale	Vol.2, Tab 6
7	Minnesota Power	250 MW System Power Sale	Vol.2, Tab 7
8	Minnesota Power	Energy Exchange Agreement	Vol.2, Tab 8
9	Great River Energy	Term Sheet for Energy and Capacity	Vol.2, Tab 9
10	Minnesota Power	Term Sheet for Energy and Capacity	Vol.2, Tab 10

**Figure 7-1 – Power Contracts Chart**

The NFAT Submission did not provide copies of the power contracts for examination, but it did provided an overview of important agreements, as follows.<sup>16</sup>

<sup>12</sup> SP - 085 (Confidential), SP - 087 (Confidential) and SP - 082 (Confidential).

<sup>13</sup> SP-084 (Confidential) (“Risk Analysis of Export Contracts”).

<sup>14</sup> These agreements were provided as hard copy in two volumes and entitled “Manitoba Hydro Export Contracts and Terms Sheets,” as Trade Secret and Confidential Information. All pages of the contracts provided in these volumes, even the cover pages, were stamped confidential.

<sup>15</sup> The volumes and tab numbers correspond to those used in the binders of contracts MH provided.

## A. Summary of the NFAT Submission Contracts

### The MP 250 Agreement

MH noted that a 250 MW System Power Sale was signed with MP on May 19, 2011, and provided a copy of the agreement, designated number 7 in Figure 7-1. The contract is for a fifteen-year term starting June 1, 2020 to May 31, 2035. According to MH, it can defer the sale for up to two years due to delays in the commencement of construction of the Keeyask Generating Station (Keeyask) or associated transmission facilities. MH's capacity obligation is to provide 250 MW of Use Limited Capacity – requiring MH to offer 250 MW of energy during the four hour expected peak load in MISO on all days – during the contract term, called “Must Offer Energy.” Under the agreement MH's energy obligation is to provide 250 MW of “7x16” energy with the ability to reduce the energy obligation to “5x16” during periods of adverse water conditions. However, MH would continue to be obligated to offer 250 MW of Must Offer Energy during weekends to support the Use Limited Capacity.

According to MH it will transfer the supplied energy's<sup>17</sup> environmental attributes. MH is responsible for the accounting that will determine the amount of supplied energy and associated attributes.

Key conditions precedent in the agreement are that MH has commenced construction of the Keeyask cofferdam and transmission facilities required for delivering Keeyask output by June 1, 2016.

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<sup>16</sup> NFAT Appendix 6.1 – Summary of Terms and Conditions of Export Contracts. The public version of the description of the contracts as provided by MH is provided here for context while the LCA review of the actual contract terms has been provided in the redacted sections of this appendix since the agreements themselves were provided on a confidential basis.

<sup>17</sup> [REDACTED]



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### **MP Energy Exchange Agreement**

MH also described an MP Energy Exchange Agreement that was signed on May 19, 2011, and provided a copy of the agreement, designated number 8 in Figure 7-1. The contract is for a 15-year term starting June 1, 2020 to May 31, 2035 to mirror the term of the MP 250 MW System Power Sale Agreement. MH does not sell or purchase any capacity under the agreement, but rather the contract provides MH with firm transmission service to import up to 250 MW in any given hour throughout the contract term from MP and/or the Midwest Independent System Operator (MISO) market. MH is obligated under the agreement to request a minimum of 3,750,000 MWh during the contract term (MP's Energy) through day-ahead energy bids in the MISO day-ahead market. However, the actual quantity of MP's Energy purchased and paid for by MH will be determined based on MH's energy bids that clear the MISO day-ahead market. MH has the sole discretion to set the bid price for MP's Energy.

The contract contains a "wind storage" feature whereby MP can elect to financially store up to 250,000 MWh of wind in Manitoba each contract year.

It should also be noted that MHMH has not indicated that it is seeking government approval of this contract in the NFAT proceeding.<sup>18</sup> However, this contract appears to be contingent on the Keeyask project. This agreement includes conditions precedents that simply adopt the condition precedents of the MP 250 MW System Power Sale Agreement by incorporating those conditions by reference. It is unclear from this incorporated condition whether this agreement will proceed in the event that the Keeyask project does not receive government approval.

### **The NSP 125 MW Agreement**

According to the NFAT Submission, a 125 MW System Power Sale was signed with NSP on May 27, 2010, and MH provided a copy of the agreement, designated number 4 in Figure 7-1. The contract is for a four-year term starting May 1, 2021 to April 30, 2025. MH's capacity obligation is to provide 125 MW of Use Limited Capacity that requires MH to offer 125 MW of energy during the four hour expected peak load in MISO on all days for each contract year (Must Offer Energy). MH's energy obligation is to provide

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<sup>18</sup> NFAT Executive Summary, page 1.

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125 MW of 5x16 energy in the summer season (May 1 to October 31) and 125 MW of 5x12 energy in the winter season (November 1 to April 30). In addition to fixed priced energy, MH has the right to offer additional energy on a day-ahead basis.

MH has the right to reduce the winter season energy obligation in increments of 50 MW (25 MW for the last remaining obligation) during adverse water conditions. However the obligation to offer the Must Offer Energy still remains during the winter season. MH is also required to allocate and transfer the environmental attributes for supplied energy to NSP.

The sale includes the condition precedent that MH awards on or before May 1, 2018 the major general civil contract for the construction of a new hydraulic generating facility that has an installed capacity of at least 1,000 MW and will have a targeted in-service date of on or before May, 2021. Since Keeyask alone does not satisfy this condition precedent, MH intends to waive this provision or will rely on this condition not to proceed with the agreement.<sup>19</sup>

#### **The WPS 100 Agreement**

A 100 MW System Power Sale was signed with WPS on May 19, 2011, according to MH's synopsis. The contract is identified as agreement number 5 in Figure 7-1, and covers the period June 1, 2021 to May 31, 2029. The existing WPS 108 MW Energy Sale Agreement which covers the period of June 1, 2012 to May 31, 2023 will terminate on the earlier of May 31, 2023 or the date which this 100 MW System Power Sale commences.

According to the Company, MH's capacity and energy sale obligations under the contract are separated into Product A and Product B. Product A covers sales during the time period from June 1, 2021 to May 31, 2025 with MH having the right to extend the Product A time period to May 31, 2027, which is assumed for forecasting purposes. During the Product A time period, MH's obligations are to: (i) provide 100 MW of Use Limited Capacity that requires MH to offer 100 MW of energy during the four hour expected peak load in MISO on all days (Must Offer Energy), (ii) 100 MWh of "5x16"

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<sup>19</sup> LCA/MH I-012.

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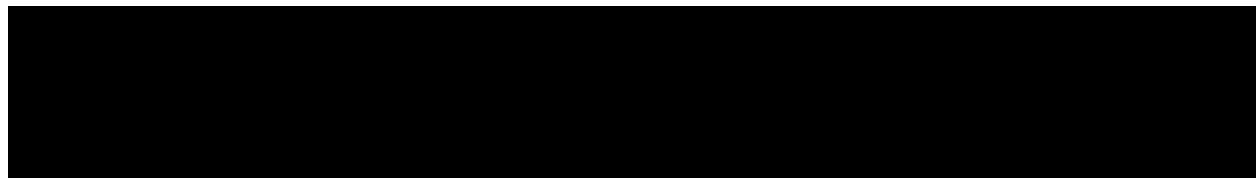
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energy (Weekday Energy) and (iii) 100 MWh of “2x16” energy (Weekend Energy). Product B covers sales during the time period from the end of Product A time period to May 31, 2029. MH has no capacity obligation during this period, but is obligated to offer energy on an annual basis through the MISO day-ahead market. In the Product A and B time periods, MH has the right to offer additional energy on a day-ahead basis.

### The WPS 300 MW Negotiations

In the public portion of NFAT submission, MH acknowledged that it was in negotiations with WPS for up to 300 MW of System Participation and Surplus Energy Sales, but was unable to offer further description on these negotiations since they were ongoing at the time of filing. Elsewhere, the NFAT Submission notes that the discussions involved a term from June 1, 2014 to May 31, 2040, and were for system power plus surplus energy.<sup>20</sup> WPS had also expressed interest in funding the proposed new 500 kV interconnection with MISO. However, WPS recently notified MH it was no longer interested in funding new transmission.<sup>21</sup> Although there is no definitive agreement at this time, MH has indicated that it is seeking approval of this proposed transaction in the NFAT proceeding.<sup>22</sup>

The negotiations produced a term sheet, which is agreement number 1 in Figure 7-1, originally dated March 31, 2008, and last amended on August 31, 2011. While the term sheet is not a final power contract, and should be read with that caveat, several issues have been described with some detail, including price and quantities, enabling a reasonably clear understanding of the status of the negotiations as of the date of the last term sheet. Other issues have not been fully developed, but instead were mentioned topically.



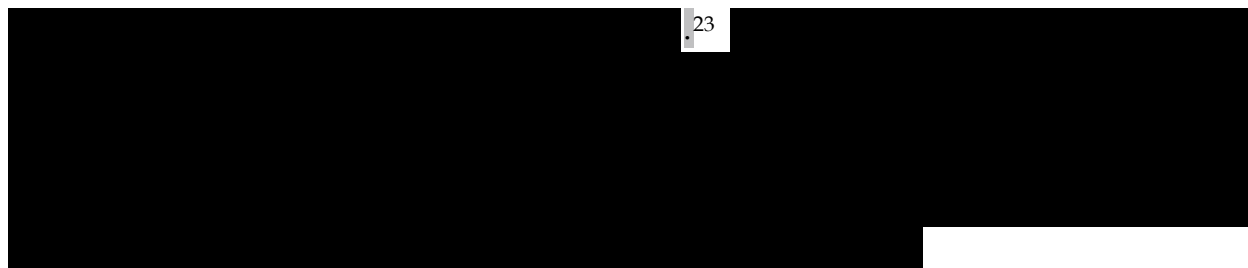
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<sup>20</sup> NFAT Submission, Chapter 6, p. 28 of 33 (Table 6.4).

<sup>21</sup> NFAT Submission, Executive Summary, page 7.

<sup>22</sup> NFAT Executive Summary, page 1.

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**Summary Long Term Commitments Contingent Upon New Hydro Development.**

The NFAT Submission identified the following six power contracts and contingencies regarding export contracts in table form:<sup>24</sup>

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<sup>23</sup> LCA/MH I-438.

<sup>24</sup> NFAT Submission, Chapter 6, p. 28 of 33 (Table 6.4).

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Customer	Contract Name	Capacity (MW)	Type	Term	Contingent Upon	Status
Minnesota Power	MP 250	250	System Participation	June 1, 2020 to May 31, 2035	Keeyask GS and New US Interconnection	Signed
	MP Energy Exchange	0	Energy Exchange	June 1, 2020 to May 31, 2035	Keeyask GS and New US Interconnection	Signed
Northern States Power	NSP 125	125	System Participation	May 1, 2021 to April 30, 2025	New Hydro	Signed
Wisconsin Public Service	WPS 100 Product A	100	System Participation	June 1, 2021 to May 31, 2025	Keeyask GS	Signed
	WPS 100 Product B	0	Surplus Energy	June 1, 2025 to May 31, 2029	Keeyask GS	Signed
	WPS	Up to 300 MW	System Participation and Surplus Energy	June 1, 2014 to May 31, 2040	New Hydro and New US Interconnection	Under Discussion

**Figure 7-2 – Summary of New Hydro Dependent Long Term Commitments**

Like the descriptions of the power agreements themselves, this table notes that the 300 MW Agreement with WPS is an arrangement still under discussion at the time the NFAT Submission was filed.

**LCA Evaluation**

The information made public about the power contracts by MH in the NFAT Submission provides a high-level overview of the export contracts, but the business relationship established by the power contracts, as evidenced by the respective terms, is considerably more complex. While the approach taken by MH in revealing a limited amount of information about the power contracts may have been appropriate for general informational purposes, it would be insufficient for a power planner to evaluate commercially reasonable structure and contract features, key risks or whether economic and financial criteria have been satisfied.

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**B. Review of Specific Clauses**

Having reviewed the general contracting policies of MH, reproduced a summary of the power contracts as noted in the NFAT Submission, and reviewed the contracting policies, including risk mitigation practices in Chapter 15 of the NFAT Submission, this Technical Appendix will next examine the power contracts themselves for evidence in the agreements that MH has adhered to its own internal guidelines. As noted in the introduction, the contract terms and conditions include those related to the price, quantity and resulting modeled revenue, and transmission access, will be addressed in Part B of this analysis to be filed at a later date.

**Adverse Water Clauses**

According to the contracting policies discussed in the Supply Analysis phase of the export transaction review process, it would be reasonable to expect that MH would include contractual protection from low water years associated with an export contract involving hydro resources. Our review confirmed that [REDACTED] contained an adverse water clause, as referenced in the following chart:

Number	Contract	Reference
1	WPS Term Sheet Energy and Capacity	[REDACTED]
2	NSP 375/325 System Power	[REDACTED]
3	NSP 350 Diversity Sale	[REDACTED]
4	NSP 125 MW System Power	[REDACTED]
5	WPS 100 MW System Power Sale	[REDACTED]
6	WPS 108 MW Energy Sale	[REDACTED]
7	MP 250 MW System Power Sale	[REDACTED]
8	MP Energy Exchange Agreement	[REDACTED]
9	GRE Term Sheet for Energy and Capacity	[REDACTED]
10	MP Term Sheet for Energy and Capacity	[REDACTED]

**CONFIDENTIAL Figure 7-3 – Index of Adverse Water Clauses**

[REDACTED]

the lack of an adverse water clause appears related to the nature of the transactions.

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While the exact terminology of each of the adverse water clauses varies, the following is an example from the [REDACTED]:<sup>25</sup>



Under this definition of adverse water, MH would have flexibility [REDACTED] and discretion to determine if [REDACTED]<sup>26</sup> will be considered in its projections [REDACTED]. For this power contract, when MH declares an adverse water event, it then has the option, but not the obligation, [REDACTED] MH will still be obligated to provide [REDACTED]

<sup>27</sup> Subject to certain notice and other ministerial requirements, the power contracts contain the following adverse water mitigation features:

---

<sup>25</sup> Manitoba Hydro Export Contracts and Terms Sheets, Vol.2, Tab 7, page 7.

<sup>26</sup> While a "drought" would be considered an adverse water condition in a colloquial sense, droughts are more extreme and are handled differently in the power contracts, as discussed in the next section.

<sup>27</sup> Manitoba Hydro Export Contracts and Terms Sheets, Vol.2, Tab 7, page 48.

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Number	Contract	Mitigation
1	WPS Term Sheet Energy and Capacity	[REDACTED]
2	NSP 375/325 System Power	[REDACTED]
3	NSP 350 Diversity Sale	[REDACTED]
4	NSP 125 MW System Power	[REDACTED]
5	WPS 100 MW System Power Sale	[REDACTED]
6	WPS 108 MW Energy Sale	[REDACTED]
7	MP 250 MW System Power Sale	[REDACTED]
8	MP Energy Exchange Agreement	[REDACTED]
9	GRE Term Sheet for Energy and Capacity	[REDACTED]
10	MP Term Sheet for Energy and Capacity	[REDACTED]

CONFIDENTIAL Figure 7-4 – Summary Adverse Water Remedies

The statements concerning the use and function of the adverse water clauses made by MH in the NFAT Submission in its risk mitigation discussion in Chapter 15 are reflected in the agreements reviewed.<sup>28</sup> Looking at the four corners of the agreements, the use of these clauses, especially in conjunction with drought relief (discussed below), should provide reasonable protections to the corporation, and ultimately MH customers, by permitting curtailment in low water years.<sup>29</sup>

Drought Relief

[REDACTED]

<sup>28</sup> NFAT Submission, Chapter 15, page 10.

<sup>29</sup> Actual outcomes in the performance of these clauses, and all others reviewed in this Technical Appendix, would depend on many factors, including MH properly invoking the provision to the benefit of its customers and the outcomes of counterparty disputes or legal challenges, if any.



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[Redacted] The chart below summarizes the locations of these clauses.

Number	Contract	Reference
1	WPS Term Sheet Energy and Capacity	[Redacted]
2	NSP 375/325 System Power	[Redacted]
3	NSP 350 Diversity Sale	[Redacted]
4	NSP 125 MW System Power	[Redacted]
5	WPS 100 MW System Power Sale	[Redacted]
6	WPS 108 MW Energy Sale	[Redacted]
7	MP 250 MW System Power Sale	[Redacted]
8	MP Energy Exchange Agreement	[Redacted]
9	GRE Term Sheet for Energy and Capacity	[Redacted]
10	MP Term Sheet for Energy and Capacity	[Redacted]

CONFIDENTIAL Figure 7-5 – Index of Drought Definitions

[Redacted]

Force majeure events generally excuse performance of a party that is unable to satisfy an obligation while the force majeure persists and are subject to various qualifications in the power contracts.

[Redacted]

This should be treated as a force majeure event and would allow MH to suspend deliveries.

<sup>30</sup> Manitoba Hydro Export Contracts and Terms Sheets, Vol.1, Tab 1, page 5.

<sup>31</sup> NFAT Submission, Chapter 4, page 38.

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The use of the force majeure, a common feature in the power contracts, can trigger the curtailment provisions that permit Manitoba to prioritize its native load first.<sup>32</sup> However, curtailment is not limited to events of force majeure, and includes other physical incapacities of MH to deliver under contract, and permit native load to be first in the priority stack.<sup>33</sup> The curtailment clauses can be located in the contracts as follows:

Number	Contract	Reference
1	WPS Term Sheet Energy and Capacity	[REDACTED]
2	NSP 375/325 System Power	
3	NSP 350 Diversity Sale	
4	NSP 125 MW System Power	
5	WPS 100 MW System Power Sale	
6	WPS 108 MW Energy Sale	
7	MP 250 MW System Power Sale	
8	MP Energy Exchange Agreement	
9	GRE Term Sheet for Energy and Capacity	
10	MP Term Sheet for Energy and Capacity	

**CONFIDENTIAL Figure 7-6 – Index of Curtailment Clauses**

The interlocking nature of these contract provisions will provide protections to customers. Our review of the drought clauses confirms the use by Manitoba of the curtailment policies described in the contract risk management section of the NFAT Submission.<sup>34</sup>

Each force majeure event and resulting curtailment would need to be evaluated in light of the relevant contract and under the related factual circumstances at the time it is invoked. While the actual result of such an inquiry is not possible to predict on a prospective basis, the nature of a drought strongly suggests that it would be reasonable

<sup>32</sup> See for example, Manitoba Hydro Export Contracts and Terms Sheets, Vol.2, Tab 7, Section 3.5, pages 45-46.

<sup>33</sup> See for example, Manitoba Hydro Export Contracts and Terms Sheets, Vol.2, Tab 4, pages 37-38, and Tab 7, Sections 3.4 & 3.5, pages 42-46.

<sup>34</sup> NFAT Submission, Chapter 15, page 9.

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to expect it was outside the control of MH.<sup>35</sup> The statements concerning the use and function of the drought provisions by MH in the NFAT Submission in its risk mitigation discussion are reflected in the contracts examined for this Technical Appendix.<sup>36</sup>

Clean Energy Guarantees

addresses clean energy aspects of transactions involving hydro generation. Since the sales agreements are for system power, employ a method for calculating and allocating a portion of environmental attributes basis. While the definitions differed in some aspects or were not completely developed provides a typical example of how clean qualities were defined:<sup>37</sup>

Criteria 1

"Environmental attributes" shall mean the rights to any existing or future environmental benefits or attributes, credits, renewable characteristics, avoided emissions, avoided greenhouse gas emissions, emission reductions, emissions or greenhouse gas emissions associated with, related to or derived resulting from the generation of electricity.

a portfolio of resources are available to provide including wind, gas and hydro generation that includes other generating stations<sup>38</sup> The environmental attributes associated with and is determined by<sup>39</sup> The attributes determined are then to determining,

<sup>35</sup> Some of these other factors to be considered would include, for example, if the force majeure event could have been avoided through the use of good utility practices. Manitoba Hydro Export Contracts and Terms Sheets, Vol.2, Tab 7, page 12.

<sup>36</sup> NFAT Submission, Chapter 15, page 10.

<sup>37</sup> Manitoba Hydro Export Contracts and Terms Sheets, Vol.2, Tab 7, page 10.

<sup>38</sup> Manitoba Hydro Export Contracts and Terms Sheets, Vol.2, Tab 7, Appendix A.

<sup>39</sup> Manitoba Hydro Export Contracts and Terms Sheets, Vol.2, Tab 7, pages 66-67.

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allocating

[REDACTED]

[REDACTED] 40 [REDACTED]

[REDACTED]

[REDACTED] 41 [REDACTED]

[REDACTED] 42 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] 43 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] 44 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] 45 [REDACTED]

---

40 [REDACTED]

[REDACTED]

41 Manitoba Hydro Export Contracts and Terms Sheets, Vol. 2, Tab 8.

42 Manitoba Hydro Export Contracts and Terms Sheets, Vol.2, Tab 10, page 9.

43 Manitoba Hydro Export Contracts and Terms Sheets, Vol.2, Tab 7, pages 64-65.

44 SP-087 (Confidential), page 19.

45 Manitoba Hydro Export Contracts and Terms Sheets, Vol.1, Tab 1, page 18.

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[Redacted] 46 [Redacted]

[Redacted]

.47 The power contract disclaimers are identified here:

Number	Contract	Reference
1	WPS Term Sheet Energy and Capacity	[Redacted]
2	NSP 375/325 System Power	[Redacted]
3	NSP 350 Diversity Sale	[Redacted]
4	NSP 125 MW System Power	[Redacted]
5	WPS 100 MW System Power Sale	[Redacted]
6	WPS 108 MW Energy Sale	[Redacted]
7	MP 250 MW System Power Sale	[Redacted]
8	MP Energy Exchange Agreement	[Redacted]
9	GRE Term Sheet for Energy and Capacity	[Redacted]
10	MP Term Sheet for Energy and Capacity	[Redacted]

CONFIDENTIAL Figure 7-7 – Index of Environmental Attribute Disclaimers

The disclaimers are very broadly written in connection with the clean energy guarantees, and that means that Manitoba is not guaranteeing [Redacted]

[Redacted] 48 [Redacted] Here is an example clause:<sup>49</sup>

[Redacted]

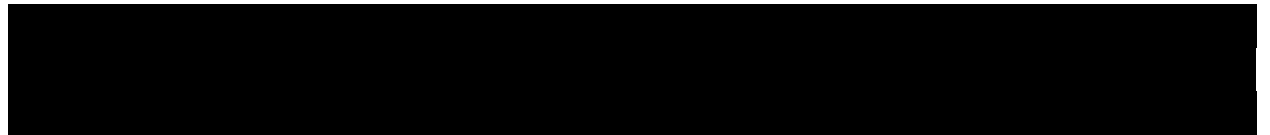
<sup>46</sup> SP-087, (Confidential), page 20.

<sup>47</sup> [Redacted]

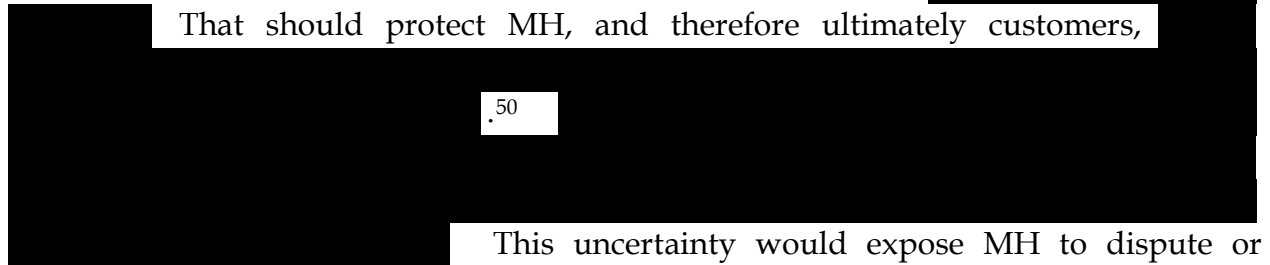
<sup>48</sup> [Redacted]

<sup>49</sup> Manitoba Hydro Export Contracts and Terms Sheets, Vol.2, Tab 7, page 69.

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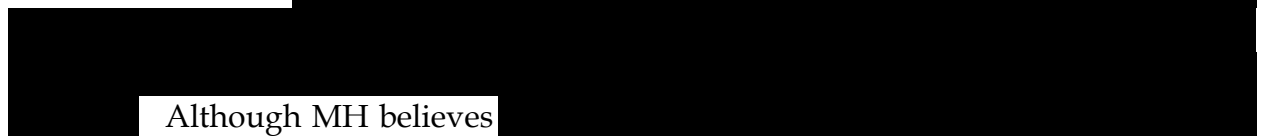
This flexibility should benefit MH's customers since the company has not committed itself to any set amount or specific use



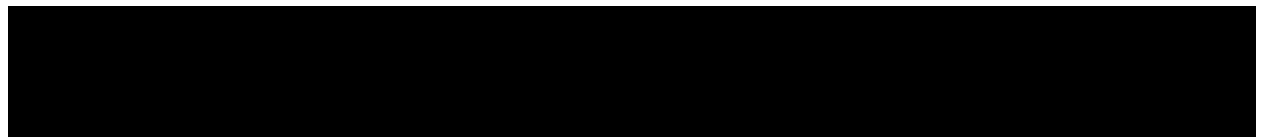
That should protect MH, and therefore ultimately customers,

50

This uncertainty would expose MH to dispute or arbitrations risks.<sup>51</sup>



Although MH believes to be nominal,<sup>52</sup> it has provided no analysis or assumptions to support this conclusion.



<sup>50</sup> The potential result of any such legal challenge is not the subject of this Technical Appendix.

<sup>51</sup> Manitoba Hydro Export Contracts and Terms Sheets, Vol.2, Tab 8, page 58.

<sup>52</sup> SP-087 (Confidential), page 19.

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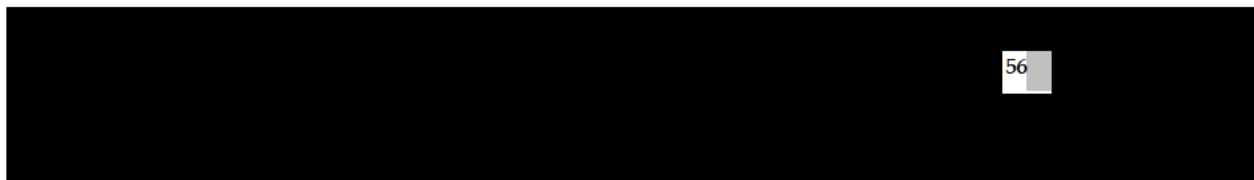


Treatment of Environmental Attributes



Number	Contract	Reference
1	WPS Term Sheet Energy and Capacity	
2	NSP 375/325 System Power	
3	NSP 350 Diversity Sale	
4	NSP 125 MW System Power	
5	WPS 100 MW System Power Sale	
6	WPS 108 MW Energy Sale	
7	MP 250 MW System Power Sale	
8	MP Energy Exchange Agreement	
9	GRE Term Sheet for Energy and Capacity	
10	MP Term Sheet for Energy and Capacity	

CONFIDENTIAL Figure 7-8 - Index of Environmental Attribute Pricing



<sup>53</sup> Manitoba Hydro Export Contracts and Terms Sheets, Vol.1, Tab 1, page 18.

<sup>54</sup> SP-087 (Confidential), page 19.

<sup>55</sup> Manitoba Hydro Export Contracts and Terms Sheets, Vol.2, Tab 6, page 33.



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[REDACTED]<sup>57</sup> While this approach indeed increases the [REDACTED] of the [REDACTED] it would do so in direct relationship to the change in energy prices. Ultimately, the [REDACTED] could change in a significantly different manner than energy prices in the future.

Criteria 3

[REDACTED]

That may, in turn, reduce some of the flexibility MH has [REDACTED]

[REDACTED] the pricing approach taken by MH is not without its opportunity costs, [REDACTED] but it also provides a more predictable revenue stream. In that light, and considering the relative lack of maturity and price volatility associated [REDACTED] [REDACTED] it does not appear to be unreasonable.

**Other Commercial Obligations, Resulting Implications and Conditions Precedent.**

There are several additional contract features that LCA examined in connection with a review of the NFAT Submission, including market access, alternative supply arrangements (financial settlement) curtailments, force majeure, creditworthiness, conditions and options, and conditions precedent, along with risk assessments for contracts requiring approval by MH's Executive Committee and MH-Electric Board. Overall, our review demonstrated that the power contracts address these issues in the manner consistent with description provide in the risk management plan of the NFAT Submission.<sup>58</sup> These contract features appear to operate in a manner that provides a measure of protection for the corporation, and by extension its customers, although in

---

<sup>57</sup> See for example Manitoba Hydro Export Contracts and Terms Sheets, Vol.2, Tab 7, Section 9.1 (6) page 65. The price of energy under the power contracts and the related quantities will be addressed in Part B of this Technical Appendix.

<sup>58</sup> NFAT Submission, Chapter 15, pages 8 -11.



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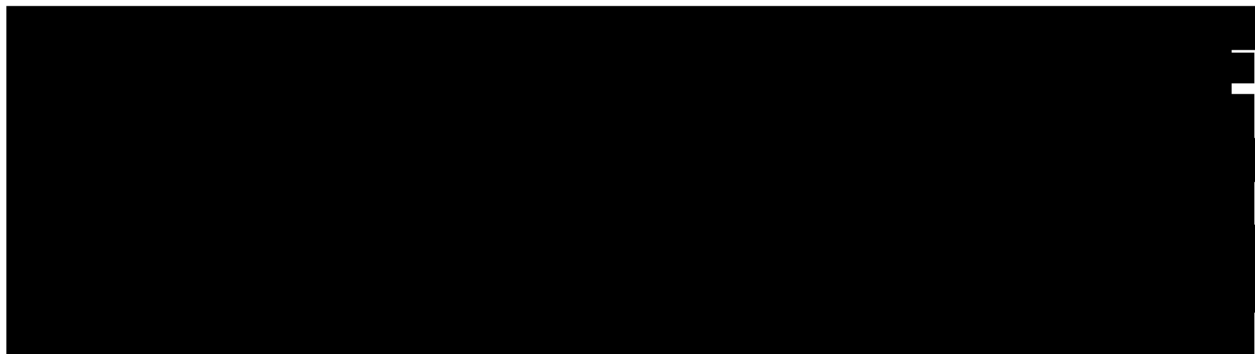
operation the risk of project delays and cost overruns appears to have been accepted by MH. The resulting implications are more particularly explained below.

Conditions Precedent

This topic includes both conditions and options and conditions precedent. [Redacted] The conditions are located in the power contracts as follows:

Number	Contract	Reference
1	WPS Term Sheet Energy and Capacity	[Redacted]
2	NSP 375/325 System Power	[Redacted]
3	NSP 350 Diversity Sale	[Redacted]
4	NSP 125 MW System Power	[Redacted]
5	WPS 100 MW System Power Sale	[Redacted]
6	WPS 108 MW Energy Sale	[Redacted]
7	MP 250 MW System Power Sale	[Redacted]
8	MP Energy Exchange Agreement	[Redacted]
9	GRE Term Sheet for Energy and Capacity	[Redacted]
10	MP Term Sheet for Energy and Capacity	[Redacted]

CONFIDENTIAL Figure 7-9 – Index of Conditions Precedent Clauses



<sup>59</sup> Manitoba Hydro Export Contracts and Terms Sheets, Vol.2, Tab 7, pages 29, 79-83.

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[REDACTED] If these conditions are not met, then all else being equal, MH would have the discretion to walk away from the agreement without incurring any trailing liabilities to the counterparty.<sup>60</sup>

[REDACTED] MH could still decide not to go forward with the project, and not commence construction [REDACTED]

61

62

63

While these provisions do provide considerable protection for MH prior to the start of construction, [REDACTED]

Although force majeure could operate to alleviate performance while it applied, it would not cover all risks, and not those risks that are in the control of MH or those that

<sup>60</sup> [REDACTED] Manitoba Hydro Export Contracts and Terms Sheets, Vol.2, Tab 7, page 29.

<sup>61</sup> See for example, Manitoba Hydro Export Contracts and Terms Sheets, Vol.2, Tab 7, Section 13.2 (a) & (b), pages 81-82.

<sup>62</sup> Manitoba Hydro Export Contracts and Terms Sheets, Vol.1, Tab 1, pages 17.

<sup>63</sup> Id.

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could have been avoided [REDACTED]<sup>64</sup> Dispute or legal challenge would be a risk at that point. Given a project of this magnitude it would be reasonable to expect some explicit clause in the contract detailing what would happen in the event of the cost overruns that render any portion of the project uneconomic including Keyask generation or necessary transmission facilities, or delays beyond the Effective Date, along with measures to protect customers in such circumstances. MH appears to have assumed this risk.<sup>65</sup>

Financial Settlement

According to the risk management guidelines described by MH in the NFAT Submission, MH uses alternative supply provisions in its agreement that permit MH to meet contracted energy obligations for sources other than its own generation fleet.<sup>66</sup>

Criteria 3 The [REDACTED] for example, includes this clause regarding alternative supply transactions:

[REDACTED]

[REDACTED] These provisions are located as follows:

<sup>64</sup> Manitoba Hydro Export Contracts and Terms Sheets, Vol.2, Tab 7, page 12.

<sup>65</sup> SP-087 (Confidential). See Sections 7.5 page 20 & 8.0 page 22.

<sup>66</sup> NFAT Submission, Chapter 15, pages 9-10.

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Number	Contract	Reference
1	WPS Term Sheet Energy and Capacity	
2	NSP 375/325 System Power	
3	NSP 350 Diversity Sale	
4	NSP 125 MW System Power	
5	WPS 100 MW System Power Sale	
6	WPS 108 MW Energy Sale	
7	MP 250 MW System Power Sale	
8	MP Energy Exchange Agreement	
9	GRE Term Sheet for Energy and Capacity	
10	MP Term Sheet for Energy and Capacity	

**CONFIDENTIAL Figure 7-10 - Index of Financial Settlement Clauses**

The terms sheets had provisions were not as well developed as the executed contracts, and likely reflect the stage of the negotiations for these potential sales. Based on this review, LCA has determined that MH use of alternative supply mechanisms, as described in the NFAT Submission contract risk management guidelines, is reflected in the power contracts.

Loss of Markets, Economic Purchases & Opportunity Revenues

The force majeure provisions of the export contracts are critical to understanding any other off-ramps that allow one party or another to be excused from performing under the contracts. It is important in such provisions to not only identify events or circumstances which excuse performance, but those that specifically do not. These clauses are found here in the contracts reviewed:

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Number	Contract	Reference
1	WPS Term Sheet Energy and Capacity	[Redacted]
2	NSP 375/325 System Power	[Redacted]
3	NSP 350 Diversity Sale	[Redacted]
4	NSP 125 MW System Power	[Redacted]
5	WPS 100 MW System Power Sale	[Redacted]
6	WPS 108 MW Energy Sale	[Redacted]
7	MP 250 MW System Power Sale	[Redacted]
8	MP Energy Exchange Agreement	[Redacted]
9	GRE Term Sheet for Energy and Capacity	[Redacted]
10	MP Term Sheet for Energy and Capacity	[Redacted]

CONFIDENTIAL Figure 7-11 - Index of Force Majeure Clauses

[Redacted]

Importantly, the force majeure provisions [Redacted] in a manner that appears to protect MH and its customers, [Redacted] <sup>68</sup> Furthermore, the same contract provision also protects MH and its customers from [Redacted]

[Redacted]

<sup>67</sup> [Redacted]  
<sup>68</sup> See for example, Manitoba Hydro Export Contracts and Terms Sheets, Vol.2, Tab 7, Section 14.1 (4), page 86. [Redacted]

<sup>69</sup> Id.

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It is unclear why, but this key force majeure provision is not [REDACTED]

[REDACTED]<sup>70</sup>

### Creditworthiness

The export contracts feature a common set of provisions intended to provide some form of security termed "Performance Assurance" to the "Requesting Party" in the event it finds unsatisfactory the creditworthiness, financial strength or performance viability of the "Second Party."<sup>71</sup> The provisions include an array of conditions which would allow the Requesting Party to seek such Performance Assurance, including but not limited to:

- (a) The Requesting Party having knowledge that the Second Party is failing to perform under terms of other contracts.
- (b) The Second Party, or its Credit Support Provider, have an Investment Grade Credit Rating and it falls below Investment Grade according to at least one major credit rating agency.
- (c) The Second Party, or its Credit Support Provider, are rated at the minimum Investment Grade Credit Rating and placed on "negative credit watch" or "negative outlook" according to at least one major credit rating agency.
- (d) Other material adverse changes in the Second Party's financial condition.

The foregoing provisions are typical in power sales agreements, and are vital in long-term and large volume transactions in part because exposures to above or below-market outcomes for either the buyer or the seller can be significant. The long-term export contracts provide risks to both counterparties depending on how spot and forward market power prices ultimately deviate from the contract pricing provisions. These credit provisions reasonably protect both parties while they are financially solvent, but how well an exposed party does in protecting itself from a serious deterioration in the

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<sup>70</sup> See for example, Manitoba Hydro Export Contracts and Terms Sheets, Vol.2, Tab 4, Section 15.1, pages 87-88.

<sup>71</sup> See for example, Manitoba Hydro Export Contracts and Terms Sheets, Vol.2, Tab 7, Section 15, pages 86-90 or Tab 4, Section 16, pages 88-92.

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other party's creditworthiness depends upon more than what these protections can provide.

### Risk Analysis

In discovery, MH provided the Power Planning Division Sale Evaluation Reports for the 1) 2010 MH-NSP Sale,<sup>72</sup> 2) the 2011 MH-MP Sale,<sup>73</sup> and the 3) GRE 200 MW Diversity Exchange Agreement,<sup>74</sup> which summarize these particular contracts, identify and assess the risks, and provide recommendations to the MH Board of Directors.<sup>75</sup>

[REDACTED]<sup>76</sup> These risk analyses appear to have collected various reports from different company departments that address the types of risks identified in the Company's export contract review protocols.<sup>77</sup>

In some cases, MH identifies a risk (e.g., pricing or net present value risks) and refers to an analysis it has conducted to assess the risk.<sup>78</sup> However, MH has not provided enough information about the specific analysis and assumptions underlying it to assess the quality of the analysis (particularly under the present forward market price environment or construction cost outlooks) or the conclusion(s) stemming from it. In other cases, a risk may be identified, such as construction risk, where there is just a subjective assessment made that it is "reasonable" for example, but neither a description of the analytical process (if any) employed to make the determination, nor what sort of probability of exposure to the risk or its expected magnitude is provided.<sup>79</sup>

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<sup>72</sup> SP - 085 (Confidential).

<sup>73</sup> SP - 087 (Confidential).

<sup>74</sup> SP - 082 (Confidential).

<sup>75</sup> SP-084 (Confidential) ("Risk Analysis of Export Contracts"); NFAT Submission, Chapter 15, pages 9 to 15.

<sup>76</sup> SP-084 (Confidential) ("Risk Analysis of Export Contracts").

<sup>77</sup> Although how this process is accomplished varies. For instance, the [REDACTED]

<sup>78</sup> See for example, SP - 087 (Confidential), Section 7.4, pages 19-20.

<sup>79</sup> See for example, SP - 087 (Confidential), Page ii, and Section 7.4, pages 19-20.



80

Accepting this construction risk is considered reasonable as MH is experienced in constructing hydraulic generating stations and transmission lines.

The identification of this risk matches the LCA review of the contract, as discussed above in the conditions precedent section. The internal risk assessment, however, does little to quantify the risk, particularly of severe cost overruns or construction delays, and instead simply declares it acceptable to the company.

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<sup>80</sup> SP-087 (Confidential) Sections 7.5 page 20 & 8.0 page 22.



## IV. Summary and Conclusions

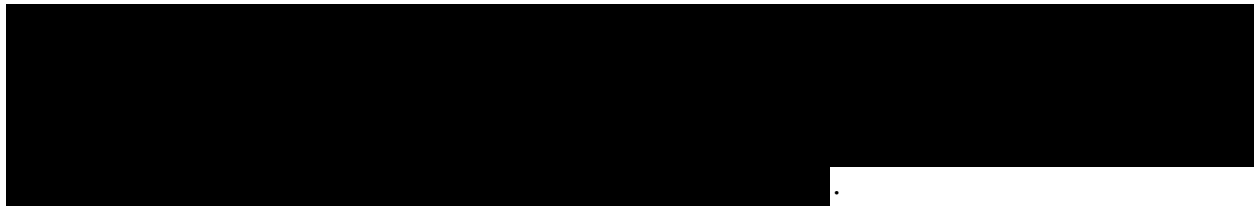
### Part A: Findings and Conclusions

Generally speaking, we found that for executed agreements (as opposed to the term sheets), appropriate terms and conditions were included to understand the relevant features of the transaction, the rights and responsibilities of the parties, and that they identify which party bears each of a number of types of risks associated with the transaction.<sup>81</sup> Standard features, such as force majeure or conditions precedent were written clearly and were understandable. LCA did not find any internally inconsistent terms and conditions.

We find that the contract provisions provide an understanding of the specific areas we were asked to review in the LCA SOW, including those related to:

- Adverse water clauses
- Drought relief
- Clean energy guarantees
- Treatment of environmental attributes
- Other commercial obligations in the contracts and the implications on MH and its counterparties (including conditions precedent)

The contracts contain provisions that comport with descriptions provided in MH's NFAT Submission for the contracts in Appendix 6.1 along with the export contract risk management description found in Chapter 15. This conclusion is not meant as an endorsement of the decisions reached by MH through the use of its protocols.



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<sup>81</sup> LCA did not undertake a legal review of the export contracts, which was beyond our SOW. However, LCA did conduct a business level review of the export contracts based on our industry experience with such long-term power sales agreements.