Unfinished Business - the Manitoba Hydro Cost of Service Study: Delay, Dogma and Nuance

Submissions of the Consumers Coalition
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Outline of Contents

A. Overview

> *Individual costing methodologies are complex and have inspired numerous debates on application, assumptions and data. Furthermore, the role of cost in ratemaking is not without controversy.*
>
> NARUC, *Electric Utility Cost Allocation Manual*, January 1992, p. 22

> *Awareness of these unresolved conflicts about 'fair' cost apportionment has led the British economist Professor W. Arthur Lewis to exclaim that, in rate determination, '**equity is the mother of confusion**.'*
>
> Bonbright, *Principles of Public Utility Regulation*, cited in NARUC, 1992, p. 23 (emphasis added)

> ***A plague o' both your houses!***
>
> Mercutio, *Romeo and* Juliet, Act 3, Scene 1, page 3 (emphasis added)

1. Based on the record of this proceeding, it would be possible to conclude that Cost of Service studies have been given a relatively low priority at Manitoba Hydro over recent years:

- despite regular urging by the PUB for a separate cost of service process dating back to 2012, the first stage of that separate process will not be completed until August/September 2016[1]
- important areas of data related to more than $200 M of distribution assets have not been updated for a quarter of a century[2]
- an analysis of Hydro's Cost of Service based upon the most recent methods and procedures approved by the PUB was not filed either in support of Hydro's application for a review of its methodology or its Minimum Filing Requirement[3]
- Hydro's Cost of Service model is not particularly robust[4]

2. Based on the record of this proceeding, it would be possible to adopt a cynical perception of the opinion evidence relating to Hydro's Cost of Service Methodology studies:

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1 In Order 5/12 the MPUB noted that there may be merit in a separate Cost of Service Study (COSS) review hearing if Manitoba Hydro is seeking changes to the currently approved Board methodology. Following the receipt of Manitoba Hydro's application (2012/13 & 2013/14 General Rate Application) in Order 98/12, the PUB determined that it would review Manitoba Hydro's proposed COSS methodology by way of a separate process. It is the Coalition's understanding that the PUB expressed an interest in undertaking a review of the COSS methodology in the fall of 2014 but Manitoba Hydro preferred to undertake what it described as a stakeholder engagement process. In Order 73/15 the PUB indicated that it does not expect to award any further rate increases until a COSS Application has been filed and the Board has sufficient time to review the COSS Application

2 Please see Appendix A - RECOMMENDED/ACKNOWLEDGED AREAS REQUIRING DATA IMPROVEMENTS

3 The information was finally filed in response to Coalition/Hydro IRs 85 f) and 86 a)

4 See Appendix B for some suggested improvements to Hydro's Cost of Service Model

- given the amount of judgement involved, it is challenging to disaggregate joint costs in a principled matter on which all can agree[5]

- while some evidence is cloaked in the language of high principle, it may conceal a tendency to endorse recommendations that inure to a particular client's benefits

3. Based on the record of the proceeding, it is quite reasonable to conclude that the hearing process has been less than ideal:

- there is a veritable hodge-podge of a record with some areas relatively strongly tested and explored while other areas have been largely neglected. In particular, there are:

    - issues of importance to the Intervenors which were raised in the evidence of other parties and/or the June workshop but not addressed in Hydro's Rebuttal[6]

    - issues from the evidence of Intervenors which were not canvassed in the June workshops or in Hydro's Rebuttal[7]

- a number of Intervenors have raised concerns that certain aspects of the record are inadequate[8] and that "getting to the point where the Board can rely heavily on the cost-of-service may require another couple GRAs"[9]

- the Hydro workshop has received a number of negative reviews[10]

- tempers flared in the Intervenor workshop with the objectivity of certain experts being undermined as they were thrust into the unfamiliar role of oral questioning of the opinions of other experts

- some experts may have crossed the line between objectivity and dogma and appear unwilling to accept the complexity in the position of others

4. Based on the record of this proceeding, it might be tempting to join Mercutio in wishing a plague on all their houses and to look upon the evidence of Hydro and all Intervenors with the same jaundiced

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5 See for example Harper, June 10, p. 17. "A significant portion of Manitoba Hydro's facilities serve more than one customer class and/or provide multiple services. This complicates the cost of service methodology which must now apportion the costs of the facility between services and/or customer classes. While "cost causation" can be used as guiding principle in doing so, there is inevitably going to be some judgement involved. See also Mr. Todd, "I disagree [that] one method's right and the other's wrong. All I'm saying is all these different methods are used. They're all right. They're just different perspectives" (JTr. 960).

6 For example: 1) The allocation of Services (Chernick & Harper) and the need to adjust for apartments 2) The split of costs between primary and secondary poles & wires (Harper & Chernick) 3) The weights used in the allocation of billing costs (Todd and Harper) 4) The weights and allocation used for Customer Administration (Bowman and Harper) 5) The customer/demand split for Poles and Wires (Chernick and Harper)

7 For example: 1) Harper's modelling improvement recommendations 2) Harper's recommendation re allocation of revenues from Late Payment charges and Other Adjustments 3) Harper's recommendation re the GSM portion of the allocation base for Poles and Wires (p. 81) 4) Harper's recommendation (p. 77-78) for the need for consistency in the sub-functionalization of common costs assigned to the Distribution plant function

8 See Chernick, August 5, 2016 Rebuttal, p. 34, *Do you agree that the opportunity to examine the allocation of customer service costs in this proceeding has been insufficient? Yes. I am sympathetic to Mr. Bowman's complaint . . .this proceeding has not provided enough of an opportunity to review customer costs in depth*

9 Chernick, August 5, 2016 Rebuttal, p. 4

10 See for example, Chernick, June 10, p. 72, lines 3 – 17 in which the first workshop process is described as "ungaily" and "not a productive use of the time"

eye. But it would be unfair to lump all the evidence in this proceeding into the same category.

5. Over the course of the hearing to date, it has become clear that some witnesses:

- bring more to the table in terms of experience and nuance
- were more trusted than others during the technical workshop with all parties seeking their input and advice
- did not stray into the adversarial cross examination of other experts during the workshop
- are more analytical and less positional
- have not lost their objectivity
- are prepared to take positions that are not consistent with their client's financial interest

6. While the Coalition shares the frustration of others with the process to date, it believes there is good evidence on the record that the Public Utilities Board can rely upon in beginning to address long standing issues with Manitoba Hydro's Cost of Service methodology for the purposes of rate setting. In particular, it refers the Public Utilities Board to the written evidence of Mr. William Harper as well as his comments during the witness workshops.

7. Given the quality and extent of Mr. Harper's evidence, the Coalition has chosen to focus its written comments on only four particular areas (Particular Areas of Focus):

- the treatment of wind and coal assets
- whether transmission and sub-transmission are complimentary or incremental
- treating primary and secondary poles and wires facilities as distinct sub-functions
- the merits of allocating distribution substation and poles and wires using NCP versus CP

8. The Particular Areas of Focus provide insight into both the COSS methodological approach recommended by the Coalition as well as matters of material interest.

9. An overarching summary of the Coalition's recommendations related to the scope of the August, 2016 Written Submissions can be found in Appendix B. The Coalition adopts these recommendations. The Coalition has accepted all of Mr. Harper's recommendations with the exception of an amendment to his proposal regarding the merits of allocating distribution substation and poles and wires using NCP versus CP. That amendment is detailed in paragraphs 80 and 85 of this submission.

10. In the remainder of its submission, the Coalition will address the following topics:

B. Scope of the Written Submissions

C. Overview of the Statutory Scheme, Good Practice Guidance and Prior Regulatory Guidance

D. Analytic Approach Adopted by the Coalition

E. Preliminary Observations on the Weight to be Accorded the Evidence of Mr. Harper

F. Particular Areas of Focus

G. Conclusions

Appendix A - AREAS REQUIRING DATA IMPROVEMENTS

Appendix B – SUMMARY OF RECOMMENDATIONS

B. Scope of the Written Submissions

11. In *Order 84-16*, the Public Utilities Board identified a number of "key issues" for which oral cross-examination would be appropriate:

- *the treatment of export costs, including the number of export classes and the allocation of fixed and variable costs to such classes*
- *the treatment of net export revenue and the allocation thereof*
- *the functionalization, classification and allocation of generation and transmission assets, including the HVDC system and the U.S. interconnection, but excluding wind and coal assets*
- *the classification and allocation of demand side management*[11]

12. The remainder of issues were to be addressed in the August written and reply submissions. Based upon the PUB order, the Consumers Coalition understands the following matters to be within the scope of the August written submissions:

- issues related to wind and coal generation assets[12]
- selected issues related to Other Revenues (ie not Export and not General Consumer)
- issues related to the subtransmission function
- issues related to the distribution plant function, and
- issues related to the distribution customer service function

13. In its written submissions, the Coalition will address methodological, model and data issues related to these subject areas. The Coalition notes that some of the modelling issues overlap both oral topics (G&T) and written topics (ST&D). It has sought to restrict its modelling submissions to the written topics.

14. Recognizing that matters related to the "the treatment of net export revenue and the allocation thereof" have been assigned to the oral portion of the proceeding, the Coalition does not address issues related to Uniform Rates or the Affordable Energy Fund in its August Written Submissions.

15. While the Coalition offers some high level commentary on the credibility of its expert in these submissions, it notes that overall assessments of the weight to be given to any expert opinion cannot be undertaken until cross examination has been undertaken in early September. It reserves the right to

11 *Order 84-16*, p. 3

12 The Coalition notes that there is some overlap between issues related to wind and coal and the issues related to other generation functions including power purchases. For example, see Harper, June 10, 2016, p. 54 – 57. Leaving aside issues relating to wind and coal, the Coalition reserves the right to address other generation functions in its subsequent submissions.

make further submissions on the weight to be accorded all witnesses in this proceeding once the evidence portion of the hearing has closed.

16. The Coalition reserves the right to reply to issues raised in the August 12, 2016 evidence of all parties.

C. Overview of the Statutory Scheme, Good Practice Guidance and Prior Regulatory Guidance

The Statutory Scheme

17. In his seminal work, *Principles of Public Utility Rates*, Bonbright highlighted the core elements of a desirable rate structure (emphasis added):

> *(i) the revenue requirement or financial need objective, which takes the form of a fair return standard with respect to private utility companies*
>
> *(ii) the fair-cost-apportionment objective, which invokes the principle that the burden of meeting the total revenue requirement must be apportioned fairly among the beneficiaries of the service, and*
>
> *(iii) the optimum-use or consumer-rationing objective, under which the rates are designed to discourage wasteful uses of public utility services while promoting all of the use that is economically justified in view of the relationships between costs incurred and benefits received*[13]

18. Bonbright's core elements are reflected in the regulatory and rate setting scheme governing Manitoba Hydro. Sections 2[14] and 39[15] of *The Manitoba Hydro Act*[16] capture both the "optimum use objective" and "the fair return standard". They identify the need "to promote economy and efficiency" and to secure a return of "the cost to the corporation".

19. Section 77 of *The Public Utilities Board Act*[17] articulates the "fair-cost-apportionment objective" by articulating the Board's duty to fix "just and reasonable rates".

Good Practice Guidance

20. Nuance underlays the approach of Bonbright to the rate setting and cost of service dialogue. He avoids the dogmatic assertion that sole reliance must be placed on one criteria in determining a desirable rate structure. While he identifies primary objectives, he also notes that the rate setting

13 p. 292

14 2 The purposes and objects of this Act are to provide for the continuance of a supply of power adequate for the needs of the province, and to engage in and to promote economy and efficiency in the development, generation, transmission, distribution, supply and end-use of power

15 39(1) The prices payable for power supplied by the corporation shall be such as to return to it in full the cost to the corporation, of supplying the power . See also s. 26 (4) of *The Crown Corporations Public Review and Accountability Act*, C.C.S.M. c. C336

16 *The Manitoba Hydro Act*, C.C.S.M. c. H190

17 C.C.S.M. c. P280, 77 The board may, by order in writing after notice to, and hearing of, the parties interested, (a) fix just and reasonable individual rates, joint rates, tolls, charges, or schedules thereof, as well as commutation, mileage, and other special rates that shall be imposed, observed, and followed thereafter, by any owner of a public utility wherever the board determines that any existing individual rate, joint rate, roll, charge or schedule thereof or commutation, mileage, or other special rate is unjust, unreasonable, insufficient, or unjustly discriminatory or preferential;

process invites numerous competing considerations including:[18]

- *the related, "practical" attributes of simplicity, understanding, public acceptability, and feasibility of application*
- *freedom from controversies as to proper interpretation*
- *effectiveness in yielding total revenue requirements under the fair-return standard*
- *revenue stability from year to year*
- *stability of the rates themselves, with a minimum of unexpected changes seriously adverse to existing customers*
- *fairness of the specific rates in the apportionment of total costs of service among the different consumers*
- *avoidance of "undue discrimination" in rate relationships*
- *efficiency of the rate classes and rate blocks in discouraging wasteful use of service while promoting all justified types and amounts of use:*

  a) In the control of the total amounts of service supplied by the company;

  b) In the control of the relative uses of alternative types of service (on-peak versus off-peak electricity, etc.)

21. To similar effect, the oft-cited *Electric Utility Cost Allocation Manual*[19] cautions against a didactic certitude that any single methodology is superior to another:

> *This manual only discusses the major costing methodologies. It recognizes that no single costing methodology will be superior to any other, and the choice of methodology will depend on the unique circumstances of each utility. Individual costing methodologies are complex and have inspired numerous debates on application, assumptions and data. Further, the role of cost in ratemaking is not without controversy*

Regulatory Guidance on Cost of Service

22. Prior guidance by this Board suggests that while the "fair-cost-apportionment objective" is a primary objective, it cannot be the only objective. In particular, the PUB has recognized that given statutory objectives and environmental concerns the "optimum use" or efficiency considerations can provide a different window of insight into the cost of service determination and rate setting process*:*

> *The Board confirms that the primary objective of COSS is to assist in the testing of the*

18 J.C. Bonbright, *Principles of Public Utility Rates*, page 291.
19 National Association of Regulatory Utility Commissioners (NARUC), January 1992, p. 22.

fairness of rates between domestic customer classes. This objective is met in part by the allocation of MH's prospective revenues and expenses by customer class, in accordance with cost causation, legislation, policy and the public interest[20]

Supplemental information on carbon emissions costs and marginal cost are to accompany the COSS model based on historic embedded costs. The additional information will allow marginal and environmental costs to be taken into account by the Board in assessing MH's rate proposals. . . . As well, in rate setting, the Board will continue to take into account special circumstances (such as drought, high water flow, etc.); rate stability; energy efficiency objectives; and such other factors and criteria deemed appropriate and consistent with the public interest[21]

D. Analytic Approach Adopted by the Coalition[22]

Complexities in Determining Cost Causation

23. There is general consensus that a fair assignment of costs to customer classes is achieved when each customer class is assigned the cost incurred to serve it. The Coalition accepts that customers should pay for the facilities and services they use and benefit from. However, complexities arise in that:[23]

- *A significant portion of Manitoba Hydro's facilities serve more than one customer class and/or provide multiple services. This complicates the cost of service methodology which must now apportion the costs of the facility between services and/or customer classes. While "cost causation" can be used as guiding principle in doing so, there will inevitably be judgement involved*

- *While customers not using an asset are generally not viewed as being responsible for its costs, not all customers using a utility's service or facility necessarily impose the same costs on the utility. From a cost causation perspective, what is important is that customers be assigned those costs that their service requirements led the utility to incur*

- *A related issue is the fact that Manitoba Hydro does not have the same service obligation to all customers that use a particular service or facility. For example, not all customers (e.g., SEP customers and those with curtailable rates versus other domestic customer classes*[24]*) have the same level of service reliability. To the extent the service quality differs customers are not equal and should not bear the same cost responsibility*

- *Utility assets typically have long lives and with changes over time in technology, utility economics, the regulatory environment and government policy, the original intent or driver behind an investment may differ from how the investment is currently used to support the utility's operation and serve customers. While it is useful to consider the*

20 *Board Order 117/06*, p. 56
21 P. 46
22 We appreciate the guidance by Mr. Harper on this section.
23 Harper, June 10, p. 18 - 19
24 Coalition/MH I-22 g) and May Workshop, page 215

original intent of an investment, generally more weight should be given to the current role of investments in meeting customers' service requirements if cost of service studies are to be supportive of rates that signal to customers the costs of continuing to use the utility's services and, thereby, support the efficiency objective

- *The use of a utility's facilities and the benefits they provide will vary with system conditions. This is particularly true in a hydro-based system where variations in water flows can lead to significant variations in how the system is operated. For example, under median water flow conditions purchased power is likely to be used primarily to support/facilitate exports whereas under low water flow conditions significant reliance may be made on purchases to support domestic load*[25]

- *Given that the planning underlying Manitoba Hydro's system considers the full range of likely operating conditions, it is appropriate for considerations of "cost causality" to look at the benefits provided by an investment or service activity under the full range of likely operating conditions and not just the operating conditions underpinning the revenue requirement to be used in determining the rates*[26]

The Significance of Factors other than Embedded Cost Causation

24. As the prior guidance of the PUB and Bonbright makes clear, cost causation is not the only consideration for the cost of service/rate setting dialogue. The determination of an appropriate cost of service methodology also must consider other overarching rate objectives of rate making including encouraging efficient use of electricity, rate stability and understandability and feasibility in application:[27]

- *Cost of service methodologies that incorporate marginal costs in establishing cost responsibility and/or developing allocation factors are more likely to produce results that are compatible with the efficiency objective of ratemaking as are methodologies that consider cost causality based on current requirements and system operations as compared to ones that focus on the original intent or purpose of an investment*

- *If rates are to be to stable, then the cost of service methodology should not lead to unnecessary year to year volatility in the revenues to be recovered from each customer class. This would suggest preference should be given to cost of service methodologies that track trends in changes in system use and requirements over time as opposed to those that overly focus on use and requirements in a specific year*

- *Issues of practicality such as feasibility of application, understandability and public acceptance can also come into play when establishing a cost of service methodology. The cost of service methodology should be relatively easy to execute. The more complex a methodology is the more expensive it generally is to execute and the more difficult it*

25 Appendix 5, page 23. See also 2005 COSS Review, PUB/MH II-9 a)

26 In this respect, the Coalition respectfully takes issue with *Board Order 117/06*, p. 57 where the Board stated: *Noting the significance of the COSS, the Board prefers that the model be based on median water flows, export revenues consistent with average reservoir levels for the start of the fiscal year forecast and unit export prices reflective of "normal" conditions. While domestic consumption and prices as well as MH's costs are somewhat predictable over the medium term, export revenues and net export revenue varies considerably while being largely outside the control of MH*

27 Harper, June 10, p. 18 - 19

often is to understand. As a result, there are trade-offs to be made between the perceived benefits (e.g., in terms of accuracy) and the costs involved (in terms of both dollars/time and public acceptability/understanding). Public acceptability and understanding requires that the methodologies used should be free from controversy in terms of the data used and how they are applied

The Importance of Regular Data Updates and a Robust Model

25. There is general agreement[28] that one of the standards for a Cost of Service Study is fairness and equity. Discussions regarding fairness and equity have tended to focus on cost causality and how cost causality should be determined. However, understandability and acceptance is another fundamental dimension of fairness.

26. If regulators and customers cannot readily follow the Cost of Service Study in terms of how the costs in the revenue requirement are allocated to customer classes, they are not in a position to either properly comment on a proposed the cost of service methodology or confirm that the methodology approved by the regulator has been properly implemented.

27. A robust cost of service model that starts with the revenue requirement and that transparently includes each step involved and the data used in the subsequent functionalization, classification and allocation of costs to customer classes is critical.

28. In terms of data used, just as the costs input to the Cost of Service Study should be those reflective of what the regulator ultimately determines is appropriate to recover from customers in test year, it is important that the other data used for purposes of allocating the costs to customer classes is reflective of current circumstances.

29. To this end, utilities use the customer count, energy and demand forecasts underpinning the revenue requirement and regularly update their load research data. Similarly, it should be expected that utilities will regularly update any other allocation factors used in the Cost of Service Study to ensure they too are reflective of current circumstances.

30. Without such updates customers are less likely to view the results as being reflective of current circumstances and, therefore, less likely to accept them as being fair and equitable.

31. As evidenced by the information summarized in Appendix A, a significant concern is the aged data relied upon by Manitoba Hydro with regard to the distribution function. Important areas of data related to more than $200 M of distribution assets and activities have not been updated for a quarter of a century[29]. Data limitations identified by different Intervenors, suggest that important data improvements should be undertaken before the Hydro Cost of Service study can reliably be used for rate setting purposes.

28 MIPUG Evidence, page 17; GAC Evidence, page7; Coalition Evidence, page 17; LEI Evidence, page 4 and Manitoba Hydro's Submission, page 7
29 Please see Appendix A - RECOMMENDED/ACKNOWLEDGED AREAS REQUIRING DATA IMPROVMENTS

E. Preliminary Observations on the Weight to be Accorded the Evidence of Mr. Harper

32. Until the evidence portion of this hearing is completed, it is premature to draw conclusions on the weight to be accorded to the evidence of any of the witnesses in this proceeding. The Coalition reserves the right to offer further commentary on witness credibility in its final September submissions.

33. The Coalition has observed that the objectivity of certain experts was undermined by their loss of objectivity in the hearing workshops. But in the respectful view of the Coalition, these concerns do not apply to Mr. Harper.

34. Mr. Harper was expressly retained by the Coalition to provide independent advice to the Public Utilities Board.[30] In the Coalition's view, his evidence to date demonstrates fidelity to that role. Mr. Harper:

- brings extensive practical Canadian experience to Cost of Service deliberations. He offers insight both as a former utility insider and from his experience in many COSS proceedings in many different provinces
- offered an insightful commentary on Hydro's Cost of Service methodology including the identification of numerous opportunities to update the data and improve the model
- offered commentary during the workshops that was more analytical and less positional than a number of the other experts
- showed openness to positions of other witnesses that took a different approach than in Mr. Harper's June 10, 2016 evidence (ie Mr. Chernick's suggestion that transmission and sub-transmission costs are complimentary rather than incremental)[31]
- did not stray into the adversarial cross examination of a number of the other experts during the workshop
- has demonstrated that he is prepared to take positions that are not consistent with his client's financial interest[32]

35. From the perspective of the Coalition, the breadth and complexity of the questions put to Mr. Harper during the Workshop by all hearing participants demonstrates their comfort with his insight, his openness to other views and his independence. The evidence of Mr. Harper also has found considerable support from other hearing participants.[33]

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30 Harper, June 10, 2016, p. 13, fn 27: *Opinion evidence that is fair, objective and non-partisan and within the area of the consultant's expertise*

31 June Tr. at 401–403

32 For example, as confirmed in MH Rebuttal Table 9, Mr. Chernick's recommendation that substations be allocated using the CP factor (as opposed to NCP) tend to to benefit residential customers. Mr. Harper concurred with MH's use of NCP. As confirmed in MH Rebuttal Table 9, Mr. Chernick's recommendation that poles and wires demand costs be allocated using CP (as opposed to NCP) tend to to benefit residential customers. Mr. Harper concurred with MH's use of NCP.. Impact of this and previous recommendation set out in MH Rebuttal Table 9.

33 For example: 1) Need to subfunctionalize Poles and Wires into primary and secondary subfunctions (as opposed to adjusting the demand allocators as it currently does/proposes) (Harper, p. 77, Chernick Evidence – p. 60-61) 2) Need to update the 30% values MH uses as the Secondary portion of Poles and Wires (Harper, p. 77, Chernick Evidence – p. 59) 3) Need to account for the fact that a large number of Residential customers are in

F. Particular Areas of Focus

36. Mr. Harper provided extensive written evidence on June 10, 2016 and August 5, 2016. Rather than re-summarize his positions, the Coalition has set out a summary of his recommendations in Appendix B to these submissions along with references to where these recommendations appear in his evidence. The Coalition endorses the recommendations found in Appendix B.

37. This section focuses on four areas of particular focus. Some demonstrate the nuanced approach to Cost of Service methodology brought by Mr. Harper and endorsed by the Coalition. Others highlight issues of particular interest to the Coalition members. The Particular Areas of Focus include:

- the treatment of wind and coal assets
- whether transmission and sub-transmission are complimentary or incremental
- treating primary and secondary poles and wires facilities as distinct sub-functions
- the merits of allocating distribution substation and poles and wires using NCP versus CP

<u>A Nuanced Approach to the Treatment of Wind and Coal Assets</u>

38. The approach of Mr. Harper and the Coalition to the proposed treatment of Wind and Coal assets offers insight into:

- the reality that in certain circumstances of limited materiality it is appropriate to allow considerations such as feasiblity of application to take precedence over considerations of "cost causality" (the treatment of coal)
- the importance for determinations of "cost causality" to consider a wider definition of cost driver taking into account system planning considerations rather than simply the operating conditions underpinning the revenue requirement (the treatment of wind)

39, As set out in Table 1, under the Approved COSS, coal costs are assigned half to the single export class (currently approved) and half to the domestic pool. Wind power purchases are assigned directly to the single export class.

Apartments and do not have individual service drops (Harper, p. 79, Chernick, p. 67-68), 4) Need for transparency in the COSS (Harper, p. 91 model improvements, Chernick, p. 69)

Table 1
Allocation of Wind and Coal Thermal Assets under Approved COSS

	Domestic Pool	Single Export Class
Wind power purchases	No	Yes - Directly Assigned to Exports
Thermal Plant Costs & O&M (including coal)	50%- Pool	50% - Exports

40. Hydro's proposed COSS approach sub-functionalizes Generation into two pools:

- one of which consists of Generation cost that are to be allocated to all domestic load plus dependable exports sales, and
- a second which consists of those costs that are to be allocated to all domestic load and all exports (including both dependable and opportunity exports).

41. Table 2 outlines Manitoba Hydro's proposed treatment of coal assets and wind power purchases.

Table 2
Proposed Allocation of Wind and Coal Thermal Assets by Manitoba Hydro

	Domestic	Dependable Export	Opportunity Export
Wind Purchases	Yes	Yes	No
Coal Thermal	Yes	Yes	No

42. As compared to the current methodology which assigns coal costs half to the export class and half to the domestic pool, Hydro's proposed approach assigns these costs to the pool of Generation cost that are to be allocated to all domestic load plus dependable exports sales. None of these costs are assigned to the proposed Opportunity Export class.

43. As compared to the current methodology which assigns all wind costs to exports, the effect of Hydro's proposals on Wind Purchases is to assign these costs to the pool of Generation cost that are to be allocated to all domestic load plus dependable exports sales.

<u>Coal and Feasibility of Application versus Cost Causality</u>

44. At first glance, the allocation of any of the costs of Coal Thermal to a pool that includes Dependable Export might seem inappropriate given the recent passage of *The Climate Change and Emissions Reductions Act*[34] which prohibits the use of coal to generate power except to support emergency operations.

45. In effect, coal can no longer be used to support exports.

34 C.C.S.M. c. C135, s. 16.

46. A case can be made that Coal Thermal costs should be allocated entirely to the domestic customer classes. Indeed, Mr. Bowman suggests that:[35]

> *now that the legislative restrictions are in place, it would appear to meet the PUB's directive and appropriate COS practice that Brandon coal no longer be allocated to exports.*

47. Both Manitoba Hydro and Mr. Harper[36] have acknowledged that it would be analytically appropriate to assign coal[37] generation[38] only to the Domestic class.

48. However, both take the position that given the minimal impact such a change is likely to have, the benefits of adhering to the principle of cost causality are outweighed by the complexity of introducing a separate pool and allocation for these costs.[39]

49. As Mr. Harper observes:[40]

> *the added complexity of assigning thermal generation to just domestic load extends well beyond the need for a third pool for Generation costs. If thermal generation is to be assigned solely to the domestic classes then the allocators for the domestic classes used to assign the balance of the generation costs between domestic classes and dependable exports would need to be adjusted in some manner to account for the fact that a portion of their service requirement are being met by thermal generation.*

Wind and a More Considered Application of Cost Causality

50. In a hydro-based system, variations in water flows can lead to significant variations in how the system is operated.

51. Under median water flow conditions, purchased power is likely to be used primarily to support/facilitate exports. As confirmed in a Hydro response to PUB information request, under low water flow conditions significant reliance may be made on purchases to support domestic load.[41] Given this reality, Hydro's planning of investment decisions must take into account the full range of likely operating conditions.

52. An analytically sound approach to "cost causality" must examine the benefits provided by an investment or service activity under the full range of likely operating conditions and not just the operating conditions underpinning the revenue requirement to be used in determining the rates.

53. Manitoba Hydro cannot pick and choose at which time the wind blows. Wind purchases are not typically dispatchable. At any given time, wind purchases contribute to the overall supply of energy that is used to meet both domestic and export loads.[42]

35 Bowman, June 10, 2016, p. 37, line 8 - 10
36 Harper, June 10, 2016, p. 55 - 57
37 Submission, page 4. See also May Workshop, page 177
38 May Workshop, pages 178-179
39 Submission, page 4 and Coalition/MH I-63 a)
40 Harper, June 10, 2016, p. 57
41 Appendix 5, page 23. See also 2005 COSS Review, PUB/MH II-9 a)
42 PUB/MH I-36 d)

54. Consistent with a more considered application of the principles of cost causality, it is reasonable to allocate the costs for wind purchases to more than just the Export class.

55. Both Manitoba Hydro[43] and Mr. Bowman[44] propose that wind purchases be allocated to both domestic load and exports. However, while Manitoba Hydro recommends that wind purchases be included in the generation pool and treated similar to other generation resources, Mr. Bowman recommends that they be classified as energy-related and allocated using a weighted energy allocator.

56. While wind energy does not provide any dependable capacity to the Manitoba Hydro system the separation and separate treatment of wind would add complexities to the cost of service study in that:

> i) the balance of the generation costs between domestic classes and dependable exports would need to be adjusted in some manner to account for the fact that a portion of their service requirement are being met by thermal generation, and
>
> ii) a separate weighting energy factor would need be developed that did not include any consideration of capacity costs.

57. In addition, Manitoba Hydro's system is designed and operated such that the total of all generation resources meet dependable capacity and energy requirements. Given these considerations the treatment proposed by Manitoba Hydro of including wind purchases in the overall generation pool is appropriate.

Are Transmission and Subtransmission Complimentary or Incremental?

58. In his June 10, 2016 evidence, Mr. Chernick raised concerns that Manitoba Hydro does not allocate any share of subtransmission to the General Service Large class served at voltages over 100 kV. [45] Mr. Chernick suggests that Hydro's subtransmission functionalization was leading to "the double-charging of most customers" taking into account his view that "subtransmission equipment replaces the pricier high-voltage equipment in areas where that is feasible."[46]

59. In essence, Mr. Chernick suggests that transmission (>100 kV) and sub-transmission (33 kV and 66 kV) are a unitary system and should be combined for purposes of the cost of service study. He views sub-transmission as an economic alternative to transmission and observes circumstances where each serve different parts of the province.[47]

60. The issue of whether transmission and sub-transmission are complimentary or incremental offers insight into the varying perspectives that can be taken on cost causality. It also raises material considerations relating to the Cost of Service methodology that cannot be resolved based on the record of this proceeding.[48]

61. Mr. Harper indicated in his evidence that the treatment of subtransmission in Amended PCOSS14 "is consistent with industry norms".[49] However, in the Intervenor workshop he suggested that the

43 Submission, p. 17
44 Bowman, June 10, p. 6
45 p. 37
46 Chernick, August 5 Rebuttal, p. 20
47 Chernick, June 10, 2016, p. 39
48 For example, Table 8 to Hydro's Rebuttal Evidence would appear to sugges that adopting this approach would improve the Residential RCC by 0.8%
49 Coalition Evidence at 74

unitary system approach was “intriguing” and “worth exploring”.[50]

62. In its July 29th rebuttal evidence,[51] Manitoba Hydro acknowledges there are parts of the province where load is served without grid transmission and other parts where load is served without the use of sub-transmission facilities.

63. However, Hydro supports the separation of transmission and sub-transmission based on the fact that the most normal case is that distribution stations and customers served by the sub-transmission system are also served upstream by the main grid transmission system.

64. Hydro also argues in favour of the separation because customers receiving service at voltages > 100 kV must bear the cost of transformation to their utilization voltage. However, while this later point may support the need to separate out the cost of transformer stations that step power down from transmission to sub-transmission voltages, it does not address the question of whether or not sub-transmission lines should be separated.

65. Ultimately, when it comes to the lines portion of sub-transmission Manitoba Hydro has not addressed Mr. Chernick’s principle argument for combining Transmission and Sub-Transmission which is that the latter is used as an economic alternative to the former.

66. Indeed, parts of Manitoba Hydro’s rebuttal appear to support this premise:[52]

- parts of the province are served just by sub-transmission lines while other parts are serve without the use of sub-transmssion lines, and

- Hydro's description of sub-transmission as being facilities where power flow is radial (i.e. “moving power from the grid”) is striking similar to it description of radial transmission (i.e. non-tariffable transmission) as facilities where “power flows in only one direction and toward load”

67. The issue of whether transmission and subtransmission form a unitary or incremental system cannot be resolved on the record of this proceeding. There is need for more complete discussion and consideration of Mr. Chernick’s views regarding the complementarity of transmission and sub-transmission, particularly in terms of lines. Manitoba Hydro should be directed to fully address the question as to whether sub-transmission lines is as used as an economic alternative to transmission.

<u>Treating Primary and Secondary Poles and Wires Facilities as Distinct Sub-Functions</u>

68. The Distribution Plant function is sub-functionalized into six categories one of which is Pole, Wire and Related Facilities.[53] Pole, Wire and Related Facilities account for $140.6 M or roughly 8 percent of the revenue requirement.[54]

69. This issue is significant given its contribution to the revenue requirement and the fact the

50 June Tr. at 401–403
51 p. 28-29
52 MH Rebuttal, page 27, lines 9-18
53 Appendix 3.1, pages 27 and 64
54 See Appendix A to this submission

underlying analytical data has not been updated in a quarter of a century.[55] It suggests there are material issues related to the distribution function that require attention from Manitoba Hydro before the COSS can be employed for rate setting.

70. Some customers only require primary facilities (e.g., GSL 0-30 kV customers). However, in defining Distribution Plant and its proposed sub-functions, Hydro has not distinguished between primary and secondary distribution facilities.

71. Since the adjustment to the allocation factors is based on Manitoba Hydro's estimate that costs for Distribution Poles and Wires are split 70/30 between primary and secondary there is no reason why this cost split could not have been applied to the total costs of these facilities in order to sub-functionalize them into Primary and Secondary sub-functions.[56]

72. Manitoba Hydro acknowledges that this adjustment would slightly change the allocation of costs to customer classes.[57] Separating the costs between primary and secondary also is desirable because it would eliminate a number of the adjustments that are now required to the allocation factors.

73. A related issue is the fact that the 70/30 split is based on an assessment undertaken 25 years ago in 1991.[58] It is likely that Manitoba Hydro's distribution system has changed materially since then particularly given the subsequent acquisition of Winnipeg Hydro.

74. Given that Pole, Wire and Related Facilities account for $140.6 M of the revenue requirement,[59] it would be prudent for Manitoba Hydro to investigate ways of updating this percentage split used for primary/secondary costs.

<u>The Merits of Allocating Distribution Substation and Poles and Wires using NCP versus CP</u>

75. Manitoba Hydro proposes that Distribution Substations be classified as 100% demand-related and allocated using the NCP (Non-Coincident Peak) demand for each customer class.[60]

76. Mr. Chernick recommends that Manitoba Hydro undertake an analysis of the contribution of each customer class to the most constrained load on each substation and allocate the cost of substations accordingly.[61] Recognizing that Manitoba Hydro does not likely have all the data required to perform such an analysis, Mr. Chernick recommends (as a default) that Distribution Substations be allocated using a 2 CP factor with summer weighted about 50%.[62]

77. During the June Workshop[63] Mr. Chernick was asked to comment on the fact that the NARUC Cost Allocation Manual supports the use of NCP to allocate Distribution Substation costs and that it is not uncommon for utilities to use NCP. In his response, Mr. Chernick noted that NCP was an old technique and that the NARUC Manual was "showing its age".

55 See Appendix A to this submission
56 Chernick, June 10, 2016, p. 30, Mr. Chernick agrees with Mr. Harper on the desirability of a subfunctionalization of poles, wires and conduit between primary and secondary functions
57 Coalition/MH I-71 c)
58 PUB/MH I-49
59 See Appendix A to this submission
60 Appendix 3.1, pages 27 and 71
61 Evidence, page 57
62 Evidence, page 58
63 P. 679-680

78. However, Mr. Chernick did not address the second part of the question with respect to the current practice of utilities. As noted in the Coalition's rebuttal evidence, both Mr. Bowman and Manitoba Hydro have made reference to a recent jurisdictional survey performed by Leidos in their discussions regarding the classification and allocation of generation costs.

79. This same survey also addresses the cost of service methodologies currently used by utilities with respect to Distribution costs including Distribution Substation costs. The results of the survey[64] indicated that virtually all of the utilities[65] reporting their practices regarding Substations used NCP as their allocator. This would suggest that utility practice regarding the allocation of Distribution Substations is still in line with the NARUC Manual and Manitoba Hydro's proposed use of the NCP allocator is reasonable. However, it is also noted that the actual NCP allocator used by these six utilities varies, with three using a 1 NCP allocator and 3 using a 12 NCP allocator.[66]

80. As a result, since there is no clear evidence as to whether CP or NCP is the more appropriate allocator, there would be merit in Manitoba Hydro further assessing (through analysis of the timing of Substation peaks and its load research data regarding customer class monthly load profiles) whether a CP based allocation factor or an NCP allocation based on more than a single value would be more reasonable

Allocation of Poles and Wires

81. Similar to the situation with respect to Distribution Stations, Manitoba Hydro proposes to allocate the demand-related portion of Distribution Poles and Wires using 1 NCP; whereas Mr. Chernick recommends[67] the cost of primary poles and wires be allocated using a 2 CP approach with a 50% weighting for summer. Mr. Chernick's rationale is that many feeders serve more than one class and that even feeders serving primarily a single class peak at different times.

82. Again, while Mr. Chernick's rationale would suggest that NCP is not a perfect allocator for these costs it also suggests, since primary lines will peak at different times, that an allocation using a CP allocator would not be entirely appropriate either.

83. Both the NARUC Manual and the recent jurisdictional survey undertaken by Leidos[68] indicate that most utilities favour using NCP as the allocator, suggesting that Manitoba Hydro's use of an NCP allocator is reasonable.

84. However, again, it is noted that the actual NCP allocator used by these utilities varies with some using 1 NCP allocator while others use a 12 NCP allocator.

85. As a result, since there is no clear evidence as to whether CP or NCP is the more appropriate allocator, there would be merit in Manitoba Hydro further assessing (through analysis of the timing of feeder peaks and its load research data regarding customer class monthly load profiles) whether a CP

64 See Leidos, Attachment A, pages 3-13 and C-13.
65 It should be noted that one of the utilities was Manitoba Hydro
66 The 1 NCP allocator would be based on the each class' maximum demand during the year, whereas the 12 NCP allocator would be based on the average of the 12 monthly NCP values. Also, it should be noted that one of the 3 utilities reported as using 1 NCP is Manitoba Hydro.
67 Evidence, page 58. Note – It is not immediately clear from the record whether Mr. Chernick proposes to also allocate secondary lines (which he would classify as 100% demand-related per June Workshop, page 640) using a CP or NCP allocator.
68 See Attachment A, pages 3-14 and C-14

based allocation factor or an NCP allocation based on more than a single value would be a more reasonable allocation factor for the demand-related portion of Distribution Poles and Wires.

G. Conclusions

86. There is significant unfinished business related to the COSS. Given the status of the COSS on the sub-transmission and distribution side, even if the PUB is able to come to conclusion on G&T the COS will not be in sufficient shape to be used for rate setting at the next GRA.

87. While it is reasonable to be disappointed in the current state of the record and frustrated by the “unresolved conflicts about 'fair' cost apportionment”, there are reliable voices in the COSS process who are committed to providing independent advice to the regulator.

88. Over the course of the hearing to date, it has become clear that some witnesses:

- bring more to the table in terms of experience and nuance
- were more trusted than others during the technical workshop with all parties seeking their input and advice
- did not stray into the adversarial cross examination of other experts during the workshop
- are more analytical and less positional
- have not lost their objectivity
- are prepared to take positions that are not consistent with their client's financial interest

89. The Coalition sees merit in placing significant weight upon the advice of those witnesses.