PUB/DAYMARK I-1 Reference: Daymark Evidence p.63; 2017/18 & 2018/19 GRA Exhibit DEA-1 Daymark Export Report pp.59-61 Premium for Long-Term Dependable Energy

Preamble:

On pages 59 to 61 of Daymark's 2017 report on Export Revenues filed as exhibit DEA-1 in the 2017/18 & 2018/19 GRA, Daymark states that MH removed the long-term dependable energy premium from its forecast of uncontracted energy revenues:

> Upon review of the reasons for first instituting a premium and then removing the premium, we believe the elimination of the premium in its entirety for the 20-year forecast is not well supported and not consistent with the information available to MH from the independent market consultants (see Section III) or the information from MISO, NERC and utility IRPs (see Section II). With that said, we agree with MH's assessment of the softening of the market for exports in the near-term over the past several years.
>
> …
>
> - The elimination of the premium appears reasonable for the near term.
>
> - The elimination of the premium in the longer term is not consistent with the longer term outlook for energy, capacity and clean energy requirements in the Northern MISO region. Based on Daymark's MISO market assessment provided in Section II and the independent consultants view on capacity needs in the near future, an opportunity for premiums in long-term contracts is a distinct possibility, as was observed by MH when it initiated the premium in 2013.

On page 63 of Daymark's April 13, 2023 report, Daymark states:

> Based on Daymark's review of the filing and information requests, our conversations with MH personnel, and our review of supplemental materials provided by MH, we find that the Corporation's forecast of export revenues is reasonable….The export revenue as presented in the GRA assumes no renewal

or replacement contracts and assumes that MH's future supply sales are valued only at the MISO market energy price. We believe this is a reasonable, but conservative, assumption, and that it is likely that there will be opportunities for premium pricing or additional revenues for MH's exports as the MISO market continues to evolve.

Request:

Please explain the factors that have changed Daymark's view of the reasonableness of removing a long-term energy premium from MH's forecast of uncontracted dependable energy exports.

Response:

Daymark's change in position is largely due to several factors. First, the date at which MH anticipates being short on dependable energy and capacity is closer to current day now than in it was when Daymark reviewed the 2017/18 GRA. This means that there are fewer negotiating levers available to MH when trying to find counterparties for any remaining capacity. While that factor alone does not eliminate the potential for a premium for capacity or firm energy, it decreases the likelihood.

Second, our assessment of the MISO market is different in some important ways. While Daymark expected, and MISO has seen, the acceleration of renewable energy projects being developed, MISO market rules have not yet meaningfully changed to reflect the evolving supply landscape and assign different value to firm, emission-free resources. This results in a lack of clear market signals that will fully compensate resources providing the volume of emission-free balancing energy needed in response to the volume of intermittent resources serving MISO load. Additionally, the move to seasonal accreditation for capacity and the current uncertainty as to its treatment at FERC and the final market rules that will govern that changing market creates doubt as to whether MH summer capacity will be able to be sold in the short term before the new market structure and rules are finalized. This uncertainty, combined with the forecasted coming shortage of capacity in Manitoba, combines to decrease the probability of successfully monetizing opportunity capacity.

Finally, the passage of the Inflation Reduction Act of 2022 (2022 IRA) creates additional uncertainty for MH because there are strong incentives built into the 2022 IRA designed to encourage local (US based) development of the resources needed to meet US load. While rules and regulations around the 2022 IRA are still evolving, it is clear that there are mechanisms designed to encourage a number of products that would compete directly with MH products. The 2022 IRA has earmarked money for storage, hydrogen and small modular nuclear, for instance. Each of these technologies could potentially provide some of the same benefits to the MISO market that MH has traditionally provided.

Given all of the above, we believe that there exist sufficient reasons to doubt the potential to monetize opportunity energy and capacity above basic spot energy prices. This does not mean that we believe there's no possibility that premiums might materialize in future negotiations between MH and its counterparties. Our understanding is that MH continues to seek such opportunities but selling short-term capacity requires finding a counterparty with specific needs for whom an agreement would be mutually beneficial. Such counterparties may emerge as MISO market conditions change, so MH should continue to make efforts to find opportunities for a premium for its water, and should continue to engage with MISO and other stakeholders to attempt to advocate for market rule changes that would be beneficial to MH and its customers. But for budgeting purposes, we do not believe that including any opportunity premium in a reference case is supported by the facts and activity within MISO activities or US policy.

PUB/DAYMARK I-2 Reference: Daymark Evidence pp.33,36,55,57-58,63; MFR 43; MFR 84; 2017/18 & 2018/19 GRA Exhibit DEA-1 Daymark Export Report p.71
Uncontracted Surplus Capacity

Preamble:

On page 33 of Daymark's April 13, 2023 report, Daymark states:

> The RRA concluded that after considering forecasted load growth, announced plans for generation retirements, and announced plans for new additions, the net effect is that LRZ 1 will have a capacity shortfall in just a few years.

On page 36 of Daymark's April 13, 2023 report, Daymark states:

> **Resource adequacy and capacity market uncertainty.** The capacity situation has tightened dramatically in recent years, with an impending shortage expected MISO-wide, and in the subregion directly south of Manitoba (LRZ 1). Driven by increased resource adequacy concerns, MISO is moving to a seasonal capacity requirement which could result in some utilities experiencing capacity deficits in the near-term.

On page 55 of Daymark's April 13, 2023 report, Daymark states:

> Beyond the firm contracts, MH's export forecast included in the GRA does not assume any revenue from future capacity sales.

On page 55 of Daymark's April 13, 2023 report, Daymark states:

> In addition, while MH could theoretically sell surplus capacity on a short-term basis through the MISO PRA, [remainder is redacted]

On page 58 of Daymark's April 13, 2023 report, Daymark states:

> Given these uncertainties, we agree with the Company's approach to assume no new sales of surplus export capacity in the revenue forecast. However, it should

be recognized that this is a conservative assumption, and there is potential for incremental revenue if MH can monetize its excess summer capacity.

The MISO region is not yet a winter peaking system, and there is a shortage of capacity that led to high PRA clearing prices in 2022.

On page 63 of Daymark's April 13, 2023 report, Daymark states:

> The export revenue as presented in the GRA assumes no renewal or replacement contracts and assumes that MH's future supply sales are valued only at the MISO market energy price. We believe this is a reasonable, but conservative, assumption, and that it is likely that there will be opportunities for premium pricing or additional revenues for MH's exports as the MISO market continues to evolve.

On page 71 of Daymark's 2017 report on Export Revenues filed as exhibit DEA-1 in the 2017/18 & 2018/19 GRA, Daymark states:

> There are a few areas where we believe that the assumptions or methods of producing the current export revenue forecast are not in keeping with a P50 reference forecast.
>
> These items are:
>
> - The methodology for forecasting the export energy and capacity prices;
> - The assumption that no firm energy sales will be made from the forecasted surplus dependable energy;
> - The assumption that no extension of sales will occur with existing buyers when current firm contracts expire; and,
> - The assumption that MH will not receive any capacity revenue associated with surplus dependable energy or opportunity sale energy over the study period.

MFR 43 shows the surplus winter capacity to be at least 150 MW for the years 2023/24 to 2026/27.

MFR 84 provides MH's consensus forecast for export capacity prices.

Request:

a) Please explain the factors that have changed Daymark's view from its 2017 report of the reasonableness of not including revenue from sales of surplus uncontracted capacity in MH's export revenue forecast, considering Daymark's other findings of capacity shortfalls in MISO.

b) Please provide Daymark's views as to the likelihood of MH being able to contract for the sale of up to 150 MW of capacity until 2026/27.

   i. If MH is likely able to contract for the sale of this capacity, please provide a range of expected revenues and explain whether these should be incorporated into MH's overall export revenue forecast.

   ii. If MH is unlikely to be able to contract for the sale of this capacity, please explain the reasons.

c) Please confirm whether the MISO Planning Resource Auction is the only opportunity for MH to sell surplus capacity on a short-term basis.

d) Please explain whether MH is able, under the current MISO rules, to contract with a counterparty for the sale of summer capacity only, and whether such a capacity acquisition would be useful for the counterparty in meeting its capacity and reserve needs.

Response:

a) See response to PUB/DAYMARK I-1.

b) Manitoba Hydro is expected to have surplus summer capacity for the next few years, but it is unclear whether there is a market for that short-term capacity. Until recently the MISO Planning Resource Auction (PRA) clearing prices have indicated capacity surplus in northern MISO. The most recent PRA cleared at a much higher price, indicating that the surplus may have eroded in recent years. However, as described in Section VII of the Daymark Report, there are several significant uncertainties in the market for capacity in northern MISO, including the impact of the new seasonal capacity construct and the market response to new tax incentives and emerging capacity need. [redacted] 4a

[redacted] 4a

Given these significant uncertainties, it is Daymark's view that it is appropriate for MH excluding revenue from potential capacity sales in its GRA forecast.

c) The MISO PRA is not the only opportunity for MH to sell surplus capacity on a short-term basis, but it is the only option that MH would be able to use without negotiating with a counterparty. [redacted] 4a Other opportunities do exist but would require a counterparty that forecasts a shortage in their own capacity and sees value in a short-term bridge to whatever steps they are taking to develop longer term supply. Prior to the last PRA that might have been hard to imagine, as the northern MISO capacity zones that MH could deliver to have not cleared at high prices. With the 2021/22 PRA results leading to those zones clearing near the cost of new entry (CONE) there could be opportunity for a short-term sale. Our understanding is that MH is continually in contact with those counterparties and seeking such opportunities to see if there is a mutually beneficial commercial arrangement.

d) Daymark's understanding is that MH could enter into a bilateral contract to sell summer capacity only to a counterparty. MISO's rules related to the seasonal capacity construct are still in development, but our expectation is that capacity could be transacted for one or multiple seasons. If a potential counterparty has a capacity need that could be fulfilled by a contract with MH, that capacity would be useful to the load-serving entity in meeting its resource adequacy requirements.

PUB/DAYMARK I-3 Reference: 2017/18 & 2018/19 GRA Exhibit DEA-1 Daymark Export Report p.75

Preamble:

On page 75 of Daymark's 2017 report on Export Revenues filed as exhibit DEA-1 in the 2017/18 & 2018/19 GRA, Daymark states:

> When reviewing the export revenue forecast, Daymark noted two risk components that are more likely to lead to higher revenues than to lower revenues.
>
> First, with natural gas prices at historically low levels and without a formal market process for pricing carbon, there are more factors that could exert upward pressure on energy prices than downward. Second, with the assumption that there will be no future firm energy or capacity sales, there is no risk of a lower forecast for those values and some unexplored possibility of increased revenues.
>
> This asymmetrical risk profile means that there is a greater weighting on forecasts above the reference case than on those below. This then leads to an expected value above the reference case. So even if the reference case was a true P50, there would be strong argument for a higher export revenue forecast as more appropriately sharing risk between the company and its customers.

Request:

Please explain whether Daymark's finding on the asymmetrical risk profile from its 2017 report remains relevant to MH's current situation and export revenue forecast. If it is no longer relevant, please explain why not.

Response:

The finding on the asymmetrical risk profile from the 2017 report is still relevant, but there have been significant changes in the intervening years that impact the long-term relevance of these arguments. It is still true that, since there is a natural floor to natural gas prices (the cost of production), fuel prices can only vary to the low side a certain amount. There are many other factors that can cause significant variance to the high

side, including carbon or other environmental regulations, supply chain disruption, resource scarcity or increased demand, and geopolitical events (such as the war in Ukraine). The size of these potential variances is asymmetrical.

However, in 2017 the long-term link between natural gas prices and marginal energy prices was very well-accepted. Since that time, U.S. state and federal policies have increased the expected pace of development of renewable resources. This is expected to weaken the direct connection between natural gas prices and energy prices, because it is likely that there will be more hours in which renewable resources are the marginal units, setting market prices. When this occurs, the prices will be significantly lower than they would be if natural gas were the marginal resource, and in some cases may result in negative pricing. This weakening of the relationship between natural gas prices and energy prices can already be seen. Daymark has performed confidential work for other clients where contracts based on natural gas prices show prices that rise and fall faster and further than contracts based on energy delivered to the same location as the natural gas based contracts.

Therefore, while the asymmetrical pricing risk still applies to natural gas prices, it is not necessarily true for energy market pricing, particularly for longer term forecasts.

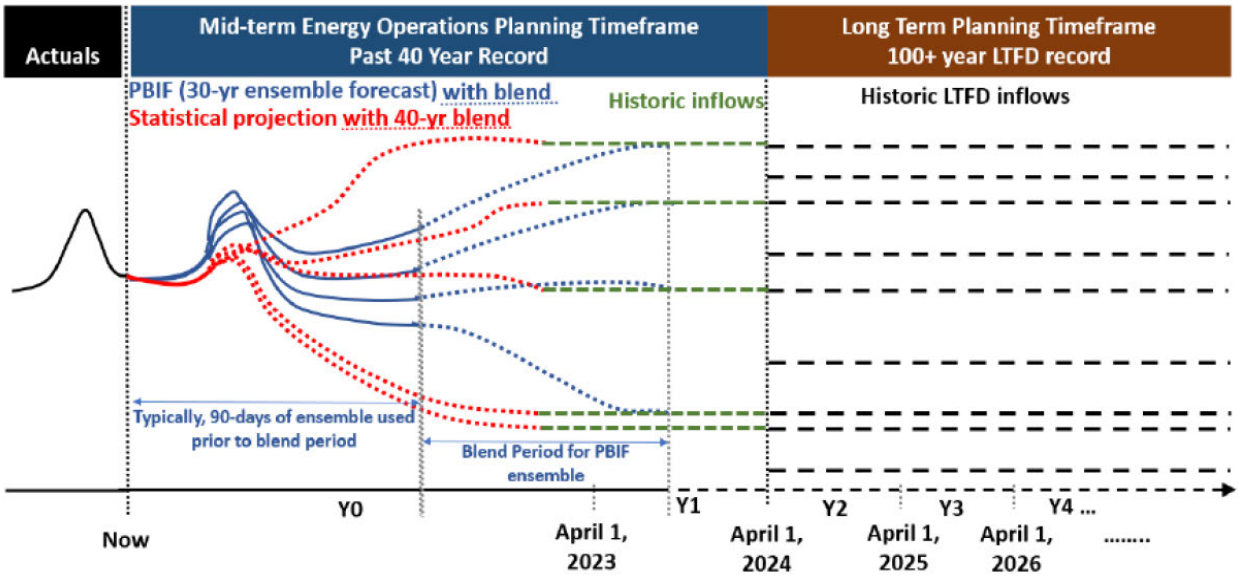
PUB/DAYMARK I-4 Reference: Daymark Evidence pp.17,18; GRA Appendix 4.1
Financial Forecast Scenario
Inflow Forecasting

Preamble:

On page 18 of Daymark's April 13, 2023 report, Daymark states:

> After the blend period, the remainder of the medium-term forecasting period is the 40 most recent historic flows until the start of Y2, which is the transition to long-term forecasting.

On page 17 of Daymark's April 13, 2023 report, Daymark provides Figure 3, which shows Y2 as 2024/25.



Request:

Please confirm which year "Y2" is referring to in this GRA: is it the second year of the financial forecast and therefore the first test year of 2023/24, is it referring to the second test year of 2024/25, or some other year?

Response:

Daymark's understanding is that Y2 refers to 2024/25 in this GRA.

PUB/DAYMARK I-5 Reference: Daymark Evidence p.35
Ancillary Services

Preamble:

On page 35 of Daymark's April 13, 2023 report, Daymark states:

> The MH forecast for export sales is limited to sales of non-firm energy, firm energy, and capacity.

Request:

Please provide Daymark's view on the potential for MH to provide ancillary services to the MISO market, what those ancillary services may be, and the magnitude of any potential revenues from these services.

Response:

As an initial matter, it is Daymark's understanding that Manitoba Hydro is currently providing ancillary services in the MISO market and is getting compensated for those products. In addition, it is our understanding that MH included ancillary services export revenue forecast presented in MFR 42. Daymark's statement referenced in this question was not intended to exclude existing ancillary service products. Rather, we were trying to draw a contrast between the products that Manitoba Hydro has been selling into the MISO market with potential future products that may have incremental value. This clarification was also discussed in Daymark's response to MH/Daymark I-1.

MH's forecast of ancillary service revenue is included in the "Other Non-Energy Related Revenues" line in MFR 42. This represents $2.6 million out of $1,152.9 million (0.2%) in total extraprovincial revenue in 2023/24 and $4.6 million out of $963.6 million in total extraprovincial revenue in 2024/25 (0.5%).

MH is forecasting a small amount of revenue from providing ancillary services to the MISO market. In general, ancillary services (including regulation, spinning reserve, supplemental reserve) are a very small portion of the overall MISO market value. As an

example, in 2021 the average energy price was $41/MWh, and of that, only $0.13/MWh was attributable to ancillary service costs.[1]

As we discussed in Section III.H of our report, there is the potential for new market products that could be developed to allow for the reliable operation of the grid. MH may be able to provide some of these services, but quantifying the value is not possible until the market rules are developed.

[1] 2021 State of the Market Report for the MISO Electricity Markets, Potomac Economics, pp. 4, 9. Available at: https://cdn.misoenergy.org/20220622%20Markets%20Committee%20of%20the%20BOD%20Item%2004%20IMM%20State%20of%20the%20Market%20Report625261.pdf

PUB/DAYMARK I-6 Reference: Daymark Evidence pp.39-47; Application Appendix 4.2; MFR 84
Capacity Price Forecast

Preamble:

On pages 39 to 47 of Daymark's April 13, 2023 report, Daymark provides its assessment of MH's approach to forecasting export energy prices. Daymark does not appear to comment on the export capacity prices.

In Appendix 4.2 of its Amended Application on page 5, Manitoba Hydro states:

> However, summer seasonal capacity is a new product for which there is no price forecast available, which competes against solar resources in the summer, and the demand for which currently cannot be ascertained as it would be dependent on the impact of seasonal generation accreditation, state decarbonization goals and reliability requirements. Therefore, Manitoba Hydro has not included any potential summer capacity revenue in its projections.

Request:

a) Provide Daymark's commentary and views on MH's approach to forecasting export capacity prices using the same lenses as were applied by Daymark to assess MH's export energy prices on pages 40 to 47.

b) Please explain whether the capacity prices from the consensus forecast shown in MFR 84 are relevant to MH's potential to contract its surplus capacity, and if so whether those prices are suitable to form the basis for a revenue projection.

Response:

a) Daymark's understanding is that the consensus capacity price forecast provided in MFR 84 is not used in MH's revenue forecast since MH is not assuming any capacity sales beyond those already contracted. Nevertheless, MH prepared a consensus capacity price by averaging the forecasts of the five consultant forecasts, as described in MFR 84. This is the same methodology used for the energy price forecast, as discussed in Section IV of the Daymark Report.

In general, we believe that using an average of five forecasts to create the consensus forecast is a reasonable method, given that there is a significant range in the forecasts, as shown in PUB/MH I-52f, and reproduced below.

3b

The capacity prices from the consensus forecast provide a reasonable value representative of what MH may be able to secure for its capacity in a bilateral agreement. [redacted] 3b

b) The ability of MH to sell excess capacity is contingent on multiple factors, most notably whether it can find a willing counterparty, as discussed more fully in our response to PUB/DAYMARK I-2. As the revised MISO seasonal capacity rules are rolled out and FERC challenges are resolved, it will become clearer whether there will be a capacity need in northern MISO that can be fulfilled through bilateral contracts with MH.

With those caveats, it is Daymark's view that the consensus capacity price provides a reasonable estimate of prices MH could see in the market if it has surplus capacity to sell and finds a willing buyer, with higher confidence on the near-term prices than the medium- or long-term prices.

PUB/DAYMARK I-7 Reference: Daymark Evidence p.57
MISO PRA Auction

Preamble:

On page 57 of Daymark's April 13, 2023 report, Daymark states:

> In addition, while MH could theoretically sell surplus capacity on a short-term basis through the MISO PRA, [remainder is redacted]

Request:

Please provide an overview of how the MISO Planning Resource Auction functions, in particular how MH would participate and what requirements and obligations would be placed on MH if it were to participate.

Response:

The MISO Planning Resource Auction (PRA) is a voluntary annual capacity auction that acts as a balancing market to facilitate getting needed capacity to regions within MISO to meet reliability obligations. The PRA is conducted each year to match capacity resource commitments with load for the upcoming Planning Year, which begins on June 1 and ends May 31 of the following year. The PRA matches these capacity resources with load on a regional, subregional, and zonal basis. A newly implemented feature of the PRA is that it is now seasonal. The seasons MISO defines in the PRA are Summer, Fall, Winter, and Spring. Summer contains the months of June, July, and August. Fall contains the months of September, October, and November. Winter contains the months of December, January, and February. Spring contains the months of March, April, and May.

For the newly implemented Seasonal PRA, capacity supply offers are submitted by Capacity Resources, which can be generally categorized as physical generation, storage, and demand-side resources. Each of these are physical capacity assets that are now assigned Seasonal Accredited Capacity (SAC) value. The SAC value represents the expected availability of a Capacity Resource to provide energy and ancillary services during the appropriate period and is translated into Zonal Resource Credits ("ZRC"), which is the capacity value that is traded in the PRA. MISO ensures the ZRCs are fully

deliverable to load by confirming those ZRCs are coupled with Network Resource Interconnection Service or Energy Resource Interconnection Service that is paired with firm point-to-point transmission.

While providing capacity as an external resource is a complicated process, in general, [redacted] 4a This is discussed in Section VII of the Daymark Report.

PUB/DAYMARK I-8 Reference: Daymark Evidence p.57
Seasonal Diversity Contracts

Preamble:

On page 57 of Daymark's April 13, 2023 report, Daymark states:

> MH has stated that despite this summer surplus, there are numerous barriers and significant uncertainty related to selling this capacity. The MISO seasonal capacity construct is new as of August 2022 and there is uncertainty as to how the regional capacity balance will evolve and how capacity pricing will settle. MISO has also determined that the winter planning reserve margin will be much greater than the summer reserve margin; MH interprets this change as reducing the likelihood of securing seasonal diversity contracts that provided value for its summer surplus.
>
> …
>
> The other major factor impacting the change in the timing of capacity need and the availability of surplus is the assumption that seasonal diversity contracts will not be renewed, and a related assumption is the uncertainty around the market for future summer capacity sales into MISO.

On page 22 of Daymark's April 13, 2023 report, Daymark states:

> Related to item (f) in that list item, the Daymark Scope of Work also includes Item #8:
>
> > *Assess the reasonableness of Manitoba Hydro's assumption that a minimum level of seasonal diversity contracts will no longer be available following the expiration of its existing seasonal diversity contracts.*

Daymark does not appear to provide any findings or form conclusions with respect to Scope of Work Item #8.

Request:

a) In Daymark's view, will the utilities in the northern MISO region transition to winter-peaking in the next 20 years? Please explain why or why not.

b) Please provide Daymark's view as to whether MH's assumption that it will not be able to enter into seasonal diversity exchange contracts in the future, and in particular with the entities that it currently has contracts with once those contracts expire between 2025 and 2030, is a reasonable and supported assumption.

Response:

a) The most recent MISO load forecast does not anticipate the northern MISO annual peak occurring in the winter at any point over the 20-year forecast horizon.[2] However, the forecast also assumes relatively low levels of winter load growth, so it is unlikely that the forecast is projecting significant adoption of electrified heating technologies (i.e. heat pumps) or electric vehicles. If the uptake of these technologies increases to help achieve decarbonization goals, it could have a significant impact on winter peak loads.

b) As an initial matter, the availability of renewing or signing new seasonal diversity exchange contracts is dependent on both a potential counterparty's demand for capacity, and its capacity supply. The demand for capacity depends on the utilities peak load plus the required seasonal reserve margin determined by MISO. This is an important distinction because the transition to seasonal capacity requirements and the recent experiences with extreme winter weather events could lead to a higher required winter reserve requirement.

On the supply side, the transition to seasonal capacity requirements in MISO may impact the potential demand for summer capacity as well as the availability of surplus winter capacity that could be offered to MH through a diversity exchange contract. For example, even if a utility does not become winter peaking, the seasonal capacity requirements could bring the winter capacity margin closer to the summer capacity margin, meaning that the utility could need to build new capacity to meet winter requirements (when MH exchange capacity is not

[2] 2022 MISO Energy and Peak Demand Forecasting for System Planning, State Utility Forecasting Group, November 2022. Available at: https://www.purdue.edu/discoverypark/sufg/docs/publications/MISO/MISO%20forecast%20report%202022.pdf

available), leading to additional capacity in the summer, thereby diminish the demand for MH's surplus summer capacity. For instance, in a seasonal capacity structure, solar may lose accredited capacity in most or all seasons, but it will almost certainly be hit hardest in the winter, since the winter reliability hours will not coincide with when the sun is shining.

On the demand side, as noted in response to part (a), while official MISO forecasts are not expecting a transition to winter peaking, there are many market trends that are increasing the likelihood of this change.

Thus, in general Daymark agrees with MH's approach to assume, for budgetary purposes, that seasonal diversity arrangements will not be available in the future. There is enough uncertainty about future load conditions and market rules to cast doubt on whether MH would be able to find a willing counterpart for such an arrangement.

PUB/DAYMARK I-9 Reference: Daymark Evidence p.57
Seasonal Capacity Construct

Preamble:

On page 57 of Daymark's April 13, 2023 report, Daymark states:

> MH has stated that despite this summer surplus, there are numerous barriers and significant uncertainty related to selling this capacity. The MISO seasonal capacity construct is new as of August 2022 and there is uncertainty as to how the regional capacity balance will evolve and how capacity pricing will settle.[59] MISO has also determined that the winter planning reserve margin will be much greater than the summer reserve margin; MH interprets this change as reducing the likelihood of securing seasonal diversity contracts that provided value for its summer surplus.

Request:

Please explain the MISO seasonal capacity construct and how a market participant such as MH could contract for the sale or purchase of capacity under this construct.

Response:

As discussed briefly in response to PUB/DAYMARK I-7, the new seasonal capacity construct creates four separate seasons that together comprise the full capacity year (June 1 through May 31). Each season will have a separate Planning Reserve Margin Requirement (PRMR), which is the required amount of capacity. PRMR is calculated by zone within MISO, so each year MISO will be clearing capacity against four seasonal requirements across ten zones. All capacity seeking to provide ZRCs for any of those seasons into any of those zones will need to demonstrate the amount of Seasonal Accredited Capacity (SAC) that can be delivered into the target zone.

PUB/DAYMARK I-10 Reference: Daymark Evidence pp.77, 81-82
MH's Drought Management Policies and Processes

Preamble:

On page 77 of Daymark's April 13, 2023 report, Daymark states:

> In general, MH does not transition to any sort of alternative operations process upon water conditions deteriorating beyond a certain point. Rather, the Corporation's operational response to droughts should be thought of as an extension of normal operations wherein it pursues the objective of economic maximization within a set of constraints that are documented in their procedures and used daily. The challenges of operating the system change as system hydrology does, but the framework, which outlines the operational priorities and constraints under which the teams operate, does not change, regardless of whether the system is flush, is in drought, or is anywhere in between.

On pages 81-82 of Daymark's April 13, 2023 report, Daymark states:

> As discussed in sub-section C, above, drought operations are not fundamentally different from operations during non-drought conditions.
>
> […] Nonetheless, drought does cause some changes in behavior to occur within the organization.

Request:

Please confirm whether Daymark's statements that MH's drought operations are not fundamentally different from operations during non-drought conditions are referring to Manitoba Hydro's established water management policies and related processes as opposed to the operational decisions arising from those policies and processes. Put another way, is it accurate to state that MH's existing water management policies and processes are applicable to both drought and non-drought conditions but that the operational decisions arising from these policies and processes (e.g. whether to release water from reservoirs or conserve water by making import purchases) will be

fundamentally different for drought and non-drought conditions? If not, please provide additional context and comment regarding Daymark's findings.

Response:

Confirmed. We believe that it is reasonable to say that "MH's existing water management policies and processes are applicable to both drought and non-drought conditions but that the operational decisions arising from these policies and processes (e.g. whether to release water from reservoirs or conserve water by making import purchases) will be fundamentally different for drought and non-drought conditions."

PUB/DAYMARK I-11 Reference: Daymark Evidence pp.82,84
Executive Oversight Committee

Preamble:

On page 82 of Daymark's April 13, 2023 report, Daymark states:

> Decisions regarding opportunity purchases or sales are still dictated by the approval authority tables from P190, but beginning in July 2021 an oversight committee was formed and began meeting bi-weekly to ensure closer review throughout the drought.

On page 84 of Daymark's April 13, 2023 report, Daymark states:

> To adhere to this, bi-weekly meetings were established starting in early August.
>
> At the first meetings of this oversight committee, a set of "drought management fundamentals" was established.

Request:

Please clarify the date when the executive oversight committee was established and, if known by Daymark, provide the date of the first meeting.

Response:

The first meeting of the oversight committee occurred on the 4th of August 2021. It is our understanding that the decision to stand up a committee was made some time in the weeks prior to that, but Daymark does not have a precise date.

PUB/DAYMARK I-12 Reference: Daymark Evidence pp.82,84
Drought Management Actions

Preamble:

On page 84 of Daymark's April 13, 2023 report, Daymark states:

> The principles were articulated in a slide presented to the team and are clearly consistent with the policies and requirements of the Drought Management Planning document. The principles articulated are as follows:
>
> - Economic decisions 'on average' until energy security is binding
> - Energy security second only to safety
> - Defer costly actions until required
> - Plan to supply firm load with firm resources
> - Plan for continued drought

Request:

Please identify the costly actions that Drought Management Planning document refers to.

Response:

The Drought Management Planning document did not refer to any specific actions. Our understanding is that the slide referenced in our testimony was an articulation of planning principles presented to the oversight committee on its first meeting, not a recommendation of any specific actions.

PUB/DAYMARK I-13 Reference: Daymark Evidence pp.86-87; Tab 6 pp. 19-23
MH's Drought Management Policies and Processes

Preamble:

On pages 86-87 of Daymark's April 13, 2023 report, Daymark states:

> […] we find that MH did comply with their written policies and procedures and took extraordinary care to continuously balance the often competing priorities that are part of operating such a large hydrological system. We further find that the RPPS and oversight meetings (and associated presentations) were critical to ensuring that all priorities were met. The team of executive and senior leadership was formed to provide executive oversight during the drought. Through discussion with MH, we understand that MH's Enterprise Risk Committee [Pg 31 Tab 2, Figure 2.6 and 2.7] has recently been formed, and appears to be the appropriate framework and entity to provide such oversight during future extreme droughts. Across the MH operations, planning, and oversight teams, there is still a large amount of knowledge that is held within the minds of the members of those groups. MH may have an opportunity to formalize some of their knowledge and expertise into additional policies or procedures to assist those teams in managing future adverse conditions.

On pages 19 to 23 of Tab 6 of Manitoba Hydro's application, Manitoba Hydro describes recent trends related to its employee retirements and indicates that there is a large number of employees that are eligible to retire in calendar years 2022 to 2025.

Request:

Please quantify the extent to which "there is still a large amount of knowledge that is held within the minds" of MH's operational, planning, and oversight teams. Further, please comment on the risks associated with the undocumented knowledge of these existing team members in the test years as well as over the longer term.

Response:

Daymark's findings quoted in the preamble were based on informal discussions with MH personnel. During discussions about multiple areas of our scope (including revenue forecasting, energy modeling, hydrology, drought operations), we were often referred to key MH personnel who were able to answer our questions in detail and in some cases prepare new documentation to explain certain concepts. While MH personnel were very knowledgeable and accommodating, we were left with the understanding that many details about analytical methods, data handoff processes between teams, and the rationale between certain planning and operating decisions were based on the common understanding of the MH team and not documented into written policies, procedures, or handbooks. If our assessment is accurate, this poses risks related to business continuity and succession planning.

To investigate the depth of knowledge that is institutional but not sufficiently documented or to estimate the potential impact of that gap, to whatever extent it exists, would have required significantly more time and resource than was available to us within this engagement. In our experience, utilities seeking to answer these types of questions engage in a detailed operations and management review process, which can take many months to complete to ensure a full and detailed review of processes.

Absent such a review, it would be impossible to speculate as to the specific risks to any particular year. In general, we would expect that risk would increase the further out into the future, as the chances for impactful personnel turnover increases over time.

PUB/DAYMARK I-14 Reference: Daymark Evidence p.87
Price Hedging Activity

Preamble:

On page 87 of Daymark's April 13, 2023 report, Daymark states:

> Manitoba Hydro's Drought Management Planning document states that, "To the extent that Manitoba Hydro is exposed to additional financial risk during drought as a result of uncertain market and natural gas prices, Manitoba Hydro may choose to hedge that price risk by purchasing electricity and/or natural gas forward contracts or options." In Appendix 3.2 to its filing, MH outlined the cause and need for increased price hedging activity in 2021. [emphasis added, footnotes deleted]

Request:

Please explain whether it is appropriate for it to be optional whether MH chooses to hedge price risk by purchasing forward contracts or options. Further, does this introduce the potential for bias, such as immediacy bias or other influences?

Response:

Daymark believes that it is appropriate to allow choice when considering whether to (and to what extent to) hedge forward trading risk. Hedging, like any other form of insurance, incurs cost and professional judgement is required to ensure that facts and circumstances at the time of the potential hedge are considered in a final determination of whether to engage in a particular transaction. In general, removing the optionality of hedging (i.e. forcing certain levels of hedging or prohibiting hedging) would impose different types of risk and would not be advisable.

However, unchecked professional judgement can certainly lead to potential bias. This is why policy and oversight are such critical components of any trading activity. Policies act as general guardrails and oversight ensures compliance with policies and provides opportunities for vetting of decisions under uncertainty. As stated in our report, MH did follow their policies and we saw no evidence of any such influences. [redacted] 4a

[redacted]

[redacted] It is possible that a policy and procedure that focuses on value at risk and identifies the different risk factors for sales hedges as compared to purchase hedges might have led to a different decision on whether to hedge or not in that particular case. 4a

PUB/DAYMARK I-15 Reference: Daymark Evidence p.10
Drought Management Process Changes

Preamble:

On page 10 of Daymark's April 13, 2023 report, Daymark states:

> After the conclusion of drought conditions, MH implemented multiple internal process changes to improve its ability to respond to future drought conditions

Request:

Please elaborate on the internal process changes implemented by MH to improve its response to future drought conditions and explain why these changes were made.

Response:

While this list is not intended to be exhaustive, some of the changes implemented by MH include:

- Modeling enhancements – two primary enhancements that impact the ability to reflect drought conditions occurred in 2021 and continue post-drought:
    - Modification to the establishment of the drought reservoir storage (DRS) target (the level of storage needed to ensure sufficient dependable energy through the end of the existing year) by using the physically-based inflow methodology to reflect current conditions in future planning.
    - The inclusion of "cold snap analysis" to further enhance DRS modeling by accounting for the potential for an unusually cold period in the winter. This approach was not only used beginning in 2021 but was updated specifically during the drought to ensure timely modeling inputs.
- Other changes included:
    - Implementation of a permanent replacement for the oversight committee that was stood up during the drought – this permanent replacement ensures that there is a group that is always prepared to extend additional oversight into critical periods such as drought and should help in particular during the

periods of time when inflow amounts are below average but drought is not fully certain.

- Implementation of some new reports and data analysis – these views intended to give MH further insight into the periods before and after a drought to help identify sooner the ramp up into a drought and ramp down out of a drought.