APPENDIX C

BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

Phyllis Reha	Vice Chair
J. Dennis O'Brien	Commissioner
David Boyd	Commissioner
Betsy Wergin	Commissioner

David R. Moller
Attorney
Minnesota Power
30 West Superior Street
Duluth, MN 55802

SERVICE DATE: February 1, 2012

DOCKET NO. E-015/M-11-938

In the Matter of Minnesota Power's Request for Approval of a Power Purchase Agreement with Manitoba Hydro Company

The above entitled matter has been considered by the Commission and the following disposition made:

1. **Approved Minnesota Power's proposed PPA and EEA.**
2. **Minnesota Power shall, within one year of the date of this Order, and annually thereafter until the start of the agreement, file a report in this docket on various significant milestones achieved regarding the new hydraulic generating facilities and the new major transmission facilities.**

The Commission agrees with and adopts the recommendations of the Department of Commerce, which are attached and hereby incorporated into the Order. This Order shall become effective immediately.

BY ORDER OF THE COMMISSION

Burl W. Haar
Executive Secretary

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November 18, 2011

PUBLIC DOCUMENT – TRADE SECRET DATA HAS BEEN EXCISED

Burl W. Haar
Executive Secretary
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
St. Paul, Minnesota 55101-2147

RE: **PUBLIC Comments of the Minnesota Department of Commerce, Division of Energy Resources**
Docket No. E015/M-11-938

Dear Dr. Haar:

Attached are the PUBLIC comments of the Minnesota Department of Commerce, Division of Energy Resources (Department or DOC) in the following matter:

Minnesota Power Request for Approval of Power Purchase Agreement with Manitoba Hydro Company (MH).

The petition was filed on September 16, 2011. The petitioner is:

David R. Moller
Attorney
Minnesota Power
30 West Superior Street
Duluth, MN 55802

The Department recommends **approval with reporting requirements**, and is available to answer any questions the Commission may have.

Sincerely,

/s/ EILON AMIT
Statistical Analyst

EA/sm
Attachment

PUBLIC DOCUMENT

BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

PUBLIC COMMENTS OF THE MINNESOTA DEPARTMENT OF COMMERCE

DOCKET NO. E015/M-11-938

I. BACKGROUND

The proposed Power Purchase Agreement (PPA) between Minnesota Power (MP) and Manitoba Hydro (MH) is a result of MP's 2009 Integrated Resource Plan (2009 Resource Plan) identifying a need for capacity resources (Docket No. E015/RP-09-1088). In its 2009 Resource Plan, MP identified a need for capacity starting in 2013 and continuing all the way to 2024. The need for the resources provided by the proposed PPA is supported by the Department of Commerce, Division of Energy Resources (Department or DOC) analysis, dated September 27, 2010, in MP's 2009 Resource Plan docket.

II. SUMMARY OF MINNESOTA POWER'S PETITION

On September 16, 2011, MP petitioned the Minnesota Public Utilities Commission (Commission) for approval of a PPA between MP and MH.

This proposed PPA pertains to 250 MW of capacity and associated energy to be sold by MH to MP.

The proposed PPA is for the period June 1, 2020 through May 31, 2035. It provides for MH to sell to MP 250 MW of capacity and associated energy. Concurrently with the 250 MW PPA, MP also signed an Energy Exchange Agreement with MH. This Energy Exchange Agreement enhances the value of the PPA to MP's ratepayers.

Below is a detailed explanation of the capacity and energy to be sold by MH to MP under the proposed PPA. Later in these comments the DOC discusses the energy to be sold and purchased by MP and MH under the Energy Exchange Agreement.

A. *Capacity:* MH is required to sell to MP 250 MW of capacity for each day of the contract (including weekends). This capacity must be provided continuously for at least four hours during the expected peak load of the system operator (currently, the Midwest Independent System Operator, or MISO).

B. *Energy:* MH is required to sell to MP various energy products as follows.
1. Weekday Energy is the 250 MWh per hour of energy to be purchased by MP from MH in each weekday of the contract over the continuous 16 hours from hour end (HE) 7 Central Time (CT) to HE 22 CT.
2. Weekend Energy is the 250 MWh per hour to be purchased by MP from MH in each weekend day of the contract over 16 continuous hours from HE 7 CT to HE 22 CT.
3. Additional Energy is any energy that is not Weekday Energy or Weekend Energy to be sold by MH to MP during each day of the contract.

The various types of energy described above are collectively named Energy.

C. *Offers and Scheduling:* Below is a summary of MH's obligations regarding offers of Energy and MP's obligations regarding Energy purchases.
1. MH's Obligations
   a. MH must offer 250 MWh per hour for each hour of the Expected Peak Load in MISO, for each day of the contract (Must Offer Energy).
   b. Other than the Must Offer Energy, MH may offer into the Day-Ahead Energy and Operating Reserve Market all or portion of the Energy.
2. MP's Obligations
   a. MP is required to schedule all of the Energy that has been offered by MH on a Day-Ahead Basis.
   b. The scheduled Energy must be delivered as follows:
      i. 250 MWh per hour of Weekday Energy and Weekend Energy, over the applicable portion of the sixteen (16) continuous hour period (such hours being determined pursuant to Section 2.3(1))[1] of each Weekday and Weekend Day, as applicable, for each month during the Contract Term;
      ii. the amount of Additional Energy over the applicable hour(s) that MH offers Additional Energy on a Day-Ahead Basis during the Contract Term; and
      iii. during the Contact Term, 250 MWh per hour of the Must Offer Energy that is a component of Weekday Energy or Weekend Energy and was not otherwise Scheduled pursuant to subparagraph b.i above; or is a component of Additional Energy and was not otherwise Scheduled pursuant to subparagraph b.ii above, during the Expected Peak Load in MISO during all days of the contract terms.

[1] The 16 continuous hours are from HE 7 Central Prevailing Time (CPT) to HE 22 CPT, but upon 45 days notice, MP may change the 16 continuous hours period for each weekday and weekend day of the month.

III. DOC ANALYSIS

There are two main issues associated with MP's proposed PPA with MH. These issues are:

- Do the resources proposed in the PPA represent the most appropriate resources to meet MP's resource needs over the period 2020 through 2035?
  and
- If the resources proposed in the PPA are the most appropriate resources, is the proposed PPA in the public interest?

Below is the DOC's analysis of the two issues.

A. THE APPROPRIATE RESOURCES TO MEET MP'S FUTURE RESOURCE NEEDS

1. MP's Resource Needs

MP's proposed needs for additional capacity and energy over the contract period (2020 through 2035) is supported by its updated demand and energy forecast. The Company prepared the updated forecast in June 2011. The 2011 Annual Forecast Report (AFR) included, among other items, two scenarios: The Expected Forecast Scenario and the Wholesale Industrial Customer Scenario (the Modified Expected Scenario).

The Modified Expected Forecast Scenario is the same as the Expected Forecast Scenario with one exception. The Modified Expected Forecast Scenario includes the addition of the Essar Taconite facility in Nashwauk, Minnesota which is planned to be operational in 2014. This addition is expected to add about **[TRADE SECRET DATA HAS BEEN EXCISED]** MW a year to MP's load starting in 2016 and about **[TRADE SECRET DATA HAS BEEN EXCISED]** MWh a year in 2016. Based on the Modified Expected Forecast Scenario, the Winter Peak Capacity deficit would be 232 MW in 2020 and would increase to 507 MW in 2034. Even under the Expected Forecast Scenario, MP's 2020 capacity deficit would be **[TRADE SECRET DATA HAS BEEN EXCISED]** MW and MP's 2034 capacity deficit would be **[TRADE SECRET DATA HAS BEEN EXCISED]** MW. Also, based on the Modified Expected Forecast Scenario, MP would face an energy deficit of about 1,742,000 MWh in 2020, which would increase to about 2,696,000 MWh in 2034. Again, even under the Expected Forecast Scenario, MP would face an energy deficit of about **[TRADE SECRET DATA HAS BEEN EXCISED]** MWh in 2020 which would increase to about **[TRADE SECRET DATA HAS BEEN EXCISED]** MWh in 2034.

MP's 2011 AFR methodology is similar to the demand forecast methodology that MP used in its 2009 Resource Plan (Docket No. E015/RP-09-1088). The DOC analyzed MP's 2009 Resource Plan demand forecast and identified some statistical issues associated with this forecast. However, the DOC concluded that these statistical issues were not significant enough to affect the overall reasonableness of MP's 2009 demand forecast. Based on this conclusion and the fact that MP's 2011 AFR is based on the same methods as MP's 2009 demand forecast, the DOC

concludes that MP used a reasonable methodology to estimate its capacity and energy deficits over the period 2020 through 2035.

Given MP's projected capacity and energy deficits over the period 2020-2035, it is clear that MP would need a significant additional amount of peaking capacity and energy to meet its future capacity and energy needs. Given the fact that MP will need a significant amount of capacity and energy in the future, the remaining issue is whether or not the PPA between MP and MH represents the most appropriate resource to meet MP's resource needs over the period 2020-2035. Below is the DOC analysis of this issue.

2. The Most Appropriate Resources to Meet MP's Resources Needs

Based on its resource needs, MP used the Strategist modeling package[2] to determine whether the resources provided by its PPA with MH are the most appropriate resources to meet MP's future resource needs. In particular, Strategist estimates the net present value of revenue requirement (NPVR) for different resource options to identify the least cost resource alternatives. MP first performed a general screening analysis that considered the following options:

- Market purchases;
- Advanced coal-fired generation;
- Combustion gas turbine and combined cycle gas turbine;
- Renewable generation; and
- Demand side management and conservation.

Using its Strategist model for preliminary screening of reasonable alternatives, MP concluded that a combined cycle (CC) unit may be the only reasonable alternative to the proposed PPA between MP and MH. This conclusion is supported by the DOC analysis of MP's 2009 Resource Plan. Using its own Strategist model, the DOC concluded that MP's optimal expansion plan includes the addition of a 150 MW CC unit in 2014 and another in 2020 with the possibility of substituting MH capacity and energy for the CC units depending on the specific terms of the PPA between MH and MP.

With a CC unit as the only reasonable alternative to the PPA, MP compared the NPVR under the above two alternatives using eight scenarios: Base Case, Low Gas Cost, High Gas Cost, No CO_2 Cost, Low CO_2 Cost, High CO_2 Cost, Low Externalities, and High Externalities. Additionally, these eight scenarios were analyzed under the expected long-term demand forecast and the expected long-term demand plus 150 MW of additional large industrial customer load (a total of 32 scenarios). The only two scenarios that resulted in lower NPVRs for the CC option than for the PPA option were: 1) the Low Gas scenarios for the expected demand and 2) the Low Gas scenario for the expected demand plus 150 MW. Regarding natural gas as an alternative, MP noted the following additional considerations:

[2] Strategist is a computer program that can be used to determine a utility's optimal long-term expansion path, given the utility's current plant mix and its future resource needs.

> Although recent outlooks for natural gas have narrowed the gap between the Manitoba Hydro transaction and the alternative of a natural gas fired resource, cost uncertainties in the natural gas and carbon markets continue to exist. By contrast, the Manitoba Hydro PPA has price certainty and it mitigates carbon risks in Minnesota Power's supply. The low carbon resource, available through the PPA as further detailed in this Petition, brings a flexible energy supply with base load characteristics to Minnesota Power's system when it is needed while providing a means of reducing anticipated exposure to carbon and other environmental costs.

Based on this analysis, MP concluded that the PPA is the most reasonable alternative to meeting MP's future resource needs.

Based on its review of MP's analysis within this docket and on the Department's analysis in MP's 2009 Resource Plan, the DOC concludes that MP reasonably considered cost and risk factors associated with the PPA and alternative energy sources. Thus, the Department concludes that the proposed PPA would provide the most appropriate resources for MP to meet its resource needs over the period 2020 through 2035.

B. IS THE PPA IN THE PUBLIC INTEREST?

The DOC recommends that the Commission approve the PPA if, and only if, the PPA is in the best interest of MP's ratepayers. To be in the best interest of MP's ratepayers, the PPA must meet the following conditions:

- The purchase price to be paid by MP's ratepayers for the power provided by MH is reasonable;
- MP's ratepayers are appropriately protected from the financial and operational risks of the PPA; and
- Curtailment provisions in the PPA are appropriate.

The DOC analysis of these conditions is provided below.

1. The Price of the PPA

In this section the DOC discusses the proposed price of the PPA.

The MH PPA was not selected in a competitive bidding process. Therefore, the reasonableness of the prices must be analyzed carefully. Below is the DOC's discussion of each of the PPA's prices, and the overall price of the PPA.

The PPA's prices have two components: Capacity price and energy prices. Below is the DOC discussion of these components.

a. The Capacity Price

The capacity price is fixed over the life of the PPA, once its final level is determined in June 1, 2020. The capacity price is determined as follows:

i. Assume a price of **[TRADE SECRET DATA HAS BEEN EXCISED]** per MW-Month in 2007.
ii. The price in i is escalated annually for each year from June 1, 2007 to June 1, 2020 by the levels of the **[TRADE SECRET DATA HAS BEEN EXCISED]**.

b. The Energy Prices

i. Weekday Energy Price

The Weekday Energy Price has two components, W and X, and the hourly price of Weekday Energy is (W+X)/2.

The values of W and X are explained below.

i(1). The Value of W
For each hour of each weekday, the value of W is **[TRADE SECRET DATA HAS BEEN EXCISED]**

i(2). The Value of X
The value of X is determined as follows:
The value of X is first set at **[TRADE SECRET DATA HAS BEEN EXCISED]** per MWh in $2007. Then it is escalated annually from June 1, 2007 using the following formula **[TRADE SECRET DATA HAS BEEN EXCISED]**
The various price components are also capped as follows:

- The value of X may not fall below **[TRADE SECRET DATA HAS BEEN EXCISED]** per MWh;
- If the price formula results in W greater than **[TRADE SECRET DATA HAS BEEN EXCISED]**.

ii. Weekend Energy Price

The Weekend Energy Price for each hour of weekend day of the contract is determined by using the same formula as used for determining the hourly price for each weekday of each day of the contract. The only difference is that the initial value of X is set at **[TRADE SECRET DATA HAS BEEN EXCISED]** per MWh in $2007 instead of **[TRADE SECRET DATA HAS BEEN EXCISED]** per MWh. Also, the values of X and W are capped for the purpose of determining the weekend hourly energy price using the same methodology used for capping the values of X and W for the hourly weekday energy price.

iii. The Price of Additional Energy

The price of Additional Energy for any hour of any day of the contract would be **[TRADE SECRET DATA HAS BEEN EXCISED].**

For all the three types of energy product discussed above, if a Market Disruption Event occurs (see page 16 of the PPA) then the price would be determined by **[TRADE SECRET DATA HAS BEEN EXCISED].**

c. Analysis of the PPA's Price (cost)

To evaluate the reasonableness of the PPA's cost it is necessary to compare the PPA's cost to the costs of the most appropriate alternative resources. Below is the DOC's comparison of the PPA's cost with the costs of the most reasonable alternative resources.

i. The Cost of the PPA

Since both the energy rates and the capacity rates depend on future levels of natural gas prices and the GDPIPD, the cost of the PPA cannot be calculated with certainty. Instead, the cost of the PPA must be estimated based on the forecasted levels of future prices of natural gas and the forecasted levels of future GDPIPD. Attachment 1, page 1 shows the annual energy costs per MWh and the total annual energy costs and capacity costs for each year of the contract.

Attachment 2 provides the levelized cost of energy (**[TRADE SECRET DATA HAS BEEN EXCISED]** per MWh), the levelized cost of capacity (**[TRADE SECRET DATA HAS BEEN EXCISED]** per MWh), the levelized transmission costs (**[TRADE SECRET DATA HAS BEEN EXCISED]** per MWh) and the total levelized cost of the PPA. The total levelized cost of the PPA is **[TRADE SECRET DATA HAS BEEN EXCISED]** per MWh. This levelized cost is calculated using a discount rate of 8.38 percent which is the overall cost of capital that was approved by the Commission in MP's most recent rate case (E015/GR-09-1151), updated for MP's most recent embedded cost of debt. As discussed earlier in these comments, the most competitive resource alternative to the proposed PPA is a CC unit.

ii. Comparison with CC Units

MP estimated the cost of a CC unit that would provide similar energy and capacity to the energy and capacity to be provided by the PPA. MP provided detailed calculations of the estimated cost of a CC unit. The Department reviewed MP's calculations and concluded that they are appropriate. (The calculations are provided in MP's response to the Department Information Request No. 1.) Based on MP's calculation, the levelized cost of a CC unit is **[TRADE SECRET DATA HAS BEEN EXCISED]** per MWh. (See DOC Attachment No. 3.)

This levelized cost includes $4.85 to account for the cost of CO_2, using Cambridge Energy Research Association (CERA) projected costs of CO_2. Using the Commission's midrange 2010 cost of CO_2 results in a levelized CO_2 cost of $6.97 per MWh and a total levelized cost for a CC

unit of **[TRADE SECRET DATA HAS BEEN EXCISED]** per MWh.

Based on this comparison alone, the DOC concludes that the cost of the proposed PPA is reasonable.

A second estimate of the cost of a CC unit is based on the Department's analysis in Docket No. E002/M-10-633. In that docket the Department estimated the levelized cost of a CC unit for the period 2015-2024 to be **[TRADE SECRET DATA HAS BEEN EXCISED]** per MWh excluding the cost of CO_2 emissions. For the purposes of this analysis, the Department adjusted this levelized cost estimate as follows:

- First, the levelized capacity cost is adjusted to reflect the period 2020 through 2035 instead of the period 2015 through 2024.

- Second, the discount rate was changed from 8.83 percent (Xcel's cost of capital) to 8.38 percent (MP's cost of capital).

- Finally, the levelized energy cost was changed to reflect the period 2020-2035 instead of the period 2015-2024.

Attachment 4 summarizes the calculations of the levelized costs. The levelized cost per MWh is **[TRADE SECRET DATA HAS BEEN EXCISED]**. Accounting for CO_2 emission costs, the levelized cost of a CC unit ranges from **[TRADE SECRET DATA HAS BEEN EXCISED]** per MWh to **[TRADE SECRET DATA HAS BEEN EXCISED]** per MWh. As a result, this analysis confirms the results above regarding the comparison of a gas CC unit to the proposed PPA.

iii. Conclusion regarding the comparison of the cost of PPA with the cost of new CC units.

The Department estimated the cost of a CC unit using cost information provided by MP in this proceeding and by Xcel in Docket No. E002/M-10-633. Based on its analysis the Department estimated the cost of CC unit to be in the range of **[TRADE SECRET DATA HAS BEEN EXCISED]** per MWh to **[TRADE SECRET DATA HAS BEEN EXCISED]** per MWh. In comparison, the levelized cost of the PPA is **[TRADE SECRET DATA HAS BEEN EXCISED]** per MWh which is about **[TRADE SECRET DATA HAS BEEN EXCISED]** percent lower than the midpoint of the estimated levelized cost of a CC unit.

iv. Other Reasonable Comparison

On May 26, 2011, the Commission issued an Order Approving Agreements in Docket No. E002/M-10-633 (10-633 Docket). In the 10-633 Docket, Xcel requested approval of various PPAs with MH. One of the PPAs approved by the Commission in the 10-633 Docket is a PPA for 375/325 summer/winter capacity and energy to be sold to Xcel by MH. The type of power to

be sold by MH to Xcel under the 375/325 PPA is very similar to the proposed 250 MW PPA between MP and MH. Therefore, it is reasonable to compare the levelized cost of the proposed PPA to the levelized cost of the approved 375/325 PPA between MH and Xcel. The weighted (winter/summer) levelized cost of the 375/325 capacity and energy PPA is **[TRADE SECRET DATA HAS BEEN EXCISED]** per MWh. This levelized cost is very similar to the levelized price of the proposed PPA between MH and MP.

v. Conclusion Regarding the Reasonableness of the Cost (price) of the MH/MP PPA[3]

In summary, the Department analyzed the reasonableness of the levelized cost of the proposed PPA by comparing it to:

- The levelized costs of new CC units (which are the most appropriate alternative resources to the proposed PPA); and
- The levelized cost of a similar resource to the one proposed in the proposed PPA.

The Department concludes that the levelized cost (price) of the proposed PPA is lower than the levelized cost (price) of a CC unit and is very similar to the levelized cost (price) of a Commission-approved PPA representing a similar resource to the one proposed in the MH/MP PPA. Based on the above conclusion, the Department further concludes that the cost (price) of the proposed PPA is reasonable.

2. Financial Risks of the PPA

There are two main financial risks that may have negative impacts on MP's ratepayers. They are:

- MH default and termination of the PPA during the early years of the contract that may require MP to find more costly replacement power, and
- Entitlement by lender or other party, as a result of MH's failure to pay its debt, to take over the project and terminate the PPA.

a. Default Risk

Article 15 of the PPA discusses the issue of Credit Worthiness. Under this Article, MP has the following Rights:

[3] The levelized price of the PPA does not include the cost per MWh of Additional Energy. First, MH is not required to offer any Additional Energy and second, Additional Energy would be priced at the day-ahead **[TRADE SECRET DATA HAS BEEN EXCISED]**. Therefore, even if MH offers a sale of Additional Energy to MP, such energy would be priced competitively and would not increase the levelized price of the PPA.

- To have access to MH's financial reports; and
- If MH's credit worthiness or financial strength becomes unsatisfactory, MP may require MH to provide certain measures to protect MP. Such measures include, among others, performance assurances, obtaining Letters of Credit, Cash Prepayments, and other types of collateral (Article 15.2 of the PPA).

If MH fails to provide the required Performance Assurance within five days, then such a failure is considered an Event of Default and MP has the right to exercise any of the remedies included in Article 17 of the PPA.

The PPA also grants MP Security Interest in all the performance assurances delivered by MH (Article 15.3 (1)) of the PPA. Other provisions of the PPA allow MP to:

- Partially remedy any event of default by exercising its rights with respect to all Performance Assurances;
- Initiate its rights of setoff against all of MH's assets held by MP;
- Draw on any outstanding letter of credit issued for MP free of any claim that may be made by MH (Article 15.3, (1) of the PPA).

Additionally, Article 15.3 (2) through Article 15.3 (4) of the PPA provide MP with additional protection measures in case of a default event by MH.

Finally, additional protection against financial risks due to default are provided in Article 17 of the PPA. In particular, sections (a), (c), (d), (e), (f) and (g) of Article 17 deal with financial default issues.[4] According to Article 17, the following circumstances constitute financial default:

> (a) the failure of either Party to make any payment to the other Party as required by this Agreement and such amount remains unpaid for a period of five (5) Business Days after the date the Defaulting Party receives written notice from the Non-Defaulting Party that the amount is overdue;
> (c) the insolvency or bankruptcy of a party or its Credit Support Provider, or its inability or admission in writing of its inability to pay its debts as they mature, or the making of a general assignment for the benefit of, or entry into any contract or arrangement with, its creditors;
> (d) the application for, or consent (by admission of material allegations of a petition or otherwise) to, the appointment of a receiver, trustee or liquidator for a party or for all or substantially all of its assets, or its authorization of such application or consent, or the commencement of any proceedings seeking such appointment against it without such authorization, consent of application, which proceedings

[4] Section (b) deals with default due to non-performance under the contract.

continue undismissed or unstayed for a period of thirty (3) calendar days.

(e) The authorization or filing by a Party or its Credit Support provider of a voluntary petition in bankruptcy or application for or consent (by admission of material allegations or a petition or otherwise) to the application of any bankruptcy, reorganization, readjustment of debt, insolvency, dissolution, liquidation or other similar law of any jurisdiction or the institution of such proceedings against a Party or its credit support provider without such authorization, application or consent, which proceedings remain undismissed or unstayed for thirty (3) calendar days or which result in adjudication of bankruptcy or insolvency within such time;

(f) In the event that a party fails to provide Performance Assurance within five (5) Business Days of the Performance Assurance was to have been provided in accordance with Section 15.2; and

(h) The occurrence of a Letter of Credit default that remains uncured for Five (5) Business Days.

Additionally, under Article 17.1(g) of the PPA if MH or its Credit provider reorganizes, merges with or into another entity, or reincorporates, a failure to preserve all the terms of the PPA under the new-formed entity is considered an event of default if not cured within five business days.

In the event of default as described in Sections (a), (c), (d), (e), or (g) of Article 17 of the PPA, MH is allowed a period to cure the event of default. In case MH fails to cure the default event within the allowed cure period MP has the right to terminate the agreement and take any legal steps to be appropriately compensated for the non-cured event of default. The DOC concludes that these protections are reasonable.

In addition, in Sections (c) and (d) of Article 17 regarding bankruptcy, the DOC observes that MH is a large Canadian utility established in 1949 and currently provides electric service to about 500,000 customers in Manitoba, Canada. Since MH is a financially sound, well established large utility, the DOC concludes that the bankruptcy risk is very small.

b. Transfer or Restructuring of Ownership

Section g of Article 17 of the PPA identifies reorganization as an event of default. In such a case MH must cure the default within 5 days and, if it fails to do so, MP has the right, upon appropriate notice, to terminate the PPA and take any legal steps to be appropriately compensated for the non-cured event of restructuring. The DOC concludes that this provision is a reasonable and appropriate protection of ratepayers.

c. Conclusion Regarding Financial Risks of the PPA

Based on its above analysis and discussion, the DOC concludes that MP's ratepayers would be reasonably protected from the financial risks of the PPA.

3. Operational Risks of the PPA

For a PPA, the operational risks are the risks that the project will not be built and operated as expected. These risks include:

- Termination of the project prior to completion of its construction;
- Complete shutdown prior to the expiration of the contract period; and
- Partial shutdown prior to the expiration of the contract period.

In the case of failure to complete the construction of the project, MP would have to find replacement power in a timely manner. Such replacement power may be more expensive than the power to be provided by the PPA. In case of a complete shutdown, once again MP would have to find, most likely, more expensive replacement power.

Finally, in a case of partial shutdown, ratepayers must be assured that their payment for energy would be reduced accordingly. The DOC discusses these operational risks below.

a. Failure to Complete the Project

The risk of non-completion of the project includes the risk of not completing the hydro power plant or not completing the necessary transmission facilities needed to deliver the power from MH to MP.

i. Risk of Non-Completion of the Hydro Facilities

The risk of non-completion of the hydro facilities (the 695 MW Keeyask Generating Station) consists of MP having to find a substitute capacity and energy resource in a timely manner and at reasonable costs. Article 13 of the PPA sets certain conditions regarding the timely construction of the Keeyask Generating Station. Section 13.1 describes those conditions in detail. In essence, MH may delay, in its sole discretion, the start of the construction of the facilities up to June 1, 2016. MH must notify MP of any such delay on or before June 1, 2011. Any such delay would shift, by the length of the delay period, all the due dates specified in the PPA. Also, Section 13.2 of the PPA states MH's conditions precedent. In particular Section 13.2 (a) states:

> (a) MH, in its sole and absolute discretion, commencing construction of the cofferdam for the Keeyask GS by June 1, 2016, after all approvals and authorizations required in respect of the construction of the Keeyask GS have been obtained, including MH obtaining an Order in Council of the Lieutenant

> Governor (Manitoba) approving the construction of the Keeyask GS;

While there are other MH conditions precedent, the above condition is the most critical one. A failure by MH to meet any conditions precedent would result in termination of the PPA upon certain conditions as stated below:

> **13.5 Conditions Precedent Notices**
>
> Each Party shall notify the other Party as soon as practicable following the satisfaction or waiver or the failure to satisfy or to waive MH's Conditions Precedent or MP's Conditions Precedent, as applicable, including the failure to obtain any of the Required Approvals. This Agreement shall, subject to the obligations of the Parties in Section 13.4 and Article XIII, terminate on the date notice has been received by one Party from the other Party that any of MH's Conditions Precedent or MP's Conditions Precedent have not been satisfied and will not be waived.

The Department concludes that MH's conditions precedent in general and the requirement to commence construction and have all the required permits in place no later than June 1, 2016 would provide MP's ratepayers with reasonable protection from the risk of non-completion of the hydro facility.

ii. Risk of Non-Completion of the Transmission Facilities

Both MH and MP must construct their own new transmission facilities (in Canada and the USA respectively) to allow MH to sell the contracted power to MP. For MH, commencing construction of the transmission facility no later than June 1, 2016 is a condition precedent for the PPA to move forward.

In particular, Section 13.2 (b) of the PPA states:

> (b) MH, in its sole and absolute discretion, commencing construction of new power transmission facilities within the province of Manitoba by June 1, 2016, after all approvals and authorizations required in respect of the said construction of the transmission facilities have been obtained, which transmission facilities MH has determined are required, in its sole and absolute discretion, for the transmission of the generation output of the Keeyask GS;

Additionally, MH's commitment to complete its share of the transmission facilities is further stated in Article III Section (5) (a) and (b):

(a) The Transmission Interconnection Canadian Component shall be in-service on or before the June 1, 2020 start date of the Contract Term (or any revised Contract Term start date pursuant to Section 13.1(1)) and ready to make available the Energy and the 150 MW Use Limited System Capacity to the Delivery Point using 250 MW of Firm Transmission Service, subject only to a Force Majeure event and, without limiting the generality of the foregoing, MH shall have taken all actions and done all things necessary, including reserving the southbound Firm Transmission Service in Canada, to have the Transmission Interconnection Canadian component constructed and in-service and available to provide Firm Transmission service on or before the June 1, 2020 start date of the Contract Term (or any revised Contract Term start date pursuant to Section 13.1(1)) and available to the Parties for the uses specified in this Agreement;

(b) It shall take all actions and do all things necessary to ensure that payment is made (without monetary contribution from MP) for all costs and charges, including without limitation construction costs, related to the construction of the Transmission Interconnection Canadian Component;

MP's commitments are stated in Article III, Section (6), (a) and (b):

(6) MP covenants and agrees that:

(a) the Transmission Interconnection United States Component shall be in-service on or before the June 1, 2020 start date of the Contract Term (or any revised Contract Term start date pursuant to Section 13.1(1)) and ready to take delivery of the Energy and the 250 MW Use Limited System Capacity from the Delivery Point using 250 MY Firm Transmission Service, subject only to a Force Majeure event and, without limiting the generality of the foregoing, MP shall have taken all actions and done all things necessary, including reserving the southbound Firm Transmission Service in the United States, to have the Transmission Interconnection United States component constructed and in-service and available to provide Firm Transmission Service on or before the June 1, 2020 start date of the Contract Term (or any revised Contract Term start date pursuant to Section 13.1(1)) and available to the Parties for the uses specified in this Agreement;

> (b) it shall take all actions and do all things necessary to ensure that payment is made (without monetary contribution from MH) for all costs and charges, including without limitation construction costs, related to the construction of the Transmission Interconnection United States component but excluding the payment of the Additional Northbound Capability Costs (if any) which are to be paid by MH; and

Based on the requirements in the PPA regarding the construction of transmission lines by MH and MP, the Department concludes that MP's ratepayers are reasonably protected from the risk of non-completion of the transmission facilities.

b. Complete Shut Down Prior to the Expiration of the Contract Term

In the case of a complete shutdown, MP would have to find both replacement capacity and replacement energy. Such replacement power may be significantly more expensive than the power to be provided by the PPA. A complete shutdown of the MH facilities (either the generation facilities, the transmission facilities, or both) for reason other than Force Majeure is considered an event of default under Section 17.1(b) of the PPA which states:

> (c) The failure by either Party to perform or observe any material obligation to the other Party under this Agreement, that is not excused by an event of Force Majeure, other than obligations for the payment of money, if such failure is not remedied within thirty (30) calendar days after written notice thereof shall have been given by the Non-defaulting Party to the Defaulting Party;

In such a case MP would have a security interest and lien on and the rights of setoff against all Performance Assurance delivered by MH to MP.

The Department also notices that MH has various existing long-term PPAs with MP, and has a proven record of providing the services required under those existing PPAs. Moreover, the proposed PPA provides for MH to sell MP system power rather than a power from a dedicated facility. As such the risk of a complete shutdown is largely mitigated.

Based on the provisions in the PPA, and MH's proven historical operational record with MP, the Department concludes that MP's ratepayers are reasonably protected from the risk of a complete shutdown of MH's facilities.

c. Partial Shutdown of MH's Facilities

A temporary partial shutdown of MH's facilities may, under certain circumstances, force MP to purchase more expensive power. Additionally, MP's ratepayers must be assured that they would pay only for energy delivered to them. The PPA between MH and MP requires MH to sell

system power to MP. Thus, the power to be sold from MH to MP is not related to any specific electric plant owned by MH, and a shutdown of any such electric plant would have no impact on the amount and price of energy that MH must sell to MP under the PPA. Clearly then the system sale provision of the PPA reduces the risk of non-delivery due to a partial shutdown. Moreover, other than for certain curtailment events (discussed later in these comments), MP must pay MH only for the actual amount of energy delivered to it by MH (Section 6.5 of the PPA).

Based on review of the PPA and the discussion above, the Department concludes that MP's ratepayers are reasonably protected by the proposed PPA from the risk of partial shutdown of MH's facilities.

d. Curtailment Risk

The proposed PPA allows for curtailment due to the lack of sufficient generation facilities, due to the lack of sufficient transmission, and due to MP's need to curtail. The Department discusses each below.

i. Curtailment Due to Insufficient Generation Resources

The exact curtailment provisions are defined in Article 3.4 of the PPA. The curtailment priorities are defined in Article 3.5 of the PPA. The proposed PPA allows curtailment under the following circumstances:

- An event of Force Majeure;
- Need to avoid curtailing, restricting or reducing MH's End-Use Load, consistent with Standard Operation requirements of the North American Electric Reliability Corporation (NERC); and
- Unavailability of all or part of MH's electrical generation facilities consistent with Good Utility Practices or unavailability of MH's Purchased Power (but MH's Must-Offer Energy cannot be curtailed under such circumstances).

Generally, the PPA allows for curtailment under circumstances outside the control of MH. Moreover, higher priority (more firm) sales are the last to be curtailed. Therefore, the DOC concludes that the curtailment provisions in the PPA associated with insufficient generation resources are reasonable so long as MP is not required to pay for any curtailed energy. Section 6.5 of the PPA specifies the payments due from MP to MH. Based on the provisions in Section 6.5, the DOC concludes that the PPA exempts MP from paying for any curtailed energy associated with curtailment due to insufficient energy resources.

ii. Curtailment Due to Insufficient Transmission Resources

Delivery of energy from MH to MP may be curtailed if there is not sufficient capacity available to transmit the contracted amount of energy via the Firm Transmission Service. The curtailment would be executed by the Transmission Provider according to its Open Access Transmission Tariff (OATT). The DOC concludes that such curtailment is reasonable as long as MP is not

required to pay for the curtailed amount of energy. Again, based on the provisions in Section 6.5 of PPA, the Department concludes that MP is exempted from being charged for energy not delivered due to transmission curtailment.

iii. MP's Curtailment

MP may curtail delivery of energy from MH due to Force Majeure. The DOC concludes that these provisions are reasonable so long as MP is not required to pay MH for undelivered energy. After reviewing Section 6.5 of the PPA, the DOC concludes that MP would not be charged for energy not delivered due to MP curtailment.

iv. Conclusion Regarding Curtailment Provisions in the PPA

Based on its review and analysis of the PPA, the DOC concludes that MP's ratepayers would be appropriately protected from curtailment risks under the proposed PPA.

e. Other Operational Risks

i. Capacity Risk

The PPA requires MH to sell 250 MW of capacity to MP. If MH fails to provide the contracted amount of capacity, then MP may be required to pay penalty payments to MISO. Therefore, the PPA must include provisions to protect MP and its ratepayers from the risk of insufficient capacity. The PPA requires MH to sell to MP 250 MW of Use Limited System Capacity, which is defined as follows:

> **"Use Limited System Capacity"** shall mean a capacity resource, that due to design considerations, environmental restrictions on operations, cyclical requirements, such as the need to recharge or refill, or for other non-economic reasons, is unable to operate continuously on a daily basis, but is capable of providing energy for a minimum of four (4) continuous hours of each day during the expected peak load of the system operator to which the purchaser belongs during the term of the applicable power purchase and sale agreement.

Thus, as long as the contracted capacity of the PPA satisfies the "Use Limited System Capacity" condition, as required by the PPA, MP would not be subjected to any penalties associated with insufficient capacity.

Based on the above review and analysis of the PPA, the DOC concludes that MP's ratepayers would be appropriately protected from risk of deficient reserve capacity.

ii. Energy Risks

Other than curtailment risk, there exists the risk that MP would have to purchase and pay for energy it does not need. Under the PPA, MH may offer MP three types of energy products which, if offered, must be purchased by MP. These energy products are Weekday Energy, Additional Energy and Weekend Energy. The risk of having to purchase Additional Energy when not needed may be insignificant because this product is priced at the **[TRADE SECRET DATA HAS BEEN EXCISED]** (see Section 5.1, (3) of the PPA). Therefore, MP should be able to sell any such surplus energy and recover its purchase costs. However, the same is not true for the Weekday and Weekend Energy. The price of the Weekday and Weekend Energy may, at any time during the life of the contract, exceed the market price for energy. In such a case, some of the costs of the surplus energy may be borne by MP and MP's ratepayers. However, the PPA includes certain provisions that mitigate this risk. First, the Weekday and Weekend Energy are offered only during the peak time of each day, thus reducing the risk of MP having any excess energy. Second, the total amount of energy to be offered by MH to MP at any hour is capped as follows:

- The total energy sold from MH to MP may not exceed at any hour of the contract 250 MWh per hour.

Based on the above review and analysis of the PPA, the DOC concludes that MP and its ratepayers would be reasonably protected from the surplus energy risk of the proposed PPA.

iii. Adverse Water Condition

Adverse Water Conditions are defined by the PPA as a situation in which MH's projections of available water show that MH is expected to be unable to meet its own firm energy commitments using MH's Electric Generation Facilities in the Province of Manitoba. When MH declares Adverse Water Conditions, MH has the following rights under the PPA.

(1) MP agrees that for such time period during which MH has declared Adverse Water Conditions, MH shall have the right, but not the obligation, to cease the sale and delivery of such quantities of Weekend Energy and Additional Energy (but not Weekday Energy and not any component of the Weekend Energy or Additional Energy, which is Must Offer Energy), as MH may designate, from time to time, provided:
   (a) MH gives a minimum of thirty (30) days notice of the amount of Weekend Energy that MH has designated as being the amount of energy that MH will be ceasing the sale and delivery of during the Adverse Water Conditions;
   (b) MH shall provide weekly progress reports on the status of the Adverse Water Conditions; and
   (c) MH shall provide MP with notice once the Adverse Water Conditions end.

(2) Notwithstanding the provisions of Section 3.10(1), MH shall, after declaring Adverse Water Conditions, but prior to such conditions ending, be entitled on providing a minimum of thirty (30) days notice to MP, or lesser notice with the consent of MP, to withdraw or revise the designation referred to in Section 3.10(1). For greater certainty the Financial Schedule provisions of Section 3.2(12) do not apply to the amount of Weekend Energy and/or Additional Energy designated by MH pursuant to this Section 3.10.

(3) **[TRADE SECRET DATA HAS BEEN EXCISED]**.

The DOC concludes that the risk of Adverse Water Condition is appropriately allocated between MH and MP because:

- The Adverse Water Conditions are outside the control of the MH (similar to a Force Majeure event); and
- MH must still offer to MP the Must Offer Energy portion of MH's energy. Thus, any Adverse Water Condition would not reduce the amount of energy available to MP during the Expected Peak Load in MISO.

4. Conclusions Regarding the Financial and Operational Risks of the PPA

Based on its review and analysis of the PPA, the Department concludes that the provisions of the PPA appropriately protect MP and MP's ratepayers from the financial and operational risks, including the curtailment risk, of the proposed PPA.

IV. CONCLUSION AND RECOMMENDATIONS REGARDING THE PROPOSED 250 MW SYSTEM POWER PPA

A. CONCLUSION

Based on the above review and analysis of the proposed PPA, the DOC concludes that:

1. The price (cost) of the PPA is reasonable.

2. MP's ratepayers would be appropriately protected from the operational and financial risks of the PPA.

3. The curtailment provisions in the PPA are appropriate.

B. RECOMMENDATIONS

1. Based on its review and analysis of the PPA and based on its conclusions, the DOC recommends that the Commission approve the proposed PPA.

2. Require MP to file a report within one year of the date of the Order in this docket and annually thereafter until the start of the agreement. The annual report must provide an update on various significant milestones achieved regarding the new hydraulic generating facilities and the new major transmission facilities.

V. DOC ANALYSIS OF THE ENERGY EXCHANGE AGREEMENT

A. SUMMARY OF THE ENERGY EXCHANGE AGREEMENT (EEA)

MP filed the EEA simultaneously with its filing of the 250 MW System Power Sale Agreement (SPSA). MP did not request Commission approval of the EEA. However, since the SPSA contains some provisions related to the EEA and MP may, under the EEA, purchase energy from MH, the Department concludes that the EEA must be analyzed to ensure protection of MP's ratepayers. The main purpose of the EEA is to allow MP to sell off-peak excess wind energy to MH, and then buy back this energy from MH if and when MP needs additional energy.

The EEA consists of three types of energy products. These products are MP's Energy, MP's Pumped Energy and MH's Stored Energy. Below is a summary of the three energy products.

1. MP's Energy

MH may request MP to sell to MH energy on a Day-Ahead Basis, and MP must agree to sell to MH the requested amount of energy subject to certain provisions. First, the requested amount of energy may not exceed the northbound transfer capability of the transmission lines. Second, MH must request a minimum amount of such energy over the life of the contract (2020 – 2035). The details of this minimum amount are provided in Section 2.1, (2) of the contract. Finally, any of MP's Energy may not be scheduled during MP's Designated Peak Hours.

2. MP's Pumped Energy

During the 12 months of each calendar year of the contract, MP may offer, on a Day-Ahead Basis, energy to be sold to MH when MP determines it has excess wind energy. MP is not obligated to offer MH any Pumped Energy, and if offered, MH has no obligation to purchase the offered Pumped Energy. Moreover, MP may not offer Pumped Energy above 250,000 MWh in any contract year, and the offered Pumped Energy may not exceed in any hour the Northbound Transfer Capability.

3. MH's Stored Energy

At any time during the contract, MP has the right to request, on a Day-Ahead Basis, MH to sell back to MP the amount of MP's Pumped Energy and MH must agree to such a request. However, the amount of Stored Energy requested by MP may not exceed the accumulated amount of Pumped Energy at the time of MP's request and may not exceed, in any hour, 250 MWh.

B. ANALYSIS OF THE EEA

The DOC recommends that the Commission approve the EEA if, and only if, the EEA is in the best interest of MP's ratepayers. To be in the best interest of MP's ratepayers, the EEA must meet the following conditions:

- The purchase price to be paid by MP's ratepayers for the power provided by MH is reasonable;
- MP's ratepayers are appropriately protected from the financial and operational risks of the EEA; and
- Curtailment provisions in the EEA are appropriate.

The DOC analysis of these conditions is provided below.

1. The Price of the EEA

Both MP's Energy and MP's Pumped Energy are wholesale energy transactions. Therefore, their respective prices have no impact on MP's retail rates. Because of this fact, the DOC will only discuss the price of MH's Stored Energy and, to the degree necessary, the price of MP's Pumped Energy.

a. The Price of MH's Stored Energy

Article IV of the EEA discusses the various energy prices. The price of MH's Stored Energy for any hour of any day of the contract is the **[TRADE SECRET DATA HAS BEEN EXCISED]** per MWh. Since the Stored Energy substitutes for market purchases of energy, the DOC concludes that the price is reasonable because it is discounted from **[TRADE SECRET DATA HAS BEEN EXCISED]** of energy. However, this conclusion is valid only if the price of Pumped Energy is set appropriately, because the purchase of Stored Energy is simply the inverse of the sold amount of MP's Pumped Energy. Conceptually the price per MWh of MP's Pumped Energy should be set higher than the price per MWh of MH's Stored Energy because ,as such, MP would simply repurchase its own energy at a discount rate compared to the price at which it sold this energy to MH . The price of MP's Pumped Energy (paid by MH to MP) for any given hour of the contract is the **[TRADE SECRET DATA HAS BEEN EXCISED]** per MWh. Thus, the DOC concludes that the price of MP's Pumped Energy is appropriately set when compared to the price of MH's Stored Energy. Furthermore, the price of MH's Stored Energy is set significantly lower than the **[TRADE SECRET DATA HAS BEEN EXCISED]** at the time when MP purchases Stored Energy.

b. Conclusion Regarding the Price of the EEA

Based on its review and analysis of the EEA, the DOC concludes that the prices of the EEA in general and the price of MH's Stored Energy in particular (the only price that impacts MP's ratepayers) are reasonable.

2. Financial Risks of EEA

There are two main financial risks that may have negative impacts on MP's ratepayers. They are:

- MH default and termination of the EEA during the early years of the contract that may require MP to find more costly replacement power, and
- Entitlement by lender of other party, as a result of MH's failure to pay its debt, to take over the project and terminate the EEA.

a. Introduction

The DOC notes that early termination of the contract due to default or transfer of ownership would simply force MP to acquire energy, if needed, at the prevailing market price. Thus, in the event of early termination of the contract due to a financial event, MP's losses are limited by the size of the discount per MWh as provided by the EEA. These losses may not be significant.

b. Default Risk

The EEA includes financial protection provisions similar to those included in the SPSA. These provisions are provided in Articles 15 and 17 of the SPSA and their respective equivalents are provided in Articles 13 and 15 of the EEA. Therefore, the DOC's analysis in Section B, Part a of these comments is applicable to EEA as well.

Based on the above analysis, the DOC concludes that MP's ratepayers would be reasonably protected from the financial risks of the EEA.

3. Operational Risks of the EEA

For a PPA, the operational risks are the risks that the project will not be built and operated as expected. These risks include:

- Termination of the project prior to completion of its construction;
- Complete shutdown prior to the expiration of the contract period; and
- Partial shutdown prior to the expiration of the contract period.

In case of failure to complete the construction of the project, MP would have to find replacement power in a timely manner. Such replacement power may be more expensive than the power to be provided by the EEA. In case of a complete shutdown, once again MP would most likely have to find more expensive replacement power.

Finally, in a case of partial shutdown, ratepayers must be assured that their payment for energy would be reduced accordingly. The DOC discusses these operational risks below.

a. Introduction

As in the case of the financial risks of the EEA, the DOC notes that incompletion of the project, a complete shutdown of the project or partial shutdown of the MH project, may simply force MP to buy energy, if needed, at the market price. Thus, under such events as mentioned above, MP's losses are capped by the size of the discount per MWh as provided by the EEA. These losses may not be significant.

b. Failure to Complete the Project

i. Risk of Non-Completion of the Hydro Facilities

The discussion of such a risk with regard to the SPSA in Section III.B of these comments is applicable to the EEA as well. In particular, Section 11.1 of the EEA states:

> 11.1 MH's Condition Precedent
> The obligation of MH to complete the transactions referenced herein shall be subject to and contingent upon the fulfillment of the following condition precedent ("**MH's Condition Precedent**") to the satisfaction of MH, as certified or waived in writing by MH, by the dates specified:
> (a) the Parties executing on the Effective Date the 250 MW SPSA and all conditions precedent to that agreement being satisfied by the dates specified in that agreement.

Based on Article 11.1 of the EEA, and based on the Department analysis in Section III.B.a of these Comments, the Department concludes that MP's ratepayers would be reasonably protected from the risk of non-completion of the hydro facilities.

ii. Risk of Non-Completion of the Transmission Facilities

As in the case of the risk of non-completion of the hydro facilities, the Department's analysis of this risk in Section III.B of its comments is applicable to the EEA as well. Therefore, the DOC concludes that MP's ratepayers would be reasonably protected from the risk of non-completion of the transmission facilities.

c. Complete or Partial Shut Down Prior to the Expiration of the Contract Term

First, the DOC notes that MP's risk associated with a complete or partial shut-down is limited to the amount of MH's outstanding accumulated stored energy. In such events, if MP needs to go to the energy market to meet its demand, MP's losses, if any, are capped by the needed amount of MH's unused stored energy. Therefore, such losses may not be significant. Additionally, the DOC analyzed the risks of complete or partial shutdown of MH's facilities in Section III.B.3, parts b and c of these comments. This analysis is applicable as well to the EEA. Therefore,

based on its review and analysis of the SPSA and the EEA contracts, and based on the above discussion, the DOC concludes that MP's ratepayers would be reasonably protected from the risk of a complete or partial shutdown of MH's facilities.

d. Curtailment Risk

Both MP and MH may curtail MP's Energy under certain circumstances. However, since the sale of MP's Energy is a wholesale transaction, any curtailment of such energy does not impact MP's ratepayers. The only relevant curtailments are transmission provider curtailments. Article 3.5, part 2 of the EEA describes the provisions for transmission provider curtailments. These provisions are the same as the provisions for curtailment in Article 3.7, Part 2 of the SPSA. The DOC discussed these provisions in these comments in Section B.3.d, part iii and concluded that they were appropriate. For the EEA, these curtailment provisions may apply to a situation where MP would want to schedule a purchase of MH's stored energy, but would not be able to do so due to transmission curtailment. In such a case, MP would simply defer the transaction to a later date and would still pay the reduced price agreed upon in the EEA.

Based on its review and analysis of the EEA, the DOC concludes that MP's ratepayers would be appropriately protected from curtailment risks under the proposed EEA.

4. Conclusions Regarding the Financial and Operational Risks of the EEA

Based on its review and analysis of the EEA, the Department concludes that the provisions of the proposed EEA appropriately protect MP and MP's ratepayers from the financial and operational risks of the EEA.

VI. CONCLUSION AND RECOMMENDATIONS REGARDING THE EEA

A. CONCLUSION

Based on the above review and analysis of the proposed EEA, the DOC concludes that:

1. The price of the EEA is reasonable.

2. MP's ratepayers would be appropriately protected from the operational and financial risks of the EEA.

3. The curtailment provisions in the EEA are appropriate.

B. RECOMMENDATIONS

1. Based on its review and analysis of the EEA and based on its conclusions, the DOC recommends that the Commission approve the EEA.

VII. OVERALL CONCLUSIONS AND RECOMMENDATIONS

For ease of reference, the Department lists below all of the conclusions and recommendations in these comments.

A. CONCLUSIONS

The DOC identified and analyzed each of the following components of MP's filing and concludes that:

- MP used a reasonable methodology to estimate its capacity and energy deficits over the period 2020 through 2035;
- MP reasonably considered cost and risk factors associated with the PPA and alternative energy sources;
- MP will need a significant amount of capacity and energy in the future;
- the proposed PPA would provide the most appropriate resources for MP to meet its resource needs over the period 2020 through 2035;
- the cost (price) of the proposed PPA is reasonable;
- MP's ratepayers would be appropriately protected from the operational and financial risks of the PPA;
- MP's ratepayers would be reasonably protected from the risk of non-completion of the transmission facilities, along with complete shutdown or partial shutdown of the project;
- the curtailment provisions in the PPA associated with insufficient generation resources are reasonable since the PPA exempts MP from paying for any curtailed energy;
- MP's ratepayers would be appropriately protected from risk of deficient reserve capacity;
- MP and its ratepayers would be reasonably protected from the surplus energy risk of the proposed PPA;
- the risk of Adverse Water Condition is appropriately allocated between MH and MP;
- The price of the EEA is reasonable;
- MP's ratepayers would be appropriately protected from the operational and financial risks of the EEA; and
- The curtailment provisions in the EEA are appropriate.

C. RECOMMENDATIONS

The Department recommends that the Commission approve MP's proposed PPA and EEA.

/sm

ANNUAL COST OF THE MH PPA

DOC Docket No.E015/M-11-938
Public Attachment No.1

Year	Energy Price with +,- 10% Bandwidth Weekday ($/MWh) 1	Energy Price with +,- 10% Bandwidth Weekend ($/MWh) 2	Weekday Energy MWh 3	Weekend Energy MWh 4	Weekday Energy Cost ($) 5	Weekend Energy Cost ($) 6	Total Energy Cost ($) 7	Capacity cost $/MW-Month 8	Capacity cost $/MW-Year 9	Total Capacity Cost ($) 10	Total Cost($) 11
					Trade Secret						
2020											
2021											
2022											
2023											
2024											
2025											
2026											
2027											
2028											
2029											
2030											
2031											
2032											
2033											
2034											
2035											
					End Of Trade Secret						

source: Columns 1-4 and 8, MP's response to DOC information request No.1

LEVELIZED COSTS OF THE MH PPA

DOC Docket No.E015/M-11-938
Public Attachment No.2

	Year	Total Energy Cost ($)	NPV(8.38%) of Energy Cost *($/MWh)*	Total Energy (MWh)	Total Capacity Cost ($)	NPV(8.38%) of Capacity Cost *($/MWh)*	Levelized cost Exc. Trans. ($/MWh)	Levelized Transmission Cost($/MWh)	Annualized Factor at 8.38%
		1	2	3	4	5	6	7	6.00
		Trade Secret							
1	2020								1.00
2	2021								0.92
3	2022								0.85
4	2023								0.79
5	2024								0.72
6	2025								0.67
7	2026								0.62
8	2027								0.57
9	2028								0.53
10	2029								0.48
11	2030								0.45
12	2031								0.41
13	2032								0.38
14	2033								0.35
15	2034								0.32
16	2035								0.30
Average **Levelized costs**									0.59
		Trade Secret Ends							

Source:Column 7, MP's response to DOC information request No. 1

LEVELIZED COSTS OF CC UNIT INCLUDING CO2 COSTS

	Year	Costs of CO2 Emission: CERA CO2 cost per MWh 1	NPV of CO2 cost per MWh 3	Commission CO2 cost per MWh	NPV of Commission CO2 cost per MWh	Levelized Factor
1	2020					1.00
2	2021	3.69	3.14	7.93	6.75	0.92
3	2022	3.94	3.09	7.93	6.23	0.85
4	2023	4.21	3.05	7.93	5.75	0.79
5	2024	4.50	3.01	7.93	5.30	0.72
6	2025	4.80	2.96	7.93	4.89	0.67
7	2026	5.13	2.92	7.93	4.51	0.62
8	2027	5.48	2.88	7.93	4.17	0.57
9	2028	5.86	2.84	7.93	3.84	0.53
10	2029	6.26	2.80	7.93	3.55	0.48
11	2030	6.69	2.76	7.93	3.27	0.45
12	2031	7.14	2.72	7.93	3.02	0.41
13	2032	7.63	2.68	7.93	2.79	0.38
14	2033	8.16	2.64	7.93	2.57	0.35
15	2034	8.71	2.60	7.93	2.37	0.32
16	2035	8.88	2.45	7.93	2.19	0.30
Average		6.07	2.84	7.93	4.08	0.59
Levelized Cost			4.85		6.97	

(*): CO2 cost based on CERA forecast
(**):CO2 cost based on midpoint of Comission approved values excelerated annualy at 2%
Source: MP's response to DOC information request No. 1

Levelized Costs of CC Unit

	TS(*)	TS(**)
Ownership Cost		
Transmission		
Fixed O&M		
Variable O&M		
Start Up Costs		
Fuel		
CO2		
Total Levelized Cost		

TS ENDS

Levelized Cost of a New CC unit

DOC Docket No.E015/M-11-938
Public Attachment No.4

Year		New CC: Capacity Cost ($MW/Mo) 1	Annual Capacity Cost 2	Annual Summer Energy (MWh) 3	New CC: Annual Capacity Cos ($MWh) 4	NPV(8.38%) Capacity Cost ($/MWh) 5	Energy Cost ($/MWh) 6	NPV(8.38%) of Energy Cost ($/MWh) 6	NPV(8.38%) Levelized Factor 7
					Trade Secret				
2020	1								1.00
2021	2								0.92
2022	3								0.85
2023	4								0.79
2024	5								0.72
2025	6								0.67
2026	7								0.62
2027	8								0.57
2028	9								0.53
2029	10								0.48
2030	11								0.45
2031	12								0.41
2032	13								0.38
2033	14								0.35
2034	15								0.32
2035	16								0.30
average									0.59

levelized cost
Total Levelized Cost
capacity costs are escalated at 2.5% annually

End of Trade Secret

Sources: columns 1-3,Attachment 5 of DOC comments in docket e002/m-10-633
column 6, Attachment 2, column 2