GSS/GSM rebuttal on all issues of Manitoba Hydro's 2015 cost of service methodology review proceeding

prepared for Hill Sokalski Walsh Olson LLP

August 8, 2016

Upon review of the intervenor evidence of the Manitoba Industrial Power Users Group ("MIPUG"), the Consumers' Association of Canada (Manitoba Branch) and Winnipeg Harvest ("Consumers' Coalition"), the Green Action Centre, the City of Winnipeg and rebuttal evidence from Manitoba Hydro, London Economics International LLC ("LEI") has prepared its rebuttal evidence in accordance with Order No. 84/16 on behalf of the GSS/GSM Customer Class. LEI notes the following key points:

- ***With respect to the assignment of fixed costs to the export class, LEI notes that Manitoba Hydro has not disputed in its rebuttal that Opportunity Exports influence the timing and nature of generation investment.***
- ***LEI also notes that inclusion of directly allocated costs in the allocation of net export revenue ("NER") provides a more accurate representation of the costs incurred.***
- ***In terms of the treatment of generation and transmission assets, LEI agrees with Manitoba Hydro's use of the Weighted Energy Allocator in its opportunity cost approach but questions whether the capacity adder is currently justified.***
- ***LEI disagrees with the direct assignment of demand-side management costs as the approach fails to acknowledge the wider system benefit of these resources, and undermines that incentive properties of the program.***

Table of contents

1 Key issues subject to concurrent evidence

In the Manitoba Public Utilities Board ("PUB") July 12, 2016 procedural order 84/16, the Board determined that the following key issues are in scope for cross-examination at the oral hearing:

1. The treatment of export costs, including the number of export classes and the allocation of fixed and variable costs to such classes;
2. The treatment of net export revenue and the allocation thereof;
3. The functionalization, classification and allocation of generation and transmission assets, including the HVDC system and the US interconnection, but excluding wind and coal assets;
4. The classification and allocation of demand-side management.[1]

As prescribed in order 84/16, this section reflects LEI's rebuttal on the above issues on behalf of the GSS/GSM Customer Class.

1.1 Treatment of export costs

> ***LEI recommendation:***
>
> LEI believes that this 63.8% share of exports can be viewed as relatively predictable and should therefore attract full embedded costs of generation and transmission – i.e. the fixed costs as well as the variable costs.
>
> *Source: GSS/GSM Undertaking #35*

On page 8 of its July 29th rebuttal evidence submission, Manitoba Hydro states that its "*methodology computes the ratio of Opportunity to Dependable Export volume as approximately 50:50 based on simulation of the system operation using the entire long term hydraulic flow record of over 100 years, the supply mix, and load forecast years 3 to 7 of the Integrated Financial Forecast*."[2] More data is not necessarily better data, and indeed hydrological patterns themselves may have shifted over the past 100 years. Furthermore, LEI questions the relevance of data preceding Manitoba Hydro's entry into export markets in determining the ratio of Opportunity to Dependable Export volumes; Manitoba Hydro certainly does not have over 100 years of export data. LEI believes that an analysis of historical export volumes to determine the split between the export classes is more appropriate.

Manitoba Hydro goes on to state that "*LEI's statistical approach to define this split remains too narrow to be relied upon, even after modifications made in Undertaking 35.*" LEI notes that the 16-year analysis performed in Undertaking 35 is based on data made publicly available by Manitoba Hydro and as such is constrained only by the amount of data Manitoba Hydro is willing to provide. As stated by Ms. Derksen on page 897 of the intervenor workshop transcripts, "*with*

[1] Manitoba Public Utilities Board. *Order No. 84/16: Second Procedural Order in respect of Manitoba Hydro's Cost of Service Study Methodology Review.* July 12, 2016.

[2] Manitoba Hydro. *Rebuttal Evidence Submission.* July 29, 2016.

respect to opportunity sales, we have information going further back than 2000. We likely have data going back to 1992, just subsequent to when Limestone was built."[3] LEI submits that an evaluation of the volume of Opportunity Exports that are not speculative, but can actually be considered reliable, is reasonable in determining the percentage of Opportunity Exports that should be attributed fixed costs. While Manitoba Hydro may dispute the approach in determining the proportion of Opportunity Exports that should carry fixed costs, its July 29th, 2016 rebuttal evidence does not refute the underlying rationale of LEI's recommendation.

Other intervenors have also addressed aspects of this issue. In its July 10th evidence, MIPUG proposes that both Dependable and Opportunity exports should be allocated the full embedded generation and transmission costs. On page 36 of its submission, MIPUG argues that "*while Hydro is correct that this is not sufficient to say that exports 'caused' the development of new generation, what Hydro has failed to note is that exports (including opportunity exports) in fact did cause that new generation to be a high capital cost hydraulic, as opposed to available lower cost alternatives."*[4] Manitoba Hydro partially accepts Mr. Bowman's observation on page 5 of its rebuttal noting that "*formal consideration of potential Opportunity Sales revenue in system planning only began sometime in the 1970's or later*." This suggests that Manitoba Hydro acknowledges that the notion of assigning fixed costs to a portion of Opportunity Exports is justified. Indeed, Manitoba Hydro's highly tenuous distinction between "causation" and "consideration" of opportunity sales falls away when the premise is more carefully examined; were it not for the optionality to make opportunity sales embedded within the higher capital cost hydro options chosen, other lower capital cost alternatives may have been more economic. Domestic load is the cause for which Manitoba Hydro builds plants for the future, but it is not the cause for Manitoba Hydro choosing a specific type of plant; opportunity sales would appear to be part of the "cause" for pursuing a particular investment plan.

[3] Manitoba Public Utilities Board. Re: Manitoba Hydro COSS Workshops. June 23, 2016.

[4] InterGroup Consultants Ltd. *Pre-filed Testimony of P Bowman in regard to Manitoba Hydro 2016 Cost of Service Application.* June 10, 2016.

1.2 Treatment and allocation of net export revenue

Of the intervening parties, MIPUG presents the most contrasting approach to the treatment of net export revenue ("NER"). While Manitoba Hydro allocates NER on the basis of total allocated costs, MIPUG proposes to exclude NER from cost of service ("COS") or direct it to a designated reserve fund. In its submitted evidence, LEI is aligned with the City of Winnipeg on proposing that NER be based on total costs, inclusive of allocated and direct costs.

> ***LEI recommendation:***
>
> The current exclusion of direct costs from the allocation of net export revenue is not consistent with the principle of fairness and should be replaced by a more holistic measure of total costs.
>
> *Source: GSS/GSM-6 Pre-filed evidence*

In its response to Undertaking 32, MIPUG describes an indexing approach to adjust customer class RCCs based on a total general consumer's RCC to account for the shortfall caused by the removal of NER.[5] Manitoba Hydro models the impact of this approach compared to the status quo in its rebuttal evidence. From Manitoba Hydro's assessment, *"the only difference between the current allocation on Total Allocated Costs and no allocation of NER after indexing would be due to directly assigned costs that did not receive a share of export revenues"* as stated on page 13 of its rebuttal. While Manitoba Hydro states the outcome is not materially different for most classes, LEI submits that the inclusion of directly allocated costs in the allocation of NER provides a more accurate representation of the costs incurred.

1.3 Functionalization, classification and allocation of generation and transmission assets

1.3.1 Treatment of generation costs

Manitoba Hydro classifies all of its generation, generation-related transmission and US Interconnections as energy and allocates these costs using its Weighted Energy allocator. The Weighted Energy allocator captures the relative market value of energy in each of twelve time periods to reflect demand.[6] In addition, Manitoba Hydro applies a capacity adder to the on-peak energy weightings to account for the value of capacity. This adder is equal to the amount used to compensate Curtailable Rate Program customers for providing their capacity during peak periods.[7] LEI agrees with Manitoba Hydro's opportunity or marginal cost approach to classify and allocate generation costs. This opportunity cost refers to the market value of energy at Manitoba Hydro's MISO Interconnection, and a form of Manitoba-specific capacity values. As stated on page 17 of Manitoba Hydro's rebuttal *"marginal costs capture the economic value of*

---

[5] Manitoba Industrial Power Users Group. *Response to Undertaking 32*. July 6, 2016.

[6] The twelve time periods refer to the peak, shoulder and off-peak periods of spring, summer, fall and winter.

[7] Manitoba Hydro. *Rebuttal Evidence.* July 29, 2016.

resources while, at the same time, reflects how Manitoba Hydro plans and operates its largely hydraulic system facilities, which are operated in order to take advantage of their relatively low variable costs."[8] LEI notes that this is particularly true given the integral nature of exports in Manitoba Hydro's revenues and system design.

Of the intervenors, MIPUG proposes a treatment of generation costs most different to Manitoba Hydro's perspective. On page 2 of MIPUG's pre-filed evidence, Mr. Bowman states that *"Manitoba Hydro's current approach under-classifies costs to demand"* and that *"an appropriate classification of generation costs to demand should be established in the range of 21-23% at this time."*[9] This energy-demand split is based on Manitoba Hydro's estimate of the demand component of generation costs using an Equivalent Peaker method seen in PUB-MFR-17 and the previous System Load Factor approach used prior to 2006. These methods determined the demand component of generation costs to be 23% and 21.2% respectively.

Mr. Bowman notes that demand classified costs should be allocated on the basis of the winter 1CP allocator consistent in Manitoba Hydro's resource planning. The remaining costs classified as energy should be allocated using Manitoba Hydro's weighted energy allocator from PCOSS14, which excludes the Curtailable Rates Program adder used in PCOSS14-Amended. First, LEI agrees with the point made by Manitoba Hydro on page 20 of its rebuttal evidence that the use of the winter 1CP allocator reflects domestic demand and ignores the impact of export demand. Second, LEI notes that the Weighted Energy allocator's consideration of seasonal peak, shoulder and off-peak prices incorporates the demand-influenced value of energy. As such, LEI agrees with Manitoba Hydro's statement in MIPUG/MH-I-10e that *"the use of the weighted energy allocator, with or without the capacity adder, provides an implicit recognition of Demand."*[10] The use of an energy-demand split in combination with Manitoba Hydro's Weighted Energy allocator would therefore result in double counting of capacity. Lastly, as depicted in Manitoba Hydro's response to MIPUG/MH-I-10a, the results of Manitoba Hydro's approach are comparable to an 80:20 energy-demand split where energy is allocated on the basis of an unweighted allocator and demand is allocated on the basis of 2CP demand.

Mr. Harper of the Consumers' Coalition and Mr. Chernick of Green Action Centre agree with Manitoba Hydro's approach with the exception of the capacity adder. LEI questions whether the use of a capacity adder is appropriate at this time, and believes that when such adders are not market-based, they should be subject to periodic review. Consequently, this may be an appropriate topic for the forthcoming general rate application.

---

[8] Ibid.

[9] InterGroup Consultants Ltd. *Pre-filed Testimony of P Bowman in regard to Manitoba Hydro 2016 Cost of Service Application.* June 10, 2016.

[10] Manitoba Hydro. *MIPUG/MH-I-10e.*

1.3.2 Treatment of US Interconnection

On page 3 of MIPUG's pre-filed evidence, Mr. Bowman seems to reject Manitoba Hydro's proposal to classify US interconnections as energy and argues that these lines should be treated as any other AC transmission, and thus classified as demand. On page 26 of its rebuttal evidence, Manitoba Hydro makes the point that US Interconnections facilitate the exchange of energy at all times of the day and all seasons of the year rather than only in peak hours. LEI supports Manitoba Hydro's position and analysis in this matter and believes that it is in line with COS principles.

1.4 Classification and allocation of demand-side management

Of the intervenor evidence submitted, LEI's recommendation is aligned with the Consumers' Coalition that DSM be allocated through COS. MIPUG however holds a different view and states on page 4 of its evidence that *"Hydro's proposed approach to directly assign the costs of DSM programs that are undertaken for energy efficiency reasons to the participating rate classes should be accepted."*[11]

> ***LEI recommendation:***
>
> LEI finds that the classification of DSM costs as demand and allocation through the COS allocator is appropriate in view of the avoided system peak demand costs. Since DSM provides a public benefit, the associated costs would be better shared by all customers.
>
> *Source: GSS/GSM-6 Pre-filed evidence*

In support of its position, MIPUG compares the direct assignment of DSM costs to participating customer classes to the assignment of DSM costs fully to exports as was prescribed in Order 116/08. MIPUG also notes the functionalization of DSM costs as generation as an approach taken by Newfoundland Hydro. MIPUG however disagrees that this approach would be suitable for Manitoba Hydro. MIPUG justifies its view on page 41 of its evidence, where it states that *"At the present time, Manitoba Hydro has almost no direct immediate cost causal link for its DSM programs to generation costs. The value of DSM energy in Manitoba is at best linked to deferral of future generation."*[12]

The point that DSM allows for the deferral of future generation does not make the case for direct assignment of these costs but rather shows that DSM is a current substitute for generation resources. The reduction of domestic load does reduce the need to utilize Manitoba Hydro's thermal resources for reliability purposes and provides the potential for additional export revenue. On page 42, MIPUG goes on to state that *"DSM energy efficiency activities undertaken by Hydro reflect a marketing of substantial benefits that are not related to lower energy consumption, which*

---

[11] InterGroup Consultants Ltd. *Pre-filed Testimony of P Bowman in regard to Manitoba Hydro 2016 Cost of Service Application.* June 10, 2016.

[12] Ibid.

go well beyond the energy benefits."[13] While benefits to the customer may exist beyond the reduction of their energy bills, this does not preclude DSM from providing a benefit to the system. Fundamentally, LEI does not agree that the customer-specific benefit of DSM warrants the direct assignment of these costs to the participating customer classes as this approach fails to acknowledge the wider system benefit of these resources, and undermines the incentive properties of the program.

[13] Ibid.

2 Other issues not subject to concurrent evidence

The following subsection presents LEI's rebuttal to issues not subject to concurrent evidence.

2.1 Treatment of distribution line costs

The treatment of distribution line costs related to poles, wires and related facilities is raised by the Consumers' Coalition and by Green Action Centre. Manitoba Hydro classifies 60% of these costs as demand-related and 40% as customer-related.[14] On page 78 of the Consumers' Coalition's pre-filed evidence, Mr. Harper states that "*Manitoba Hydro has acknowledged the need to update the split for poles & wires and transformers as between demand and customer-related and should be encouraged to do so.*"[15] LEI supports Mr. Harper's position on the need to update the demand-customer split. On page 12 of Green Action Centre's pre-filed evidence, Mr. Chernick states that "*distribution line costs are driven by load levels, rather than customer number, and should be classified as demand-related.*"[16] While the current 60:40 demand-customer split based on a dated 1990 Ernst & Young study, LEI does not agree with Mr. Chernick's suggestion that these costs should be wholly classified as demand. Rather, LEI suggests that the adjustment of this classification should be based on an updated review of these costs by Manitoba Hydro.

[14] Manitoba Hydro. *Appendix 3.1 – PCOSS14.* June 2013.

[15] Econalysis Consulting Services. *Evidence prepared by William Harper for the Consumers' Coalition.* June 10, 2016.

[16] Resource Insight Inc. *Evidence of Paul Chernick on behalf of Green Action Centre.* June 10, 2016.