

MANITOBA PUBLIC UTILITIES BOARD

MANITOBA HYDRO

2023/24 & 2024/25 GENERAL RATE APPLICATION

Evidence Prepared By

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On Behalf of

The Consumers Coalition

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1.0 EXECUTIVE SUMMARY

A summary of the key conclusions of the evidence in the sections that follow includes:

1. Perspective 1 considers that despite the slightly wider dispersion of RCCs flowing from PCOSS24, compared to PCOSS21, PCOSS24 is based on an anomalous record level of NER which is forecast by MH to decline such that the RCCs for most classes will reasonably self-correct within the 5-year rate differentiation period assumed by MH in its rate proposals. This perspective does not support a mechanistic approach to differentiating rates that may result in an overshooting of RCCs under the MH rate differentiation proposals;
2. Perspective 2 considers that the results of PCOSS24 suggests that class RCCs for MH have by far the tightest range compared to other vertically integrated Canadian electric utilities which is quite favourable for MH, despite the doubling of Manitoba Hydro's balance sheet in the last 10 years, significant year over year RCC volatility, and in the absence of rate differentiation; and
3. Perspective 3 suggests that MH's rate differential proposals based on the output of PCOSS24 result in a spurious outcome for the Residential class. A balanced weighting of ratemaking objectives of fairness and equity, economic efficiency and public acceptability, in addition to cost causation as directed in Order 164/16, suggests an across-the-board rate increase is appropriate and reasonable. The nearly 1% rate differential spread between the Residential class and the GSL class is not justifiable.

MH's proposal to essentially ascribe 100% weight to only cost causation as reflected in the output of PCOSS24 ignores the weighting of these other important ratemaking considerations that the PUB policy in Order 164/16 directed be considered in the rate design phase of ratemaking.

The deficiencies in MH's rate differentiation proposals include: (i) not considering the overall bigger picture of a large vertically integrated electric utility with billions of dollars of common costs to be allocated; (ii) an anomalous circumstance with record levels of NER and the largely self-correcting situation that RCCs will move into or close to the ZOR within a short period of time; and (iii) failure to consider rate design principles of fairness,

equity, efficiency and public acceptability. As per Order 164/14, these considerations are appropriately weighted in the Rate Design phase.

In these circumstances and with a nearly 1% rate differential spread between the residential class and the GSL class (that is, 2.4% - 1.5%) on MH's 2% overall revenue increase request cannot be justified when providing weight to considerations other than PCOSS24.

A more reasonable weighting of these factors in the balancing of rates between classes would provide a certain degree of weighting of the mechanical output of PCOSS24, the extraordinary financial circumstances in this GRA and other fundamental ratemaking principles discussed above. On this basis, the conclusion of this evaluation is that an across-the-board rate increase is recommended to the PUB.

2.0 INTRODUCTION & OVERVIEW OF MH'S 2023/24 & 2024/25 GENERAL RATE APPLICATION

This Section of the Evidence provides a summary of MH's GRA proposal as it pertains to Cost of Service and Rate Design, a brief overview of the qualifications and duties to the PUB of Ms. Derksen and outlines the purpose, scope and organization of the Evidence.

2.1 Summary of MH's 2023/24 & 2024/25 General Rate Application

As part of its Application, Phase II, dated December 21, 2022, Manitoba Hydro ("MH") is requesting approval of a 2.0% rate increase for both the 2023/24 and 2024/25 Test Years to be applied on a differentiated basis by customer class, except for Diesel General Service. For Diesel General Service customers, MH is proposing no rate change. For the Residential Class, MH is proposing a 2.4% increase for both Test Years, which results in nearly a 0.5% greater than average increase over the two test years. The proposal results in a requested Residential class revenue increase of nearly \$40 million and represents about 54% of the total overall revenue increase. MH has proposed to apply the 2.4% equally to the Monthly Basic Charge and Volumetric Rate for the Residential Class.

While MH is proposing an overall 2% increase in General Consumers Revenue in both Test Years, it is proposing differentiated revenue increases for other customer classes that range from 1.0% to 2.1% as shown in the table below:

Table 1:

Class	Proposed 2023/24 Revenue Increase	Proposed 2024/25 Revenue Increase	Total Increase	Proposed Rev Increase 2023/24	Proposed Rev Increase 2023/24	Total Proposed Rev Increase	% of Total Rev Increase
Residential	2.40%	2.40%	4.80%	19,505	19,865	39,370	53.5%
GSS ND	1.00%	1.00%	2.00%	2,060	2,070	4,130	5.6%
GSS D	2.10%	2.10%	4.20%	3,135	3,233	6,368	8.7%
GSM	2.10%	2.10%	4.20%	4,885	4,976	9,861	13.4%
GSL 0-30	2.10%	2.10%	4.20%	2,579	2,643	5,222	7.1%
GSL 30-100	1.50%	1.50%	3.00%	1,569	1,592	3,161	4.3%
GSL>100	1.50%	1.50%	3.00%	2,476	2,454	4,930	6.7%
ARL	1.00%	1.00%	2.00%	263	267	530	0.7%
				36,472	37,100	73,572	100%

MH is proposing the same differentiated rates to apply for both Test Years and the basis of MH's requests appears to include that:

1. It is required to differentiate rate increases by class as directed in Order 59/18 to move class revenue to cost coverage ratios ("RCCs") into the zone of reasonableness ("ZOR");
2. The proposed rates also considered that PCOSS24 included a record level of export revenues;
3. MH saw no advantage to determining separate increases for the second test year when the same underlying factors were considered as the first test year;¹
4. Migration into the ZOR is important to achieving the desired rate objective of reflecting the cost to serve; and
5. Moving classes into ZOR will provide greater flexibility to address future changes that may need to adapt to future policy, system, or economic changes.

This evidence will analyze the reasons for MH's proposal of differentiated rate increases by class from the following perspectives:

1. The role of cost to serve flowing from PCOSS24 in the rate-setting process and considerations of ratemaking objectives in the depiction of class cost to serve;
2. Instability in class cost to serve resulting from the profound impacts flowing from the addition of generation and transmission investment and record levels of export revenue.

¹ Coalition/MH IRI – 155

2.2 Overview of Ms. Derksen's Qualifications & Duties to PUB

Through a joint regulation consulting practice, Mr. Rainkie and Ms. Derksen provide services to a wide range of clients that participate in and are impacted by rate-regulation and regulatory proceedings. In this proceeding, Ms. Derksen is providing evidence on behalf of the Consumers Coalition (Consumers' Association of Canada (Manitoba Branch), Harvest Manitoba and the Aboriginal Council of Winnipeg).

Ms. Derksen has over 25 years of hands on and multi-faceted expertise in energy regulation and ratemaking, with demonstrated experience providing clients with advice that is theoretically sound, practical, and sustainable. She specializes in providing public utility regulatory services to clients, with an emphasis on utility ratemaking philosophy, cost of service and rate design matters.

Ms. Derksen has a deep specialization in utility ratemaking, progressively taking on more senior responsibilities from regulatory to rate analyst, to managerial roles with Manitoba Hydro and Centra Gas, and since 2018, as an independent expert utility ratemaking consultant.

Her experience relevant to the evidence provided in this proceeding includes senior level public utility experience (as a former Manager, Gas Regulation between 2005 and 2008 and Manager of Cost of Service & Rates from 2008 to 2017), developing ratemaking objectives and regulatory strategy, leading cost of service study methodological reviews, directing the preparation of electric cost of service studies and rate design proposals and translation of overall revenue requirements into class revenue requirements and rates, consistent with corporate rate strategy.

Since 2018, Ms. Derksen has provided client advice in a number of Canadian jurisdictions on a variety of topics with themes consistent with MH's current GRA including inter-company cost allocation, the rate consequences of large capital additions, rate policy related to decarbonization, marginal cost-based ratemaking, and customer contribution policy to name a few.

In this regulatory proceeding, Ms. Derksen led the evaluation of MH's cost of service and rate design proposals and preparation of evidence on behalf of the Consumers Coalition. Ms. Derksen has testified before the PUB on multiple occasions over the last two decades, as a rate policy and subject matter witness for MH and Centra Gas and as an independent expert witness. Ms. Derksen's full curriculum vitae is attached as **Appendix A** to this Evidence.

Duties to the PUB and Independence

Ms. Derksen acknowledges that in accordance with her retainer by the Consumers Coalition, that she has a duty to provide evidence that is fair, objective and non-partisan, related only to matters within her areas of expertise and to provide such additional assistance as the PUB may reasonably require to determine issues.

3.0 IN ORDER 164/16, THE PUB DIRECTED THAT RATEMAKING OBJECTIVES OTHER THAN COST CAUSATION ARE TO BE CONSIDERED AS PART OF THE RATE DESIGN PHASE AT A GRA

3.1 Cost of Service & Rate Design are Important for Rate-Setting to Apportion a Utility's Revenue Requirement between Classes and Customers

The determination of a utility's rates involves three sequential phases including revenue requirement, cost of service, and rate design. The first phase focuses on the determination of the overall revenue requirement, or the overall rate level of the utility. In this first phase, consideration is given to the reasonableness of the forecast of customer energy, peak load, as well as the utility's operating, and capital costs. The focus is on whether the overall utility costs and forecasts are reasonable, necessary, and prudently incurred in the provision of utility service.

In the second phase of ratemaking, the utility's established revenue requirement (i.e costs) is allocated to each of its customer classes through the preparation of a cost allocation study.

The third phase of ratemaking considers the recovery of the level of costs allocated to each customer class and how such costs will be recovered through rates charged by the utility.

Cost Allocation and Rate Design play important roles in the ratemaking cycle as these phases may be used to determine how the overall approved rate increase is assigned to each customer class and the specific rates that allow for the utility the opportunity to collect its overall allowed revenue requirement.

It is accepted by regulators that a utility's cost allocation methodology and approach to rate design should be based on a set of clearly enunciated principles. The establishment of ratemaking objectives are important in order to set the ratemaking strategy and philosophy of the utility. These principles then guide the work that is undertaken to

allocate assets and expenses to customer groups appropriately and establish rates that recover those costs from customers in a manner that is consistent with the established principles.

Bonbright Ratemaking Principles:

As a matter of ratemaking theory, the most commonly used reference for defining these ratemaking principles is the seminal work of James Bonbright², which sets out ten attributes of a sound rate structure condensed as follows:

Revenue Related Attributes:

1. Effectiveness in yielding total revenue requirements without any socially undesirable expansion of rate base or level of product quality or safety;
2. Revenue stability and predictability, with a minimum of unexpected changes seriously adverse to utilities;
3. Stability and predictability of rates, with a minimum of unexpected changes seriously adverse to ratepayers, and with a sense of historical continuity.

Cost-related Attributes:

4. Static efficiency of rate classes and rate blocks in discouraging wasteful use of the 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 by ratepayers (on-peak vs. off-peak service or higher vs. lower quality service);
5. Reflections of all present and future private and social costs and benefits occasioned by the service's provision (i.e., all internalities and externalities);
6. Fairness of the specific rates in the apportionment of total cost of service among ratepayers, so as to avoid arbitrariness and capriciousness;
7. Avoidance of undue discrimination in rate relationships so as to be, if possible, compensatory (i.e., subsidy free with no inter-customer burdens);
8. Dynamic efficiency in promoting innovation and responding economically to changing demand and supply patterns.

Practical-related Attributes:

9. Related attributes of simplicity, certainty, convenience of payment, economy in collection, understandability, public acceptability, and feasibility of application;
10. Freedom from controversies as to proper interpretation.

² Second Edition, Chapter 16 pages 383-384

The Bonbright criteria do not include a specific reference to competitive rates, only that rates that are efficient and encourage economic use. However, maintaining competitive rates could be viewed as a public acceptability/public policy consideration.

There is generally no hierarchy for these principles, other than the objective of meeting the approved annual revenue requirement, as the relevance and weight given to these principles vary with the circumstance and context of a utility and regulatory application. Many of the goals of ratemaking are conflicting and informed judgement is required to obtain a compromise.

Cost of Service and Cost Causation:

In the second phase of ratemaking, the utility's established revenue requirement is allocated to each of its customer classes through the preparation of a cost allocation study. A Cost-of-Service Study (COSS) is a method of allocating a utility's cost to the various classes of customer that it serves. Its purpose is to estimate a fair sharing of the utility's revenue requirement among the customer classes. Cost allocation looks at costs and estimates what and who is causing the costs to be incurred by the utility.

It is important to note that cost of service studies do not look to allocate only the incremental rate increase sought by a utility (in the case of the current proceeding, Manitoba Hydro's requested 2.0% overall revenue increase in both Test Years), but rather, it looks to analyze a utility's full revenue requirement and associated capital investments.

Manitoba Hydro's cost of service study is based on embedded costs of a single test year which are based on a forecast of costs based on the book value of the utility's assets, in other words, its established revenue requirement or overall cost to serve. The costs that flow from a COSS represent the average to serve all customers in a rate class or subclass based upon funds historically invested in plant in service. Manitoba Hydro's COSS is a Prospective Study. That is, while historic investment has a significant role in determining the costs, the study uses forecast costs for the next fiscal year. This provides a basis for

testing rates that are proposed for the next fiscal year. Thus, cost of service studies are always prepared on the basis of a single test year – in other words a COS study is done on a “snapshot basis”.

It should also be noted that Cost Allocation is a “zero-sum game”. This means that to the extent that costs are shifted away from one customer class resulting in lower rates for that class, those costs are picked up by other customer classes resulting in higher rates for those classes such that the utility’s established revenue requirement is intact. If it is determined that certain customers (or customer classes) are exempt from any rate increase granted by the PUB, the loss of revenue that would otherwise occur must be recovered by another class or classes.

Rate Design and Ratemaking Objectives:

The outcome of a cost allocation study and its supporting analysis may be used in the determination of the third phase of ratemaking known as “Rate Design”. There are two roles of Rate Design; i) consideration is given as to whether there is sufficient evidence to justify a differential rate change. In other words, Rate Design considers the appropriate level of revenue to collect from a customer class; ii) Rate Design also considers the design of rates (rate forms) and how the revenue of a class will be recovered from within a customer class.

The role of Rate design is to find the optimal balance of competing ratemaking objectives.

3.2 A ZOR is Used to Evaluate the COS Results Recognizing that COS Only Provides An Approximation of the Cost to Serve by Class and the Judgement Involved

The results of the cost-of-service study indicates the degree to which the rate class’s revenue recovers allocated costs. Although the COS study has the appearance of exactness, it does not disclose the actual cost of serving a particular customer or group of customers within a customer class, it only provides an approximation of such costs.

This is because there are many judgements involved in the process of classifying and allocating costs, particularly those costs related to capital investment. There is no one right way of allocation, the objective for the utility is to select a method which best represents cost causation and the equitable sharing of costs among the customer rate classes.

A COS study determines each class's share of the utility's overall revenue requirement which is then compared to the revenues forecasted to be collected from each class called a revenue to cost ratio ("RCC"). A class with revenues equal to their allocated costs would result in an RCC of one (i.e. 100%) or unity.

RCCs are not static. Each COS study uses the latest annual financial information and customer revenue and load data. As such, cost of service results vary from year to year for a number of reasons, including:

- Class Revenue Changes
- Class Revenue Requirement Changes, due to: (1) non-uniform escalation of generation, transmission, distribution & customer services costs (2) changes to cost of service methodology; (3) changes to class demand at system peak, and annual energy;
- Economic conditions;
- Unforeseen shutdowns; and
- Variations in weather patterns.

Because a cost-of-service study is only an approximation of the cost of providing service to a class, a Zone of Reasonableness ("ZOR") is used to evaluate the outcomes of the COS study. MH uses a ZOR of 95% - 105% such that if a class's revenues compared to their allocated costs fall (that is, the RCC) within the 95% - 105% ZOR, then it is accepted that the class is paying their cost to serve.

A ZOR is necessary given the existence of significant joint and common costs of a utility which results in significant economies of scale and infrastructure used by all or nearly all

customers it services. And, in the case of Manitoba Hydro, a utility that is vertically integrated, and predominantly hydraulic with significant fixed costs.

Other utilities, like Centra, also have significant fixed costs, but to a much lesser degree. This is because it does not own and operate production infrastructure, rather, it purchases a commodity. Centra's commodity purchases represent approximately 50% of its total costs, which are procured and recovered from customers on a volumetric basis and based on current market costs. Thus, a significant portion of costs incurred by Centra on behalf of its customers are variable and generally much less controversial from a cost-of-service perspective.

It is useful to review the RCCs and ZORs of Canadian electric vertically integrated utilities with similar scale and scope and generation and transmission common costs characteristics to that of MH including BC Hydro and Hydro Quebec. The following tables demonstrate the wide dispersion of revenue to cost coverages by classes.

BC Hydro³, based on its 2015 Rate Design Application, has a ZOR of 90% - 110% and RCC coverage ratios that range from 84% - 134% with the Residential hovering around 90% and at the time of the 2015 Rate Design Application, at 93.6%. That said, there appears to be legislation in place under Section 58.1 of the Utilities Commission Act that prohibits the BCUC from changes to class RCCs.

Table 2:

BC Hydro RCCs (%)	2008	2009	2010	2011	2012	2013	2014	2016
Residential	91.8	90.2	92.1	90.6	89.9	89.6	92.9	93.6
GS<35kW	123.8	123.3	124.3	123.5	126.2	126.4	123.5	111.6
MGS	106.2	110.8	109.1	110.4	120.5	120.9	119.5	120.5
LGS	106.2	110.8	109.1	110.4	105.2	102.2	101.5	100.8
Irrigation	83.4	80.9	84.6	78.3	88.3	85.0	90.3	84.5
Streetlighting	125	117.7	117.7	110.1	110.7	112.0	129.4	133.7
Transmission	100.1	99.7	96.4	99	102.5	105.3	97.3	101.4

³ 2015 Rate Design Application, September 24, 2015, pg. 281 of 536

Similarly, in Quebec, there is a wide dispersion of class RCC ratios that range from 84% for the Residential class to 125%. Rate rebalancing has been suspended since 1997 through provincial legislation.

Table 3:

Hydro Quebec	
Residential	84%
GSS ND < 65 kW	125%
GS Medium (demand) > 50 kW	125%
GS large (demand) > 5000 kW	125%
Large Industrials	116%

Accordingly, a ZOR is typically used by utilities to reflect the fact that there is uncertainty about the results of a COS study. Therefore, a cost-of-service study is used as a guide or benchmark when setting rates. In other words, a COS study by itself does not fully capture all the consideration that should be taken into account when setting class revenue requirement and rates.

3.3 MH's COS was in a State of Flux between Late 1990's and 2016

During the latter part of the 1990's, Manitoba Hydro began expressing concerns regarding the validity of the results of its COS study, despite the existence of a ZOR. MH articulated that the results of the COS study were becoming distorted due to the increasing significance of export revenues.

Manitoba Hydro expressed the concern that customer classes were receiving export credits based on an increasing marginal cost of energy while being allocated costs based on embedded cost of Generation and Transmission. This occurred because MH's Generation and Transmission investment costs were relatively stable at the time and resulted in allocated costs and related prices being below both the prices in deregulated wholesale markets into which Manitoba Hydro sells and also well below regulated prices in neighbouring Canadian and US jurisdictions.

For customer classes such as General Service Large (for whom Generation and Transmission represents the vast majority of costs) the export credit approach was, in effect, contributing to almost half their costs. For Residential and Small General Service customers, the NER offset was also substantial, but at 28%, much less than for General Service Large⁴.

The significance of these matters prompted numerous contentious reviews of Manitoba Hydro's cost of service methodology as well as related issues in 2002, 2004, 2005, 2008, 2009, and 2012. With MH's COS being effectively in a state of flux, rate changes were generally implemented on an across-the-board basis.

The last public review of Manitoba Hydro's COS methodology occurred in 2016, following the filing of a Manitoba Hydro COS Submission to the PUB in December 2015. The culmination of that proceeding resulted in the PUB issuance of Order 164/16 in which the PUB provided comprehensive policy direction to Manitoba Hydro as to the methodology to be used in preparing its COS study.

3.4 Order 164/16 Directed that Cost Causation is the Primary Principle to be Considered in COS

In Order 164/16⁵, the PUB found that the principle of cost causation is paramount in the establishment of cost-of-service methodology as follows:

“The Board finds that, in the process to determine the appropriate COSS methodology, the principle of cost causation is paramount.”

The Board also concluded that with the implementation of the methodology changes resulting from Order 164/16, MH had a valid, regulator-approved cost of service result⁶ and that it has discretion as to what, if any, use is made of the COS⁷.

⁴ MH PCOSS06, pg. 3

⁵ Order 164/16, pg. 27

⁶ Order 59/18, pg. 198

⁷ Order 164/16, pg. 16

It went on to find that while the cost of service should not necessarily be the overriding factor in designing rates, it is consistent with the ratemaking principle of fairness to consider the output of the Cost-of-Service study⁸.

3.5 Order 164/16 Directed that Fundamental Ratemaking Principles are to be Considered in Rate Design at a GRA

In Order 164/16⁹, page 27, the PUB found that fundamental Ratemaking Principles should be considered as part of Rate Design in the context of a GRA:

“Further, the Board finds that ratemaking principles and goals should not be considered at the COSS stage...The Board finds that Manitoba Hydro’s ratemaking principles and goals of rate stability and gradualism, fairness and equity, efficiency, simplicity, and competitiveness of rates should be considered in a General Rate Application (“GRA”)...”

It is useful to highlight some of the principles and observations as set out in the Board’s Order that underpin its findings to evaluate the appropriateness of Manitoba Hydro’s application of these principles to PCOSS24 and its resulting rate requests as follows:

Additional findings of the Board in Order 164/16 were as follows:

- Consistent with MH’s argument, the PUB found that there is no requirement for the PUB to rely on COS to fix just and reasonable rates, and is one element in arriving at its order¹⁰;
- MH’s purpose for including an Export class in COS is to achieve fairness and equity between customer classes. The Board’s view is that these concerns are more appropriately considered and, if necessary, addressed in the context of ratemaking in a GRA¹¹;
- The Board finds that marginal cost considerations are more appropriately addressed in the rate design stage of ratemaking; and
- Consideration of RCCs is a rate design matter to be addressed in a GRA¹²; and

⁸ Order 59/18, pg. 198

⁹ Order 164/16, pg. 27

¹⁰ Order 164/16, pg. 17

¹¹ Order 164/16, pg. 32

¹² Order 164/16, pg. 27

- Any impacts of the Board's COS treatment of uniform rates on RCC ratios are a matter for consideration in rate design¹³.

In conclusion, it is apparent that the Board considers fundamental Ratemaking objectives as important in the setting of rates and they are to be considered as part of the Rate Design phase in the context of a GRA.

3.6 Order 59/18 Found that An RCC Outside the ZOR is One Factor To Consider in the Possible Differentiation of Rates

The key findings of the Board flowing from Order 59/18 with respect to rate-setting are summarized as follows:

- In evaluating class RCCs, rate-making principles may justify accepting RCCs that are outside of the zone¹⁴;
- The Board is empowered to employ a variety of analytical tools in fixing rates. Indeed, MH itself in this GRA urges the Board to be guided by considerations of rate-setting beyond pure cost to serve¹⁵;
- An RCC ratio outside of the ZOR is one factor to be considered in the possible differentiation of rate increases¹⁶; and
- Customer classes with RCCs in the range 95% - 105% are deemed to represent full cost recovery.

In conclusion, the Board has found that the results of the costs of service study are but one input into the ultimate rate decisions which are to be guided by considerations in rate-setting beyond pure cost to serve including that an RCC outside the ZOR is only one factor in rate differentiation.

¹³ Order 164/16, pg. 41

¹⁴ Order 59/18, pg. 197

¹⁵ Order 59/18, pg. 222

¹⁶ Order 59/18, pg. 287

4.0 MH PROVIDES NO COS ANALYSIS TO SUPPORT THE REASONABLENESS OF ITS RATE DIFFERENTIATION PROPOSALS

4.1 Consistent with Order 164/16, MH's COS Methodology has Eliminated Ratemaking Objectives other than Cost Causation

As discussed above, in Order 164/16, the PUB found that cost causation is the primary consideration in cost allocation methodology. It appears that MH has prepared its COS largely consistent with Order 164/16.

The concern, however, is that there is little or no analysis that is expected flowing from the COS results to aid in assessing MH's rate differentiation and rate form proposals.

4.2 There have been Profound and Unexplained Shifts in COS as a Result of the In-service of the Major Generation and Transmission Projects

As noted in Section 3.2, the output of a COS study and resulting class RCCs are not static. Unity is a moving target, which the ZOR is intended to represent, because the actual COS assumptions and underlying costs change year over year.

In addition to methodology changes, the results of a COS study are also particularly impacted by the non-uniform escalation of generation, transmission, distribution & customer services costs.

Manitoba Hydro's COS study has been significantly impacted by changes in methodology in recent years. In the current 2023/24 GRA, however, while MH has proposed a few minor methodological changes as part of PCOSS24, there have been profound cost changes as a result of the largest addition of generation and transmission investment in the Corporation's history associated with Bipole III, GNGT, MMTP and Keeyask. These asset additions have resulted in the more than doubling of Manitoba Hydro's generation and transmission asset base from approximately \$9 billion to \$22 billion.

Manitoba Hydro's Application, at Tab 8, describes the results of PCOSS24 as follows:

“Changes in class RCCs in PCOSS24 are consistent with the directional impact expected due to the large increase in NER since PCOSS21. The increased NER has resulted in a shift in costs such that Generation and Transmission represents 64% of revenue requirement in PCOSS24 compared to 71% in PCOSS21. Cost shifts of this nature tend to decrease the RCC of distribution-level customer classes and increase it for the GSL classes that are served directly off the transmission system.”¹⁷

As one can see, MH's focus on the results of PCOSS24 pertains to the significant increase in NER but unfortunately there is no discussion on the impacts to PCOSS24 as a result of the \$13 billion of generation and transmission infrastructure additions.

Based on the record to date, the following analysis is intended to assist in understanding the shifts in cost responsibility between customer classes and resultant RCCs since PCOSS18 driven by the significant additions to generation and transmission investment related to Bipole III, GNGT, MMTP and Keeyask.

For purposes of illustration, the following charts and tables provide a comparison of the changes in allocated cost by class and RCCs from PCOSS18 to PCOSS24:

¹⁷ Tab 8, pg. 9

Chart 1:

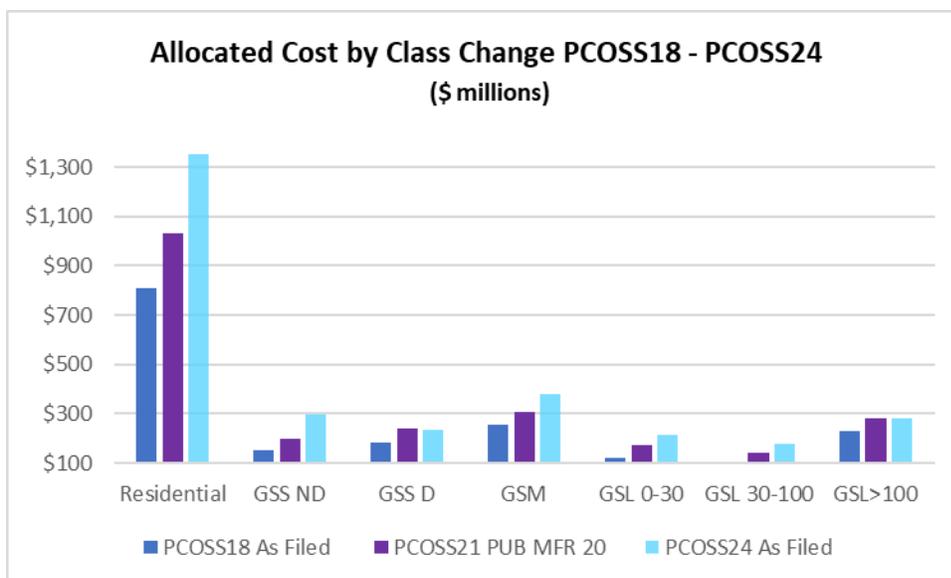


Table 4:

	PCOSS18 As Filed	PCOSS21 PUB MFR 20	PCOSS24 As Filed	
	Allocated Cost	Allocated Cost	Allocated Cost	
	a	b	c	c-a
Residential	\$ 810.9	\$ 1,033.7	\$ 1,352.4	541.50
GSS ND	\$ 151.8	\$ 197.0	\$ 298.7	146.90
GSS D	\$ 185.2	\$ 241.6	\$ 234.9	49.70
GSM	\$ 253.5	\$ 309.4	\$ 378.9	125.40
GSL 0-30	\$ 120.4	\$ 172.7	\$ 214.8	94.40
GSL 30-100	\$ 86.9	\$ 141.2	\$ 177.5	90.60
GSL>100	\$ 230.7	\$ 283.2	\$ 282.0	51.30
Total	1,862.30	2,401.50	2,966.80	1,104.50

Table 5:

	G	I	Sub-Trans	Dist Service	Dist Plant
PCOSS24 vs. 18					
Residential	48.2%	6.4%	28.8%	7.9%	39.3%
GSS ND	72.4%	24.8%	49.2%	24.4%	62.7%
GSS D	9.2%	-20.7%	-5.0%	-10.3%	0.2%
GSM	25.8%	-7.6%	11.1%	18.1%	20.5%
GSL 0-30	47.0%	10.5%	30.8%	6.9%	44.8%
GSL 30-100	63.5%	22.7%	43.9%	-27.3%	7.1%
GSL>100	-4.0%	-23.9%	0.0%	-55.4%	25.0%
ARL	0.0%	-20.0%	-27.0%	22.2%	18.8%

Table 6:

	<u>G</u>	<u>T</u>	<u>Sub-Trans</u>	<u>Dist Service</u>	<u>Dist Plant</u>
PCOSS24 vs. 21					
Residential	1.2%	-12.6%	29.1%	22.1%	31.4%
GSS ND	16.5%	0.0%	49.2%	49.1%	53.2%
GSS D	-24.8%	-35.8%	-3.8%	-14.6%	-3.1%
GSM	-5.7%	-20.2%	22.4%	11.4%	24.2%
GSL 0-30	-4.3%	-19.8%	23.6%	14.8%	25.8%
GSL 30-100	-3.0%	-19.3%	25.5%	0.0%	50.0%
GSL>100	-23.3%	-34.6%	0.0%	-21.9%	50.0%
ARL	21.7%	0.0%	0.0%	10.0%	14.8%

The key observations flowing from these tables and charts are as follows:

1. As shown in Table 4, there has been an increase in allocated costs (annualized cost) for all classes from \$1.86 billion to \$2.96 billion, which is approximately \$1.1 billion since PCOSS18, which is an overall increase of 60%;
2. As shown in Table 4, the Residential class's increase in allocated costs is approximately \$542 million of the \$1.1 billion increase which equates to 50% of the overall increase. The \$542 million increase in allocated cost to the Residential class equates to nearly \$1,100¹⁸ per Residential customer;
3. As shown in Table 4, despite the increase in cost of \$566 million between PCOSS21 and PCOSS24 almost all a result of the addition of Keeyask, there has actually been a decline in total allocated cost to the GSL>100kV (\$282 million vs. \$283 million);
4. As shown in Tables 5&6, not surprisingly, there are sizable increases in the allocation of generation and transmission costs to the classes, including the Residential class. However, there is a fairly sizable decrease in the allocation of generation and transmission costs to the GSL>100kV class. Between PCOSS18 and PCOSS24, the GSL>100kV class's allocation of generation and transmission cost has declined by 4% and 24%, respectively. The reduction in the GSL>100kV class's allocation of generation cost of -23% is even more pronounced between PCOSS21 and PCOSS24. This is particularly counterintuitive given the nearly \$1.1 billion (60% increase) in costs associated with Bipole III, GNGT, MMTP, and Keeyask; and
5. As Chart 1 above shows, there is a sizable increase in the allocated cost for the Residential class. However, for the GSL>100kV class, there is some increase in allocated cost between PCOSS18 and PCOSS21, but a reduction in PCOSS24. Again, given the size of the investment additions, this is an unexpected result.

¹⁸ \$542 million/505,000 Residential customers – 2021 Load Forecast, pg. 6

As part of Manitoba Hydro’s 2019/20 Rate Application, MH anticipated a significant asymmetrical increase in cost by function impacting the classes that use relatively more Generation than average. At the time, MH stated:

“For example 88% of the cost of serving General Service Large >100kV are Generation related, compared to only 18% of the costs of serving Area and Roadway Lighting. As a result, the addition of Bipole III significantly decreases the revenue cost coverage ratio of the GSL class, while significantly increasing that of Area and Roadway Lighting. There are less pronounced RCC impacts for classes such as General Service Medium that have functional cost proportions closer to the system average.”¹⁹

The following table provides a comparison of the changes anticipated in class RCC as a result of the addition of Bipole III as provided by MH in 2019/20:

Table 7:

	PCOSS18	PCOSS18 2019/20 GRA	PCOSS21	PCOSS24
	Final RCC's Order 68/18	Incl. Bipole & Rate incr. 3.5%		
	Coalition/MH 37 (a)	PUB 61 a		
Residential	94.5	96.5	96.2	94.4
GSS ND	114.9	116.7	113.8	109.7
GSS D	101.5	101.8	104.0	101.8
GSM	98.2	97.4	99.3	100.3
GSL 0-30	99.0	96.1	95.6	97.9
GSL 30-100	112.0	104.6	103.7	112.4
GSL>100	111.3	101.9	101.2	113.2
ARL	101.5	119.1	123.3	108.2

Table 7 is provided to highlight the anticipated changes in class RCC at the time of Manitoba Hydro’s 2019/20 Rate Application. The key observation flowing from Table 6 is as follows:

1. As shown in column 2 of Table 7, MH’s analysis indicated that the majority of classes were expected to be in the Zone of Reasonableness. The Residential class’s RCC was projected to be 96.5%, with the GSL classes all under 105%. This outcome appears to reasonably comport with PCOSS21. However, even with a further significant cost addition associated with Keeyask in PCOSS24, the GSL classes RCC’s increased significantly above the ZOR.

¹⁹ 2019/20 Rate Application, MH/PUB I-61 a

It is noteworthy that of the 50 pages of evidence submitted by MH in Tab 8, regarding Cost of Service, Proposed Rates, and Customer Impacts there was effectively no evidence or analysis provided to understand the impacts on class cost to serve associated with the largest addition of assets in the Corporation's history. The addition of Bipole III, GNGT, MMTP and Keeyask of approximately \$13 billion have more than doubled Manitoba Hydro's rate base and have increased annualized costs by approximately 60%, \$1.1 billion.

Unfortunately, in the absence of any analysis, in the current proceeding, much time and effort has been expended seeking, assessing and analyzing cost allocation results, rate differentiation determinations and RCCs flowing from the last GRA to get some very basic understanding of the results of PCOSS24.

This is basic analysis necessary of any cost-of-service study, let alone one that reflects the doubling of generation and transmission asset investment of the Corporation. With the significant increase in generation and transmission investment, there are results shown in the data above that are counterintuitive, unanticipated, and not explained.

From a cost allocation perspective, Tab 8 while lengthy, it is significantly deficient in any meaningful analysis or discussion that is required in order to support MH's rate requests, particularly given the profound impact on overall costs and class cost to serve.

4.3 PCOSS24 Reflects a Record Level of Net export Revenue of \$1.1 Billion which Skews the Results of PCOSS24 towards GSL Classes & ARL

Manitoba Hydro is proposing to differentiate rates based on PCOSS24 that incorporates the largest Net Export Revenue (NER) in the Corporation's history. PCOSS24 reflects NER of \$1.1 billion.

The following tables depict the changes in NER as determined through COS²⁰, since PCOSS18²¹ as well as level of cost offset provided by NER to each class:

Table 8:

	PCOSS18	PCOSS21	PCOSS24	In 5 Years - 2028/29
	(\$ millions)	(\$ millions)	(\$ millions)	
Export Revenue	455.1	638.0	1154.1	740.0
Less: Water Rentals	34.2	42.1	31.1	19.6
Less: Variable O&M	3.5	4.5	6.8	4.4
Less: Affordable Energy Fund	<u>0.5</u>	<u>0.6</u>	<u>0</u>	<u>0</u>
Net Export Revenue	416.9	590.8	1,116.2	716.0

Table 9:

	PCOSS18	PCOSS21	PCOSS24	PCOSS 24	PCOSS24
	As Filed	PUB MFR 20	As Filed	Total Allocated	NER
	NER	NER	NER	Cost	% of Cost
	a	b	c		
Residential	161.9	233.2	471.2	1352.4	35%
GSS ND	31.3	45.9	106.9	298.7	36%
GSS D	40.1	57.8	86.9	234.9	37%
GSM	57.5	76.4	144.0	378.9	38%
GSL 0-30	29.6	45.7	87.2	214.8	41%
GSL 30-100	25.1	42.5	82.3	177.5	46%
GSL>100	70.0	88.0	134.8	282	48%
ARL	<u>1.5</u>	<u>1.2</u>	<u>3.0</u>	<u>27.6</u>	<u>11%</u>
Total	417.0	590.7	1,116.3	2,966.8	38%

1. As shown in Table 9, Net Export Revenue is sufficient enough to offset 38% of total costs in 2024;
2. Table 9 shows that Net Export Revenue is sufficient enough to offset 35% of allocated costs to the Residential class, providing the least offset of costs of all classes. NER offsets nearly 50% of allocated costs to the GSL>100kV class, providing the greatest offset of allocated costs.

²⁰ It is noted that the derivation of NER for COS differs from that reflected in the Corporation's IFF.

²¹ Coalition/MH IR I -155 a

The Tables and Chart below piece together the RCCs of various sensitivities provided by MH through the information requests of the PUB and the Coalition under a number of NER conditions:

Table 10:

	PCOSS21	PCOSS24	PCOSS24
	PUB MFR 20 (As filed)	As Filed Dec 2022	60% of 2023/24 NER
	RCC	RCC	CC 155
Residential	96.2	94.4	95.5
GSS ND	113.8	109.7	110.5
GSS D	104	101.8	102.4
GSM	99.3	100.3	100.3
GSL 0-30	95.6	97.9	96.7
GSL 30-100	103.7	112.4	107.1
GSL>100	101.2	113.2	106.8
ARL	123.3	108.2	117.9

Chart 2:

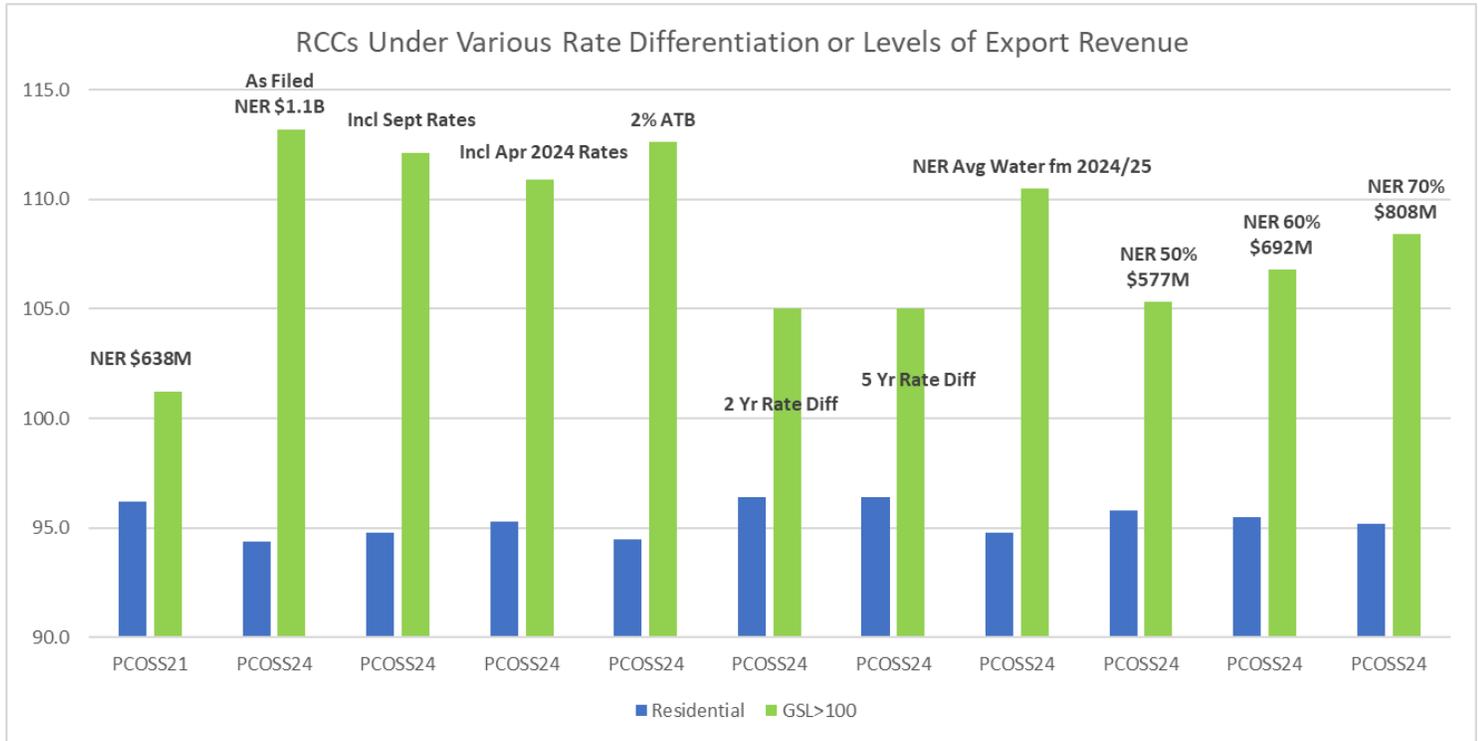


Chart 3:

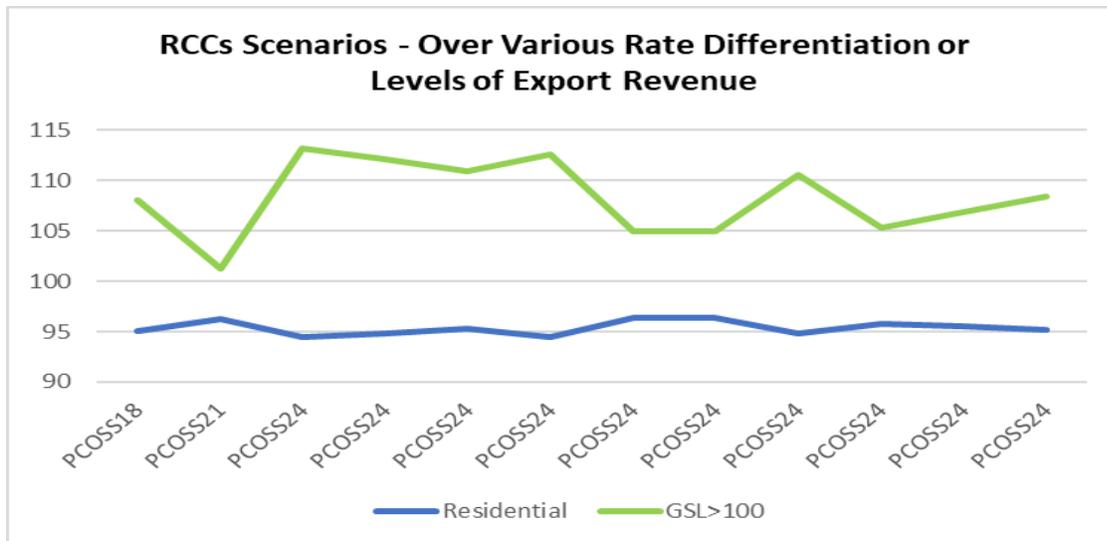
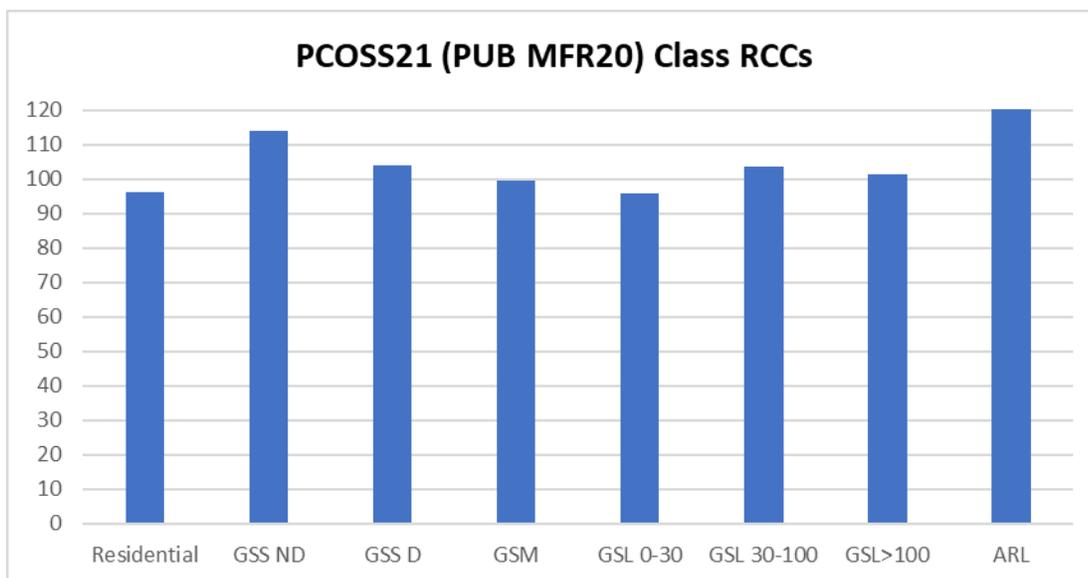


Chart 4:



The key observations from the tables and charts above with respect to RCCs and MH's proposals for rate differentiation are as follows:

1. The Residential class RCC is within the ZOR at 96.2% in PCOSS21 (Table 10);
2. The RCCs for the largest GSL classes of 103.7% and 101.2%, were well within the ZOR in PCOSS21 (Table 10);
3. The RCCs of the largest volume customer classes are highly sensitive to changes in NER (Chart 3). In PCOSS21 which reflects \$591 million NER, the RCC of the GSL>100kV class is 101.2%. The GSL>100kV RCC flowing from PCOSS24 has increased 12% (to 113.2%) with NER increasing by approximately 89% ($(\$1,116 - \$591) / \$591$);
4. Despite an 89% increase in NER, the Residential class's RCC has fallen to 94.4% in PCOSS24;
5. The tables identify the impact to class RCC as a result of changing levels of NER, in the absence of any other changes. As shown, as forecast by MH in 2028/29, NER decreases from \$1.1 billion to approximately \$716 million. The Residential class RCC increases from 94.4% to 95.5%. The largest GSL class's RCC decreases from approximately 113% to 107%.

As these tables demonstrate, the RCCs to the largest GSL and ARL classes are highly sensitive to changes in NER and skew the results of PCOSS24.

Recognizing the volatility associated with NER and that the highest level of NER in the Corporation's history is underpinning PCOSS24 and with the expectation that export revenue will decline, it is expected that the RCC of the Residential class will be within the ZOR in the 5-year rate differentiation period assumed by MH in its proposals, in the absence of any differential rate changes.

Given the high degree of sensitivity that NER has on the large GSL class RCCs, by 2028/29, these classes RCCs will be reasonably close to the ZOR, simply from the MH's forecasted decline in export revenues, and in the absence of any rate differentiation.

4.4 PCOSS24 Reflects a Windfall Reduction of Payments to Government which Skews the Results to the Largest GSL Classes and ARL

The reduction in Water Rental Fees and the Provincial Guarantee Fee (PGF) announced by the Government of Manitoba results in an approximate \$180 million annual reduction or 50%. Manitoba Hydro states that over the 20-year financial forecast scenario the direct savings from the reduction of the fees is estimated to total approximately \$4 billion²².

For purposes of COS, Manitoba Hydro functionalizes the PGF as part of finance expense in proportion to Average Rate Base. In PCOSS24 this results in 83.4% of the PGF being functionalized as Generation and Transmission. Water Rental fees are functionalized as 100% Generation. The evidence of Manitoba Hydro as it relates to the reduction of the Water Rental Fee and PGF from a cost-of-service perspective is as follows:

- MH asserts that PCOSS24 continues to reflect the direction from Order 164/16 and the Water Rental Fee and PGF have been treated consistently²³; and
- MH concludes that the reduction in Water Rental Fees and the PGF will largely result in a decrease in G&T costs which will tend to increase the RCC for the GSL

²² Tab 3, pg. 9

²³ Tab 8, pg. 6

classes whose costs are almost exclusively Generation and Transmission. The reduction in G&T costs will tend to decrease the RCC for classes that are allocated the costs of all functions, and therefore receive relatively less Generation and Transmission costs²⁴.

The table below provides a sensitivity analysis prepared by Manitoba Hydro in response to Coalition/MH I – 138 (f) that identifies the impact to class RCC on account of the reduction in the Water Rental Fee and PGF in PCOSS24 and also over the 20-year financial forecast:

Table 11:

	PCOSS24 RCC	PCOSS24 RCC Without Water Rental & PGF Reduction	PCOSS24 Benefit of Lower Water Rentals & PGF
Residential	94.4%	94.8%	0.4%
GSS ND	109.7%	109.9%	0.2%
GSS D	101.8%	101.8%	0.0%
GSM	100.3%	100.1%	0.2%
GSL 0-30	97.9%	97.4%	0.5%
GSL 30-100	112.4%	110.7%	1.7%
GSL>100	113.2%	111.2%	2.0%
ARL	108.2%	110.9%	2.7%

The sensitivity demonstrates the disproportion benefit provided to some customer classes. In PCOSS24, the Residential Class RCC benefits by 0.4%, while the RCC of the GSL>100kV and the ARL classes benefit by 2.0% and 2.7%, respectively.

Unfortunately, Manitoba Hydro did not identify or acknowledge in its evidence filed December 22, 2022 that the allocation of Water Rental Fees and the PGF have asymmetric impacts to customer classes in the cost-of-service study. In other words, the reduction of these fees, while benefiting all, will provide disproportionate benefits to some

²⁴ Coalition/MH IR I-138

customer classes as a result of the treatment in the cost-of-service study. This was confirmed by MH through the information request process.

4.5 The Lack of Analysis of the Profound Cost Changes to Assess PCOSS24 Results, is Inadequate for Rate Differentiation and Rate Design Purposes

The results of COS and related analysis are important to use in the consideration of other fundamental ratemaking principles in the rate design phase. The lack of meaningful analysis with profound changes is problematic in order to apply the PUB's policy direction flowing from Order 164/16.

5.0 MH'S RATE DIFFERENTIATION PROPOSALS DISREGARD THE BOARD'S RATE DESIGN POLICY DIRECTION IN ORDER 164/16

5.1 The Board Found in Order 164/16, that Rate Design is to Consider Fundamental Ratemaking Objectives

As discussed above, in Order 164/16, the Board found that:

“The Board finds that ratemaking principles and goals should not be considered at the COSS stage...The Board finds that Manitoba Hydro’s ratemaking principles and goals of rate stability and gradualism, fairness and equity, efficiency, simplicity, and competitiveness of rates should be considered in a General Rate Application (“GRA”) and not in the cost-of-service methodology.”

As discussed previously, MH has not provided sufficient analysis to assist in supporting its rate differentiation proposals and rate design. The purpose of this Section is to assist in filling in some of the analysis deficiencies.

5.2 MH's Ratemaking Objectives are Unfocused and Lack Analysis and are Unreliable for Purposes of Rate Differentiation

As part of the current GRA, Manitoba Hydro provided the Ratemaking Objectives that are underpinning its rate proposals. It appears that MH has only considered the output of PCOSS24, considering embedded cost causation and the timeframe by which the output of PCOSS24 should be incorporated into class RCCs and rate differentiation (that is, gradualism). MH's ratemaking objectives are summarized as follows:

- COS is considered the primary method of evaluating the appropriateness of overall cost responsibility and price level by class;
- Providing stable and predictable rates (Tab 3);
- Ensuring rates fully recover revenue requirement and target achieving RCCs in the range of 95-105%;
- Efficiency - considers whether price signals correspond with underlying embedded and marginal costs;
- Affordability - considers the magnitude of bill impacts resulting from rate design changes;
- Flexibility - continuing progression into the ZOR will provide MH with greater flexibility in the future by reducing the need for rate differentiation to reduce the

impact of future rate structure changes combined with general rate increases²⁵;

- Competitiveness of rates are also important, and fairness and equity also continues to be a goal of Manitoba Hydro²⁶; and
- Simplicity and understandability continue to be important.

After reading 50 pages in Tab 8 devoted to “Cost of Service, Proposed Rates and Customer Impacts”, even a trained eye is left only to conclude that it is impossible to understand Manitoba Hydro’s overall Ratemaking Strategy or Philosophy. The vast majority of Tab 8 is focused on key messaging with little or no actual empirical data presented with superficial discussions and threadbare in terms of policy and contextual analysis. While Manitoba Hydro has identified in Figure 8.4 its key ratemaking objectives underpinning its 2023/24 & 2024/25 rate proposals, it goes on to identify other important ratemaking objectives in responses to information requests.

The result is a highly subjective account of its ratemaking objectives driving its rate proposals that is unfocused and lacks discipline and strategy.

It appears Manitoba Hydro has placed its emphasis almost exclusively on the principle of cost causation (cost as defined by actual embedded cost to serve) and its new self-imposed objective of flexibility. The over-emphasis on cost causation as based on the mechanical output of PCOSS24 has resulted in MH proposing rate differentiation by class that ignores the highly unstable cost basis resulting from a culmination of a number of profound changes including the addition of significant generation and transmission investment, record high net export revenue, and the significant reduction to payments to government, at the great expense of other critical criteria of efficiency and fairness.

This is a striking dichotomy compared to its past ratemaking perspectives. As part of its 2017/18 GRA, MH stated that considering Order 164/16 gave a disciplined view with utmost regard to cost causation in the COS methodology prescribed, MH applied to expand its Zone of Reasonableness from 95% - 105% to 90% - 110%. MH found that with over the 20 years of cost-of-service results whereby an across-the-board rate change was approved by Board, a ZOR of 90% to 110% or even broader has been implicitly accepted as reasonable for purposes of rate setting in Manitoba.

²⁵ Coalition/MH IR I - 142 I b&c

²⁶ Coalition/MH IR I-142; Coalition/MH IR II-58

Manitoba Hydro stated that as a public crown-owned utility, rate setting ultimately must deal with issues beyond cost causation and in the absence of being handled through cost-of-service methodology, may alternatively be handled through allowing more variation in Revenue to Cost Ratios. MH found that while a COS study is a useful tool in assessing the fairness of rates and is the primary tool to be used to assess the allocation of costs between customer classes, that costs flowing from the COS study are not the only measure by which to test the reasonableness of rates.

MH argued that the acceptance of a ZOR, rather than strict adherence to the results of the COS study is suggestive of two things. First, the results of a COS study provides a measure of relative rather than absolute costs. Thus, RCC ratios within the range are deemed to represent full cost recovery. This means that while COS is useful as a first approximation of reasonable rates by class regardless of the methodology underpinning it, we cannot identify for sure the cost of providing service by class. This occurs because the nature of the costs incurred by a utility reflect infrastructure that is commonly used by all or nearly all customers it serves. For Manitoba Hydro this also occurs because of the dominance of hydraulic investment that is significantly fixed and because of the magnitude of export revenue.

Secondly COS and its resultant RCC ratios is a tool that may (or may not) be used when evaluating and setting rates for various customer classes. The translation of cost to serve to pricing should reasonably balance a utility's ratemaking objectives. This means that rate equity is not achieved by using the results of a cost-of-service study to set rates purely in a mechanistic manner. Hence, a COSS is more a guide than a prescription in setting rates. Apportioned costs are rarely offered as final measures of fair and equitable rates and rate relationships in most jurisdictions.

5.3 MH's Rate Differential Proposals are Simply a Mechanistic Goal-Seek to get All Classes in the ZOR in the Remaining 5 years

In Order 164/16, the Board directed that ratemaking principles and goals of rate stability and gradualism, fairness and equity, efficiency, simplicity, and competitiveness of rates should be considered in a General Rate Application.

The Board also found in Order 59/18 that blind adherence to a 100% RCC in the design of rates would not be appropriate and the results of the COS study (i.e., the RCCs) are only one input into the ultimate decision as to the rates that will be charged to a customer class and the revenues that will result.

In Orders 164/16 and 59/18, the Board found that the impact of the Uniform Rate Adjustment, marginal costs, rate increases associated with MH's large capital additions, and the consideration of social goals would all be considered in the context of the Rate Design phase. As a result, compared to past practice, MH's COS methodology has removed ratemaking objectives other than cost causation.

Manitoba Hydro's evidence with respect to how it has incorporated ratemaking objectives into its rate proposals is as follows:

- MH's primary considerations for determining interclass rate differentiation was ensuring rates fully recover overall revenue requirement, rate stability and progressing RCCs in the ZOR for all classes.
- MH defines efficiency as giving consideration to whether price signals correspond with underlying embedded and marginal costs. It goes on to state that its proposed rate differentials increase alignment with embedded cost;
- MH states that its rate proposals consider its rate objectives, each class's relative variance from unity in PCOSS24, past RCC results and progress towards the ZOR, as well as past direction from the PUB;
- MH states that over the last several rate changes, its focus has been on getting customers above the ZOR into the ZOR within a defined time; and
- The largest GSL class RCCs have trended towards the higher end of the ZOR since Order 164/16. Given both classes had RCCs in the ZOR in PCOSS21, it is clear that PCOSS24 results are driven by record levels of NER. Accordingly, MH is proposing a smaller rate differential to take into account the more highly variable impacts that NER can have on RCCs.

The following observations are provided based on a review of Manitoba Hydro's rationale for its proposed rate differentiation by class:

1. No consideration has been given to ratemaking principles other than cost causation, with some consideration given to how gradually (i.e the timeframe) to move the results of the PCOSS into the ZOR;
2. Manitoba Hydro's rate differentiation proposals result in a mechanistic reliance on the results of the PCOSS;
3. Many of Manitoba Hydro's rate form proposals suffer from the same mechanistic reliance on the results of the PCOSS; and
4. Implicit in MH's evidence is the idea that unity is the ideal true value result. Such an inference is evident in MH's statement that its rate proposals "consider each class's relative variance from unity in PCOSS24"²⁷. Manitoba Hydro clarifies it is not intending to move classes to unity but rather a recognition of the accuracy of

²⁷ Tab 8, pg. 12

the results of the COS itself²⁸. This not only affirms that cost causation as defined by embedded cost is MH's only consideration of cost to serve, but also suggests that there is a true value being estimated in cost allocation. There is no true value in cost allocation as implied. There is uncertainty about what is correct.

What's not in Manitoba Hydro's rate differentiation proposals is noteworthy. Despite the Board's direction flowing from Order 164/16, there has been no consideration of ratemaking principles of:

- Fairness and Equity;
- Economic Efficiency; and
- Public Acceptability

From a practical perspective, specific matters not considered by MH in its rate differentiation proposals include (but not limited to):

- Marginal Cost concepts;
- The Uniform Rate Adjustment, and
- Net export revenues that benefit some classes more greatly than others.

Further, broader public acceptability and public policy considerations that have been acknowledged as relevant by the Board in the past such as the impact of rate increases on "captive" electricity customers which would include Residential electric space heating customers in non-gas areas and the impact of rate increases on low-income customers particularly in times of record high levels of inflation have been disregarded in Manitoba Hydro's rate differentiation proposals. It is concerning that MH has not provided any weight to these considerations in its rate differentiation proposals.

Stepping back and considering the record of the proceeding, and also the evidence filed as part of Centra's COS methodology review, there appears to have been a profound change in perspective regarding rate philosophy in the past couple of years. It appears that the Corporation has moved from considering embedded cost causation as the primary consideration, to it being the sole consideration of cost allocation methodology. And that cost causation should also be the sole consideration of class cost responsibility,

²⁸ Coalition/MH IR I – 143 b

in effect discarding all ratemaking objectives and relying only on a mechanistic outcome of the PCOSS.

This mindset also appears to extend to Manitoba Hydro's rate design (i.e. rate forms) proposals. Such an approach to rate-setting is highly aggressive, particularly recognizing the vertical predominately hydro electric infrastructure with significant export revenue and is troubling. It also conflicts with the Board's Order that considerations other than embedded cost to serve cost causation are to be dealt with as part of the Rate Design phase and that blind adherence to a 100% revenue-to-cost ratio is not appropriate.

5.4 MH's Rate Differentiation Proposals Do Not Address the Four Fundamental Changes to RCC Results Flowing from PCOSS24

There have been several fundamental shifts impacting class cost to serve over the last several years which have not been addressed in MH's current rate differentiation proposals as follows:

- i. Order 164/16 took a significantly different approach to COS methodology by shifting appropriate ratemaking principles other than cost causation into the Rate design phase of ratemaking;
- ii. The significant addition of generation and transmission investment that tend to disproportionately impact the GSL classes;
- iii. Record levels of NER underpinning PCOSS24 with asymmetric benefit to some customer classes, notably the largest GSL classes and ARL.; and
- iv. A significant reduction in Water Rental Fees and the PGF payments to the Manitoba Government, which have an asymmetric benefit to some customer classes, notably the largest GSL classes.

Based on the Board's direction in Order 164/16, the much stricter application of cost of service to revenue, it is necessary that MH provide robust analysis and resulting schedules to not only understand the assumptions made in the determination of rates, but importantly also to have an appropriate benchmark by which to measure future cost of service results and rates, in subsequent regulatory proceedings.

There are numerous unexplained and unanticipated results in PCOSS24 as compared to what was expect based on the high-level review in PCOSS21 and PCOSS18 flowing from the significant addition of generation and transmission investment. The Board requires a strong evidentiary foundation on which to justify a differential rate increase.

The record levels of NER underpinning PCOSS24 by which MH's rate differentiation proposals are based, are forecast to decline starting in the second Test Year 2024/25 and continue to decline thereafter, and thus the RCC's will largely self-correct. It is perplexing why the Residential class (and also other classes) is imposed a 0.4% larger than average increases because of a windfall of NER that is not expected to continue.

In the current ratemaking framework directed by the Board in Order 164/16 of recognizing Ratemaking Objectives other than cost causation in Rate Design, it is expected that MH's rate differentiation proposals give consideration to the asymmetric benefit to some customer classes, notably the largest GSL classes as a result of the significant reduction in Water Rental Fees and the PGF payments to the Manitoba Government. No such consideration by MH has been provided.

5.5MH's Rate Differentiation Proposals Ignore Marginal Cost Concepts, which is an Important tool for RCC Interpretation

Manitoba Hydro's COS study is based on embedded cost, forecasted on the basis of the actual financial costs of the Corporation associated with plant in service. An embedded COS study begins with development of the utility's revenue requirement, based on historic or forecast accounting costs and usage patterns. Another approach for assigning utility costs is through a marginal COS, which assigns costs based on the additional cost incurred to provide an increment of a good or service A marginal based COS study is forward looking and considers the cost of plant to be added in the future.

In other words, the word “cost” is one which has multiple meanings. As such, accounting cost does not provide a singularly correct answer as to what is the cost of service by customer class.

As part the 2017/18 GRA, MH concluded that ratemaking and rate design must consider a number of relevant issues in addition to embedded cost including that differences between marginal cost (“MC”) and financial embedded cost that may be used in the evaluation of RCC’s. Manitoba Hydro stated that the alignment of rates and rate relationships with the pattern of marginal cost is important to support its economic efficiency rate objective and to consider the degree of variability in marginal cost that exists between customer classes. Manitoba Hydro asserted that it is not constrained from considering any concepts of cost other than embedded cost in determining just and reasonable rates.

Manitoba Hydro goes on to state:²⁹

“it is generally recognized that efficient price signals are those which are related to relevant marginal cost. While this theoretical standard for utility price setting is rarely strictly adhered to, marginal costs and concepts may be a consideration in both cost of service and rate setting. For Manitoba Hydro, with significant fixed hydraulic investment and export revenue, that potential is much more pronounced than most utilities, as a result of its substantial heritage plants significantly below marginal cost as well as export revenues which are used to further reduce embedded costs recovered from customers.”

In Order 164/16, the Board found that marginal cost considerations are appropriately addressed in the rate design stage of ratemaking³⁰.

Despite this long-held view of MH, Manitoba Hydro’s evidence with respect to marginal cost in this Application, is as follows³¹:

²⁹ MH 2017/18 & 2018/19 GRA, Tab 8, pg. 31

³⁰ Order 164/16, pg. 53

³¹ Tab 8, Coalition/MH IR I – 145, Coalition/MH IR II - 57

- No recognition of marginal cost concepts are reflected in MH’s rate differential proposals;
- When questioned why MH did not consider marginal costs in its proposed class rate differentials, MH stated³² that:
 - MC would fail to recover the cost of providing service to customers;
 - MC are effective when used as a directional guideline for rate structure where it is desirable and feasible to incorporate a price signal;
 - MH is not proposing to incorporate any MC signals into rates as more recent MC have been trending below embedded costs;
 - For most customer classes, hourly price differentiation is not possible due to the existing metering infrastructure; and
 - MH is unable to comment on whether the rate differentials or other rate proposals increase or decrease alignment with MC as the marginal values are currently under development.

The following table that provides a directional indication of marginal cost by class as well as marginal cost to revenue coverage by class as provided by MH³³:

Table 12:

	Marginal Cost @ Class LF (cents/kWh)	Avg Rev (cents/kWh)	Rev/MC (%)	Marginal Cost @ Class LF (cents/kWh)	Avg Rev (cents/kWh)	Rev/MC (%)
	2017/18 GRA			2023/24 GRA		
	Total MC			Total		
Residential	9.13	8	87.6	6.61	10.27	155.4
GSS ND	8.63	8.6	99.6	6.36	10.32	162.2
GSS D	8.48	6.85	80.7	6.30	8.81	139.8
GSM	8.3	5.98	72.1	6.10	7.97	130.5
GSL 0-30	8.07	5.14	63.7	6.00	6.66	111.1
GSL 30-100	6.68	4.43	66.3	5.27	5.54	105.2
GSL>100	6.67	4.01	60.1	5.26	5.13	97.5
ARL						

³² Coalition/MH IR I - 145

³³ Coalition/MH IR II - 57

The key observations regarding this marginal cost by class are as follows:

1. This simplified estimated³⁴ marginal cost by class provides the directional degree to which class RCCs are below or above unity and is a reasonable basis by which class RCCs flowing from PCOSS24 may be additionally evaluated; and
2. The theoretical ideal of rates based on marginal cost suggests that rates based on embedded costs should not fall below marginal cost. With the profound cost changes as a result of the addition of major generation and transmission infrastructure, it is not surprising that MH's marginal cost has declined substantially since the 2017/18 GRA. This occurs because, in the short term, there is sufficient capacity and energy without requiring new infrastructure, so the marginal cost to serve a new customer is very low. But even so, embedded cost still falls below marginal cost for the GSL>100kV class (5.13 vs. 5.26) and which results in a revenue to cost ratio below 1;
3. It is unclear whether the substantial changes in the revenue to marginal cost by class may have also been impacted by the move to assign NER as an offset of cost rather than as an addition to revenue by class.
4. The relative relationship of RCC difference is significant between the Residential class and the largest GSL class, of 155.4% and 97.5%.

Table 12 above suggests that based on current marginal cost by class, from an Efficiency perspective, an increase in revenues to the GSL>100kV class rather than a decrease could be considered. However, in this Application, no marginal cost considerations have been reflected by Manitoba Hydro in its differentiated rate proposals, despite the Board's findings. MH's arguments for having not done so are nonsensical.

Insofar as forecast costs are different than embedded costs, marginal COS results need to be adjusted either up or down to ensure that rates overall will recover no more than what the overall revenue dictates. A number of different methodologies have been developed to adjust marginal COS results so that the embedded COS is not missed or exceeded.

³⁴ The MC determination provided by MH is viewed as simplified per the caveats provided in Coalition/MH IR II - 57

To be clear, no recommendation to prepare a marginal cost of service study is being suggested. However, as the Board found in 164/16, marginal cost concepts are appropriate and important tools to assist in both setting the rate levels and establishing the rate design for the various customer classes served by a MH so as to permit a fair recovery of a utility's embedded cost-based revenue requirement.

For more than 20 years, Manitoba Hydro repeatedly raised concerns over the results of its cost-of-service studies that allocated growing export revenues to customer classes strictly on the basis of Generation and Transmission costs in which it found was distorting the cost-of-service study results and the resulting rates charged to customers.

In the case of "exports", rates are not set on a cost-of-service basis. Rather they are established by competitive forces and formal market mechanisms. While the circumstances have changed from the perspective that marginal cost by class is now generally higher than embedded cost and thus does not offend the necessity that rates not fall below marginal cost, there is still one class whose revenues are below marginal cost. MH's own revenue to marginal cost ratios suggests that the rates currently being paid by the GSL>100kV class continue to be out of line (i.e. below) with marginal costs, albeit marginally, than the rates currently being paid by other classes.

Market based pricing is already offered to customers through the Surplus Energy Program and its predecessor rate offerings going back to the early 1990's. These programs were designed to provide a potentially lower cost option to customers prepared to accept less than firm service and upon terms comparable to the terms offered to the export market. A restricted definition of cost to that of embedded cost as Manitoba Hydro appears now to be taking, would not have allowed such rate offerings.

Reflecting marginal cost or opportunity cost relationships in the determination of rate differentiation and thus, class cost to serve, in order to achieve efficiency goals as much as possible are more likely to result in class revenue allocations and rate structures that send more efficient price signals than methods that ignore these relationships.

Consequently, looking beyond strict historic cost considerations or past practices in determining fair and reasonable class cost to serve as a basis for just and reasonable rates is important and consistent with the Board's direction in Order 164/16.

5.6 MH's Rate Differentiation Proposals Do Not Consider the Results of Class RCC Before NER, which is an Important tool for RCC Interpretation

Manitoba Hydro has proposed rate differentiation by class in both Test Years based on the outcome of PCOSS24. The evidence of Manitoba Hydro with regards to the consideration of RCC by class before NER is as follows:

- Manitoba Hydro states that its PCOSS methodology is based on cost causation and uses a RCC calculation that includes NER allocated on the basis of G&T costs as directed in PUB Order 164/16;
- The underlying RCC (prior to NER) does not reflect cost causation it cannot be considered to provide a fair depiction of RCC impacts;³⁵ and
- The class RCCs in the analysis have also been calculated prior to Net Export Revenues – these RCCs are inconsistent with the RCCs that incorporate net export revenues that are used to guide rate differentiation.³⁶

The table below provides the revenue to cost ratios by class excluding NER from PCOSS18 to current:

³⁵ Coalition/MH IR II - 43

³⁶ Coalition/MH IR I - 156

Table 13:

	PCOSS18	PCOSS21	PCOSS24	PCOSS24	PCOSS24	PCOSS24	PCOSS24
	RCC (no NER)	RCC (no NER)	RCC (no NER)	2023/24 w. Avg Water fm 2024/25	70% of 2023/24 NER RCC (no NER)	60% of 2023/24 NER RCC (no NER)	50% of 2023/24 NER RCC (no NER)
	PUB 132 c (2017/18 GRA)	PUB MFR 20	As Filed	PUB 141	CC 155	CC 155	CC 155
Residential	74.9%	74.5%	61.5%	65.4%	69.1%	72.1%	75.3%
GSS ND	91.9%	87.3%	70.4%	75.0%	79.2%	82.7%	86.4%
GSS D	79.4%	79.1%	64.2%	68.4%	72.4%	75.6%	79.1%
GSM	75.6%	74.8%	62.2%	66.3%	70.2%	73.3%	76.8%
GSL 0-30	74.5%	70.3%	58.2%	62.1%	65.8%	68.8%	72.1%
GSL 30-100	80.5%	72.5%	60.3%	64.5%	68.5%	71.7%	75.2%
GSL>100	78.2%	69.7%	59.1%	63.2%	67.1%	70.3%	73.8%
ARL	93.8%	116.5%	96.6%	101.5%	105.8%	109.3%	113.0%

The key observations with regards to class RCCs prior to the incorporation of NER are as follows:

1. PCOSS24 indicates that in the absence of NER, all class RCCs are below the ZOR with the majority of classes being significantly below the ZOR;
2. PCOSS24 indicates that the RCCs of the GSL classes are the furthest below the Range of Reasonableness and below all customer classes. This is expected given that PCOSS24 incorporates the highest export revenues in the Corporation's history and NER provides the greatest offset of cost to the GSL classes; and
3. Assuming differing lower levels of NER compared to the current \$1.1 billion, as MH forecasts, the RCCs before NER for the GSL classes continue to be the furthest below the ZOR, compared to other customer classes.

Manitoba Hydro acknowledges that the output of the cost-of-service study (i.e. the revenue to cost ratios) are but one input into the ultimate decision as to the rates that will be charge to each customer class and the resulting revenues. As discussed above, for more than 20 years, Manitoba Hydro repeatedly raised concerns over the results of its cost-of-service studies that allocated growing export revenues to customer classes strictly on the basis of Generation and Transmission costs in which it found was distorting the cost-of-service study results and the resulting rates charged to customers. At the time, MH recognized that without export revenues, Manitoba customers were paying about 78% of their cost of service. In the current Application, this amount has declined

significantly to 62.5%. Manitoba Hydro considered RCC prior to NER as a primary consideration to measuring class cost of service, and understanding the impact that each class has on the system.

It is concerning that MH has not acknowledged that RCCs prior to incorporation of NER is a valid and reasonable consideration in the assessment of the responsibility of the outcome of PCOSS24 and rate differentiation. The issue of NER, the impact to RCCs, and rate differentiation is a live issue, one that is not dissimilar to that in many past years whereby Manitoba Hydro was not even prepared to accept the results of its COS, let alone be slavishly bound by the results of PCOSS24.

Order 164/16 directed a number of significant foundational changes in COS philosophy. What Order 164/16 did not find is that these issues were to be ignored. Very clearly, Order 164/16 found these types of issues are to be addressed in Rate Design, which MH has failed to do. At the very least, RCCs prior to NER are a valid consideration in the assessment of the outcome of the PCOSS in the translation to revenue to class as part of the Rate Design phase. The results further support an across-the-board rate change if a rate change is approved by the Board.

5.7 Given Concerns Regarding the Adequacy of the Allocation of Generation and Transmission Cost to the ARL Class, it is Proposed that an Across-the-Board Rate Increase be Applied to the ARL Class

Manitoba Hydro proposes to adjust the cost allocation methodology on account of the RCC outcome of the Area and Roadway Lighting class (ARL) related to the Board's direction flowing from Order 164/16. In that Order, the PUB found that DSM was a system resource that avoids Generation costs reducing overall domestic energy consumption, peak demand, or both. As such, the Board found that DSM costs should be functionalized as 100% Generation, and treated consistently, rather than directly assigning DSM to individual classes as had been the methodology.

Manitoba Hydro's evidence is as follows³⁷:

- Manitoba Hydro has proposed that the Area & Roadway Lighting class receive a 1.0% rate increase on September 2023 and April 2024;
- PCOSS18 was prepared consistent with the DSM methodology as directed in Order 164/16. However, during the 2019/20 GRA, the PUB elected to not apply a differentiated rate increase to the A&RL class, noting concerns raised by the Consumer Coalition about possible distortion of the class RCC ratio due to the directed treatment of DSM costs.
- Manitoba Hydro proposes to directly assign 38% of the LED conversion costs, or \$2.8 million of DSM related Depreciation and Interest costs to the ARL class in PCOSS24;
- MH asserts that the LED conversion was partially justified by an expected 38% in cost savings from lower maintenance costs on lighting plant that do not benefit other customers;
- MH concludes that the LED conversion was sufficiently different than other existing DSM programs to warrant the alternative treatment and the modified COS methodology to better reflect cost causation;
- The direct assignment of the portion of LED conversion costs decreases the A&RL RCC by 11.8%. All other classes experience a small RCC increase;
- With the proposed COS methodology change related to the LED conversion, the results of the COS provide a reliable baseline to assess the A&RL costs and it is evident that current rates are recovering more than their share of allocated costs. Manitoba Hydro is proposing that A&RL receive the same rate differential to that of the GSSND class given their similar RCC results and the on-going attempts to reduce their RCCs; and
- For purposes of incorporating further rate differentiation within the A&RL class, the appropriate RCC benchmark should be the class average RCC of 108%, rather than unity or the ZOR. The 1.0% differentiation based on the results of PCOSS24 is intended to move the A&RL class as a whole into the ZOR.

It was expected that the change in COS methodology would result in a sizable increase in the RCC of the ARL class benefiting this class to a large degree. The RCC results of changes in COS methodology, including the move to treating DSM costs as a generation resource flowing from Order 164/16 are provided in the table (PCOSS14) below:

³⁷ Tab 8, Section 8.3.1, pgs. 7,8; Section 8.4.2, pg. 13; Appendix 8.1, pgs. 12, 16, Coalition/MH I-IR 139, Coalition/MH IR II - 52

Table 15:

	PCOSS01	PCOSS04	PCOSS06	PCOSS08	PCOSS13	PCOSS14	PCOSS14	PCOSS14	PCOSS18	PCOSS18	PCOSS18	PCOSS18	PCOSS18	PCOSS21	PCOSS24	PCOSS24	PCOSS24	PCOSS24	PCOSS24
		Jan 2004	117/06	116/08	meth changes July 2012	June 2013	incl. Bipole III	Order 164/16	Incl 7.9%	Order 59/18	Incl 7.9% & Bipole III	Incl. Bipole	As Filed	As Filed	As Filed w. Proposed Rate Change	2023/24 w. Avg Water fm 2024/25	70% of 2023/24 NER	50% of 2023/24 NER	
	2017/18 GRA App 8.1	COS Review PUB I-15	COS Review PUB I-15	COS Review PUB I-15	COS Review PUB I-15	COS Review PUB I-15	COS Review PUB I-55	PUB 132 c & Tab 8	PUB 132 c & Tab 8	PUB 61 a	PUB II-88 (2017/18 GRA)	PUB 61 a	MFR 20		2024/25 RCC	PUB 141	CC 155	CC 155	
ARL	92.0	108.9	107.7	102.4	101.8	99.7	114.1	99.5	101.2	100.1	118.2	118.7	123.3	108.2	108.1	112.0	115.3	120.6	

The key observations flowing from this table related to MH’s proposed COS methodology change are as follows:

- A review of the ARL RCCs flowing from the COS methodology changes in Order 164/16 as it relates to the treatment of DSM and the LED conversion are not apparent. The RCC results do not indicate any discernible issue of concern (i.e approximate RCC of 99.7% vs. 99.5%) despite previous expectations;
- The RCCs of the ARL class are highly sensitive to change in generation and transmission cost. For example, a PCOSS14 sensitivity including Bipole III moves the RCC almost 14%, from 99.7% to 114.1%. On an actual basis, the RCC increases from 101.2% to 123.3% from PCOSS18 to PCOSS21, which reflects the addition of Bipole III and the partial addition of Keeyask; and
- The ARL RCCs are highly sensitive to changes in NER also. For example, the RCC increases from 92.0% to 107.7% between PCOSS01 and PCOSS06. This is likely a result of high export revenues. Again, as can be seen under several NER level scenarios prepared by MH under an otherwise constant PCOSS24, the RCC of the ARL moves from approximately 108% to over 120%.

Based upon an historical review of the ARL RCCs, it does not appear that the cost to serve this class was concerningly impacted by the change in COS methodology flowing from Order 164/16. The ARL RCCs certainly do not support this conclusion. It is plausible that the impact of the change in COS methodology to the ARL may have been more discernable in the absence of the significant addition of generation and transmission investment and high levels of export revenue. Thus, the overall issue that MH is proposing to address, does not appear to be an issue.

Based on the above table, it is clear that the RCCs of the ARL class are highly impacted by the addition of generation and transmission investment, and high levels of export revenue, recognizing their disproportionately low allocated cost of generation and transmission.

In search of a solution to address the COS treatment of DSM as a system resource and the LED conversion costs, MH has identified a concern regarding the LED cost incurrence related to fixtures. MH's proposed COS methodology change to directly assign LED fixture costs, on the face of it appears reasonable. There is lingering concern regarding MH's justification leading to the LED streetlight conversion that included nearly 40% of the justification on the basis of fixtures and fixture maintenance and totally unrelated to the intent of DSM, to invest in economic energy and demand reduction program. There are also lingering concerns whether that the proposed assignment of \$2.8 million of DSM depreciation and interest is reasonable as there is no justification provided as to its derivation.

MH's proposal to benchmark an RCC for the ARL class to 108% does not address the substantive issue that the ARL may not be adequately allocated the cost of generation and transmission through COS as it is the result of the direct assignment of LED fixture costs and an unrelated issue.

The proposed COS methodology change by MH is clearly a result of an RCC outcome that it did not believe represented a reasonable depiction of class cost of service for ARL. It elected to address it through the adjustment of COS than through Rate Design as directed by the Board in Order 164/16.

As a result of the ongoing concerns regarding the adequacy of the allocation of generation and transmission to the ARL class, it is reasonable that an across-the-board rate increase be applied to the ARL class.

5.8 MH's Rate Differentiation Proposals Are Not Consistent with the Board's Policy Direction in Order 164/16

Order 164/16 took a significantly different approach to COS methodology by shifting ratemaking principles other than cost causation into the Rate design phase of ratemaking. In this new paradigm with the much stricter application of cost of service to revenue it is necessary that MH provide robust analysis to demonstrate the appropriateness of the assumptions made and the results of the PCOSS in order to justify its proposed rate differentiation but importantly also to have an appropriate benchmark by which to measure future cost of service results and rates, in subsequent regulatory proceedings. Manitoba Hydro has not adapted to this new paradigm and has provided insufficient support to justify its rate differentiation proposals.

There have been further fundament shifts in Manitoba Hydro's operations impacting class cost to serve including:

- i. The significant addition of generation and transmission investment flowing from the additions of Bipole III, GNGT, MMTP, and Keeyask;
- ii. Record levels of NER underpinning PCOSS24 which have an asymmetric benefit to some customer classes, notably the largest GSL classes and ARL; and
- iii. A significant reduction in Water Rental Fees and the PGF payments to the Manitoba Government, which have an asymmetric benefit to some customer classes, notably the largest GSL classes and ARL;

These changes profoundly impact cost of service, not only because of the sheer magnitude of the changes, but as a result of all changes impacting generation and transmission. While the result is overall significant increases in the class cost to serve. At the same time, the large increase in Net Income, NER, and the reduction in fees to government disproportionately benefit the largest GSL classes and ARL class.

At the same time, PCOSS24 results in some counterintuitive, unanticipated outcomes that MH has not considered or addressed. In the new paradigm with the much stricter

application of cost of service to revenue as directed in Order 164/16, these analysis are necessary in order to support and justify MH's rate differentiation proposals.

MH has also failed to address the spirit of Order 164/16, which moves all ratemaking objectives to the Rate Design phase as part of a GRA, whereby consideration is given to costs and factors other than the purely mechanistic output of the PCOSS. The result is that MH's rate differentiation proposals are based purely on the mechanistic output of PCOSS24, with consideration given to length of time (i.e. gradualism) by which to reflect the output, which conflicts with the intent of the Board's Order 164/16.

There are tools and analysis available to address Ratemaking objectives such as economic efficiency, fairness and equity, and public acceptability that MH simply ignored for purposes of rate differentiation and rate design. These include but are not limited to:

- i. The incorporation of marginal cost concepts;
- ii. The consideration of class RCCs before NER ;
- iii. Across-the-board rate changes as it relied on almost exclusively for more than two decades;
- iv. Revenue to cost coverage application at other comparable large Canadian vertically integrated electric utilities to that of MH, such as BC Hydro and Hydro Quebec; and
- v. Rate Design proposals that considers trends in NER and not just a single test year cost-of-service study, or at least sensitivity analysis based on actual financial results, rather than sole reliance on the forecast in the Test Year.

The use of these kinds of tools and analysis is consistent with the intent of Order 164/16, and in the absence of incorporation into MH's rate differential proposals, result in a purely mechanistic reliance on the results of PCOSS24 and which do not translate in rates that can be determine as just and reasonable by the Board.

6.0 IT IS RECOMMENDED THE PUB APPROVE AN ACROSS-THE-BOARD RATE INCREASE, IF INCREASE APPROVED, EXCEPT FOR THE GSSND CLASS

This Section of the Evidence provides the recommendations to the PUB with respect to MH's rate differentiation proposals, considering the conclusions and recommendations from Sections 3.0 to 5.0 of this Evidence and an analysis of cost of service and rate design information on the record of the proceeding from three distinct perspectives.

The conclusion from this Section of the Evidence is that it is recommended that the PUB approve an across-the-board rate increase, should an increase be approved, to all classes except for the GSSND class, based on the following evaluation:

1. Perspective 1 considers that despite the slightly wider dispersion of RCCs flowing from PCOSS24, compared to PCOSS21, PCOSS24 is based on an anomalous record level of NER which is forecast by MH to decline such that the RCCs for most classes will reasonably self-correct within the 5-year rate differentiation period assumed by MH in its rate proposals. This perspective does not support a mechanistic approach to differentiating rates that may result in an overshooting of RCCs under the MH rate differentiation proposals;
2. Perspective 2 considers that the results of PCOSS24 suggests that class RCCs for MH have by far the tightest range compared to other vertically integrated Canadian electric utilities which is quite favourable for MH, despite the doubling of Manitoba Hydro's balance sheet in the last 10 years, significant year over year RCC volatility, and in the absence of rate differentiation; and
3. Perspective 3 suggests that MH's rate differential proposals based on the output of PCOSS24 result in a spurious outcome for the Residential class. A balanced weighting of ratemaking objectives of fairness and equity, economic efficiency and public acceptability, in addition to cost causation as directed in Order 164/16, suggests an across-the-board rate increase is appropriate and reasonable. The nearly 1% rate differential spread between the Residential class and the GSL class is not justifiable.

6.1 PCOSS24 RCC Results from Anomalous NER that will Largely Self-Correct in the Next 5-Year Period With MH's Forecasted Decline in NER

PCOSS24 has been based on a record level of Net Export Revenue of \$1.1 billion. As discussed in Section 4.3 of the Evidence and shown in the table below, MH is forecasting a return to average water flow conditions and a lower level of NER of \$932 million in the second Test Year, 2024/25. Further, MH is forecasting NER³⁸ to continue to decline over the 5-year MH recommended rate differentiation period, to \$740 million in 2028/29.

Table 16³⁹:

	PCOSS24	Test Year 2024/25	In 5 Years - 2028/29
	(\$ millions)	(\$ millions)	
Export Revenue	1154.1	963.6	740.0
Less: Water Rentals	31.1	25.5	19.6
Less: Variable O&M	6.8	5.7	4.4
Less: Affordable Energy Fund	0	0	0
Net Export Revenue	1,116.2	932.4	716.0

The results of incorporating this anomalous record level of NER in PCOSS24 is that it generates a wider dispersion of RCCs, in particular for the largest GSL classes above the ZOR, with the Residential class RCC nearly within the ZOR at 94.4%.

Based on the evidence in Section 4.3, with the return to average water flow conditions and the continued forecasted decline in NER, the RCCs will naturally come into a fairly tight range reasonably aligned with the 95% - 105% ZOR without the requirement for any rate differentiation as shown in the following table:

³⁸ MH Application, December 9, 2022, Appendix 4.1, pg. 2

³⁹ MH Application, December 9, 2022, Appendix 4.1, pg. 2 – 2028/29 Export Revenue = \$740 million. Assumption of 3% cost assigned against export revenue based on \$932/\$967. \$740 *97% = \$716 million

Table 17:

		<u>Avg. Water</u>	<u>NER 60%</u>
	PCOSS24	PCOSS24	PCOSS24
	As Filed (NER \$1.1B)	Avg Water in 2024/25 (NER \$933M)	RCC (NER \$692M)
	PUB 141	PUB 141	CC 155
Residential	94.4%	94.8%	95.5%
GSS ND	109.7%	110.0%	110.5%
GSS D	101.8%	102.1%	102.4%
GSM	100.3%	100.3%	100.3%
GSL 0-30	97.9%	97.4%	96.7%
GSL 30-100	112.4%	110.2%	107.1%
GSL>100	113.2%	110.5%	106.8%
ARL	108.2%	112.0%	117.9%

As Table 17 shows, the Residential class’s RCC of 95.5% is within the ZOR by the end of MH’s proposed rate differentiation period⁴⁰. NER has a significant impact on class RCCs for the largest GSL class causing wild shifts in RCCs, and even these class’s RCCs are expected to be reasonably aligned with the ZOR without any rate differentiation. Caution must be used to apply judgement to RCC results in a situation where according to MH’s own forecasts, elevated levels of NER are forecast to return to normal within a reasonably short period of time.

This is the difficulty with MH’s mechanistic approach to applying COS and RCC results without applying reasonable judgement and considering other ratemaking principles. MH’s rate differentiation proposals may overshoot the desired outcome and necessitate an unwinding of the rate change in the future.

Even with the anomalous levels of NER embedded in PCOSS24, the Residential RCC is barely below the lower bound of ZOR of 95%. The forecast level of NER by MH in the next five years will result in the Residential RCC being within the range of ZOR, at 95.5%

⁴⁰ It is assumed that an NER at \$716 million, will produce class RCCs consistent with the results of MH’s 60% of NER scenario in the above table, all else equal.

and the corresponding conclusion that residential ratepayers are covering their costs. This analysis suggests an across-the-board rate increase is indicated.

6.2 PCOSS24 Results Suggest Class RCCs are Reasonably Tight to the ZOR for a Large vertically Integrated Electric Utility

Manitoba Hydro is a large vertically integrated hydraulic electric utility, with billions of dollars of generation and transmission investment that must get allocated to approximately 8 customer classes. To accomplish the allocation of billions of dollars of generation and transmission investment down to 8 classes requires significant judgement.

The ZOR is intended to recognize this judgment in any COS model and provides a rate stability tool for rate changes across classes. Particularly at times of significant change (e.g. change in generation mix or change in methodology), the cost burden can shift measurably from one class or group to another.

As discussed throughout this Evidence, the cost structure of MH has been profoundly changed with the addition of generation and transmission infrastructure along with record level export revenues. Even if no methodological changes occur to the cost-of-service study, the cost allocation to classes is subject to change due to: (1) Depreciation of large assets such as generating and transmission; (2) additions to Distribution investment (3) increases in Net Income; (4) decreases in Water Rentals and the Provincial Guarantee Fees; (5) Changes in the cost of capital as applied to rate base; and (6) Differences in the mix of customers and loads.

As discussed in Section 3.2, the ratemaking policies of similarly large Canadian electric vertically integrated utilities with export revenue of BC Hydro and Hydro Quebec with enormous common costs that require allocation based on judgement show that the RCC results of MH's PCOSS24 compare quite favourably, as shown in the table below. The range of RCCs are:

- BC Hydro, 84.5% - 133.7% with Residentials at 93.6%;

- Hydro Quebec, 84% - 125%, with Residential at 84%; and
- Manitoba Hydro, 94.4%-113.2%, with no rate differentiation, Residential at 94.4%.

Table 18:

<u>BC Hydro RCCs (%)</u>				<u>Hydro Quebec RCCs</u>	
	<u>2013</u>	<u>2014</u>	<u>2016</u>		
Residential	89.6	92.9	93.6	Residential	84%
GS<35kW	126.4	123.5	111.6	GSS ND < 65 kW	125%
MGS	120.9	119.5	120.5	GS Medium (demand) > 50 kW	125%
LGS	102.2	101.5	100.8	GS large (demand) > 5000 kW	125%
Irrigation	85.0	90.3	84.5	Large Industrials	116%
Streetlighting	112.0	129.4	133.7		
Transmission	105.3	97.3	101.4		
<u>Manitoba Hydro RCCs</u>	<u>PCOSS24</u>	<u>2028/29</u>			
Residential	94.4%	95.5%			
GSS ND	109.7%	110.5%			
GSS D	101.8%	102.4%			
GSM	100.3%	100.3%			
GSL 0-30	97.9%	96.7%			
GSL 30-100	112.4%	107.1%			
GSL>100	113.2%	106.8%			
ARL	108.2%	117.9%			

In fact, MH's RCC coverage compares quite favourably relative to these other electric utilities despite the doubling of Manitoba Hydro's balance sheet in the last 10 years as a result of the in-service of the major capital projects, significant RCC volatility year over year, and in the absence of rate differentiation.

As noted in Section 6.1, when NER levels return to more normal levels, the RCCs for the Residential class and the largest GSL classes will become even tighter with the expectation that the Residential class RCC will be in the ZOR. MH's rate differentiation proposals represent an overreaction to the mechanistic outcome of a one-year COS snapshot and do not consider the overall circumstances of a large vertically integrated utility like MH with common costs in the billions of dollars.

This is demonstrative of why application of judgement and other ratemaking principles is crucial in the Rate Design phase of MH's GRA. This perspective suggests an across-the-board rate increase is reasonable in the current GRA.

6.3 PCOSS24 Results in a Spurious Outcome for the Residential Class that Sole Reliance on for Rate Differentiation Ignores Fairness & Equity and other Ratemaking Objectives Directed in Order 164/16

PCOSS24 results in a spurious outcome for the Residential class in which MH is proposing a nearly 1% rate differential spread, compared to the largest GSL classes, on a 2% overall revenue increase or nearly 50%.

The results of PCOSS24, which is based on an anomalous record level of NER, show that the Residential class's RCC is 94.4%, and suggestive that the Residential class is paying for their costs. And, as shown above, this circumstance is temporal, and will entirely self-correct for the Residential class with reduced export revenues as forecasted by MH such that the class RCC will be at 95.5% without doing anything.

The real issue is that the largest GSL class's RCC's have increased as a result of this anomalous record level of NER assumed in PCOSS24. Even so, the analysis of MH demonstrates that this circumstance will also largely self-correct within MH's proposal 5-year rate differentiation period.

The issue for the largest GSL classes occurs as a result of:

1. The record level of NER which based on the mechanics of the COS study, disproportionately benefits these classes;
2. The significant Net Income assumed in the current Test Year, which is a cost in COS recoverable from all classes, and which is assigned to a lesser degree to these classes as it is spread based on total assets, including Distribution and which are not allocated to these classes; and
3. The windfall reduced payments to government for Water Rental Fees and the PGF, which as discussed in Section 4.4, also disproportionately benefits these classes.

The result is a dichotomy. The results of PCOSS24 show that the Residential class is effectively paying its share of costs. On this basis, the question becomes why should the fact that the largest GSL classes who significantly benefit from high NER in the current year, lower allocated Net Income, and a higher benefit from lower government payments,

result in a material 1% rate differential spread from the Residential class? This really has nothing to do with class cost responsibility, but simply a result of the mechanics of the COS study.

While the issue is really a GSL class issue, not a Residential cost to serve issue, it appears both perverse and not fair or equitable that as a result of these issues, the Residential class is having to fund this situation.

MH’s current situation reflects a significant improvement in its financials including record levels of Net Income, NER, and a windfall gain from provincial payment reductions, that is disproportionately benefitting the largest GSL and ARL classes. From a Fairness and Equity perspective, it is exactly these kinds of matters that are to be weighted in arriving at rates deemed to be just and reasonable, consistent with Order 164/16, and which MH has ignored in its dogged reliance on the mechanical output of PCOSS24.

From an economic efficiency perspective, as discussed in Section 5.6, economic efficient rate differentiation proposals importantly consider marginal cost concepts. The conclusion based on the simplified marginal cost by class analysis provided by MH, suggests that with the profound addition of generation and transmission investment, most customer classes marginal RCCs are well above 100%, but for the largest GSL>100kV class as shown in the table below. It is not considered economically sound if embedded rates fall below marginal cost.

Table 19:

<u>2023/24 GRA</u>	Marginal Cost @ Class LF (cents/kWh)	Avg Rev (cents/kWh)	Rev/MC (%)
Residential	6.61	10.27	155.4%
GSS ND	6.36	10.32	162.2%
GSS D	6.30	8.81	139.8%
GSM	6.10	7.97	130.5%
GSL 0-30	6.00	6.66	111.1%
GSL 30-100	5.27	5.54	105.2%
GSL>100	5.26	5.13	97.5%
ARL			

This directional indicator is suggestive that, from an efficiency perspective, an increase in revenues from the GSL>100kV class is warranted, rather than a decrease from the overall average, as proposed by MH, mechanistically from the results of PCOSS24. Sound

economic efficiency consideration extends beyond only consideration of embedded cost to serve, as the MH proposals neglect to consider.

The PUB rate-setting mandate is ultimately about balancing the interests between customer classes and customers. In weighing the Ratemaking Objective of Public Acceptability, which is about understandability and acceptance, in the setting electricity rates for MH, consideration should also be given MH's proposed rate differentiation particularly in concert with the significance of the rate of inflation and the sheer magnitude of price increases in basic goods.

6.4 It is Recommended the PUB Approve an Across-the-Board Rate Increase, if an Increase is Approved, Except for the GSS ND Class

In the recommendations provided to the PUB, consideration is given to Ratemaking Objectives of fairness and equity, economic efficiency, and public acceptability, in addition to weight given to the output of PCOSS24 consistent with the Board's direction in Order 164/16.

MH's proposal to essentially ascribe 100% weight to only cost causation as reflected in the output of PCOSS24 ignores the weighting of these other important ratemaking considerations that the PUB policy in Order 164/16 directed be considered in the rate design phase of ratemaking.

The deficiencies in MH's rate differentiation proposals include: (i) not considering the overall bigger picture of a large vertically integrated electric utility with billions of dollars of common costs to be allocated; (ii) an anomalous circumstance with record levels of NER and the largely self-correcting situation that RCCs will move into or close to the ZOR within a short period of time; and (iii) failure to consider rate design principles of fairness, equity, efficiency and public acceptability. As per Order 164/14, these considerations are appropriately weighted in the Rate Design phase.

In these circumstances and with a nearly 1% rate differential spread between the residential class and the GSL class (that is, 2.4% - 1.5%) on MH's 2% overall revenue increase request cannot be justified when providing weight to considerations other than PCOSS24.

A more reasonable weighting of these factors in the balancing of rates between classes would provide a certain degree of weighting of the mechanical output of PCOSS24, the

extraordinary financial circumstances in this GRA and other fundamental ratemaking principles discussed above. On this basis, the conclusion of this evaluation is that an across-the-board rate increase is recommended to the PUB.

The PUB may wish to continue with rate differentiation for the GSS ND class because of not only the persistence of RCC outside the ZOR, but importantly given this class's RCC is largely unimpacted by profound changes of circumstances, and rate differentiation appears to have been reasonably successful despite the circumstances. In this case a rate differentiation to bring the GSS ND within the ZOR may be appropriate.

APPENDIX A: CV OF KELLY DERKSEN

Kelly Derksen, BSc., CPA, CMA

Principal – Kelly Derksen Consulting

HANDS-ON AND MULTI-FACETED EXPERTISE

IMPROVING REGULATORY & BUSINESS OUTCOMES FOR CLIENTS

QUALIFICATIONS & EXPERTISE

- Ratemaking Expert
- Regulation Strategy & Execution
- Regulation Process Management
- Quality & Process Improvement
- Experienced & Respected Witness
- Leadership Excellence

CAREER HIGHLIGHTS

- Over 25 years of Rates & Regulation experience in the Utility Industry
- A recognized authority in Utility Cost of Service and Rate Design
- Experienced, credible, respected witness – testifying in numerous public hearings, 2002 – Present
- Developed, led, and assisted in dozens of regulatory proceedings
- Committed to mentoring and sharing knowledge through collaborative style and routinely conducting training

PROFESSIONAL EXPERIENCE

- Independent Consultant 2018-Present
- Manitoba Hydro/Centra Gas 1999-2017
- Centra Gas 1994-1999

EDUCATION

- Chartered Professional Accountant (CMA), 2004
- BSc., (Chemistry & Mathematics) University of Manitoba, 1995

PROFILE

Kelly leverages her 25-years of **hands-on experience** and **multi-faceted expertise** in energy regulation and ratemaking for clients that participate in and are impacted by rate-regulation – including applicants, intervenors, utility customers, regulatory & government agencies. She specializes in regulation and ratemaking, with an emphasis on cost of service, and rate design. **Clients benefit from improved regulatory & business outcomes** through the following:

Providing Clients with Ratemaking Solutions Based on Traditional and Contemporary Best Practice that are Theoretically Sound, Practical, Sustainable and Clear – Kelly developed her ratemaking expertise through decades of employment with one of Canada’s largest publicly owned, vertically integrated electric and natural gas utilities as well as providing independent advice to other applicants, intervenors, and regulatory tribunals. Kelly has led, developed and executed many cost of service and rate design studies and methodological reviews. This includes the development of extensive evidence and providing principled persuasive testimony. Along with practical experience, and continuous monitoring of the evolving utility industry, she also has deep understanding of the academic-based writings including Bonbright and Kahn, as well as the more practical detailed ratemaking manuals such as NARUC. With a deep passion and understanding of ratemaking obtained through significant hands-on utility experience uniquely enables Kelly to deliver client solutions that are workable, understandable, and that are also academically sound.

Providing Clients with Effective Regulation Strategy Advice & Workable Process Management Solutions – Leveraging from 25 years of hands-on experience-backed judgement and insight, Kelly provides strategic and tactical advice and solutions to complex regulation challenges. Kelly has successfully developed and led many interim, ex-parte, written, traditional, and unconventional regulatory processes. With the many challenges and nuances associated with achieving success in the regulatory arena, Kelly is a champion of evaluating lessons learned to achieve future success. Clients benefit from access to decades of hands-on regulatory experience to advance their goals more efficiently and effectively.

Providing Clients with Practical and Sustainable Solutions- Kelly’s collaborative style as well as her strength in the translation of complex ratemaking subject matters into workable solutions that are practical with a greater potential of stakeholder acceptance.

OVERVIEW OF RATEMAKING & REGULATORY EXPERIENCE

- Provided **regulatory** consulting services to the **Consumers Coalition** and **Consumers Association of Canada (Manitoba)** in connection with the **Manitoba Hydro/Centra Gas Manitoba Inc. Combined Natural Gas & Electric Hearing Application** before the **Manitoba Public Utilities Board**.
- Provided independent expert evidence and advice on natural gas cost allocation matters to the **Consumers Association of Canada (Manitoba)** in the **Centra Gas Manitoba Inc. Natural Gas Cost of Service Review** proceeding before the **Manitoba Public Utilities Board**.
- Providing independent expert services on ratemaking policy, rate design, ancillary cost allocation matters as well as matters of natural gas competition before the MPUB on behalf of the **Consumers Association of Canada (Manitoba)** in connection with the **2021 Centra Gas Rate Re-Bundling Application**.
- Conducted a review of the potential for cross-subsidization between the deregulated sale of gas commodity and the regulated distribution of gas at **Liberty Utilities (Gas New Brunswick) LP** in 2021 on behalf of the **New Brunswick Energy & Utilities Board**.
- Provide regulatory consulting services to the **BCOAPO et al** Intervenor Group (British Columbia Old Age Pensioners' Organization, Active Support Against Poverty, Disability Alliance BC, Council of Senior Citizens' Organizations of BC, Tenants Resource & Advisory Centre and Together Against Poverty Society) in connection with numerous natural gas and thermal utility applications before the **British Columbia Utilities Commission** including:
 - **FortisBC Energy Inc.** (natural gas) - Pattullo Gas Replacement Project Certificate of Public Convenience & Necessity (CPCN), Biomethane Energy Recovery Charge Rate Methodology & Comprehensive Review of a Revised Renewable Gas Program, Tilbury Liquefied Natural Gas Storage Expansion Project CPCN, 2022 Long-Term Gas Resource Plan, 2023 Demand-Side Management Expenditures Plan, and Okanagan Capacity Upgrade Project CPCN.
 - **FortisBC Inc.** (electric) – 2023 to 2027 Demand-Side Management Expenditures Plan.
 - **Pacific Northern Gas Ltd.** - Salvus to Galloway Gas Line Upgrade CPCN, PNG West Division 2022 Revenue Requirement Application, and PNG North-East Division 2022 Revenue Requirement Application.
 - **Creative Energy Vancouver Platforms Inc.** – Beatty-Expo Redevelopment Project CPCN, 2021 Long-Term Resource Plan, 2021 Revenue Requirement Application, 2021 Application for Heating Rates for the Thermal Energy System & Cooling Rates for the District Cooling System, and Core Steam System Decarbonization Project CPCN.
 - **Insurance Corporation of British Columbia** - 2021 Policy Year (2021/22 & 2022/23) Revenue Requirement Application
 - **Corix Multi-Utility Services** – Burnaby Mountain District Energy Utility 2020-2023 Revenue Requirement and Rates Application.
 - **British Columbia Utilities Commission** – Inquiry into the Acquisition of Renewable Natural Gas by Public Utilities in British Columbia, Phase 2.

- Provided independent expert evidence and testimony to the **Nova Scotia Utility and Review Board** regarding **Nova Scotia Power's 2021 Back-Up Top-Up Rates** related to the cost to serve and pricing of intermittently served municipally owned wind generation.
- Provide ongoing independent expert rate advice and evidence regarding marginal and load retention rates to the **Nova Scotia Utility and Review Board** regarding Nova Scotia Power's **2020, 2021, and 2022 Annually Adjusted Rate Applications**.
- Provided advisory services to **Efficiency Manitoba** in connection with its **2020/23 Efficiency Plan** filing to the Manitoba Public Utilities Board (MPUB), including regulatory on-boarding, regulatory filing review process design and strategic filing preparation advice.
- Independent expert witness on ratemaking policy, internal and external cost allocation, rate design, and terms and conditions of service matters on behalf of the **Consumers Association of Canada (Manitoba)** in the **Centra Gas Manitoba Inc. 2019/20 General Rate Application** proceeding before the **Manitoba Public Utilities Board**.
- Independent expert witness on ratemaking policy, cost of service, rate design and regulatory compliance matters on behalf of the **Consumers Coalition** in the **Manitoba Hydro 2019/20 Rate Application** proceeding before the **Manitoba Public Utilities Board**.
- Conducted a review and made recommendations on the implementation of a revised **internal cost allocation methodology** related to the inter-affiliate, multi-jurisdictional allocation of corporate and shared service costs for the **Corix Group of Companies**, a leading provider of energy, water & wastewater utilities for small to medium-sized communities across North America.
- Promoted through progressively senior analytical and managerial positions in the general area of **utility ratemaking and regulation** at the **privately-owned Centra Gas**, and then **Manitoba Hydro**, a combined publicly owned vertically integrated hydro-electric utility and disaggregated natural gas utility.
- Over two decades of hands-on experience in developing practical solutions to complex problems that comport with best practice categorized broadly as:
 1. Regulation Strategy and Process Management
 2. Ratemaking
 3. Leadership and Communication

Regulation Strategy and Process Management

- Provided strategic and tactical advice and solutions to Executive Management for over 15 years on ratemaking and regulatory policy consistent with the strategic goals of the organization and within the context of the governing legislation and regulatory framework.
- Led, developed, and assisted in dozens of rate cases (and other regulatory processes) interfacing with external agencies and the many internal disciplines necessary to support the process. Provided advice and reports to Executive Management regarding appropriate regulatory strategies and developed a common theme and orderly plan with careful execution to achieve strategic, financial and operational deliverables.
- Provided advice to Executive Management regarding the interpretation of regulator decisions and compliance.
- Successfully led numerous traditional, unconventional, interim and ex-parte regulatory processes. This included numerous stakeholder engagement sessions, demonstrating commitment to seeking solutions to best balance multiple conflicting interests, building trust and strengthening relationships.

- With the many challenges and nuances associated with achieving success in the regulatory arena, a champion of evaluating lessons learned for the achievement of successful future outcomes; including key stakeholders in this evaluation is critical to building solid relationships, and to move forward goals more efficiently and effectively.

Ratemaking

- A deep understanding of utility ratemaking including extensive hands-on experience having developed, led, and executed dozens of studies and several cost of service and rate design methodological reviews, through continuous monitoring of the evolving utility industry, a solid understanding of the economics behind investment decisions, the physical workings of the system, a strong understanding of the legislative framework and regulatory construct by which a utility operates, and the academic-based writings of Bonbright and Kahn as well as more practical detailed ratemaking guidance provided by NARUC.
- An experienced and respected witness having represented the Corporation as a subject matter witness before the MPUB for 17 years. Provided testimony on revenue requirements, rate base, cost of service, rate design, treatment of deferral and variance accounts, expansion financial feasibility tests, terms and conditions of service, regulatory approvals and procedural matters.
- Driving force and key witness behind the 2016 electric Cost of Service Methodology Review before the MPUB to review the methodology underpinning the allocation of a \$2 billion revenue requirement, \$500 million of export revenue, and a \$20 billion rate base among over 570,000 customers.
- Developed the 2016 electric Cost of Service Methodology Review case strategy and evidence, hundreds of information requests, led several stakeholder engagement sessions, evaluated Intervenor Expert positions, rebuttal evidence, testimony, and final arguments available on the MPUB's website: www.pubmanitoba.ca.
- Developed evidence to support several key issues such as: an overall methodology that reasonably balanced the corporation's financial goals and the public interest given significant external energy market changes subsequent to 2008 (advent of shale gas, plunge in electric and natural gas prices) coupled with significant investment in new hydraulic infrastructure/aging infrastructure; a cohesive overall methodology associated with a largely interconnected hydro-electric utility; the influence of economics (marginal cost to service) on embedded cost to serve; and the interrelation between revenue requirement, cost of service, and rate design and potential unintended consequences (impacts to low income customers, or protecting the utility's ability to collect its approved revenue requirement).
- Recognized publicly for capabilities having developed an expert level knowledge of electric cost of service over a short timeframe to support a complex regulator review and delivering testimony.
- Led and developed numerous cost allocation and rate design models to analyze the impacts and sensitivities of scenarios.
- Conducted training on rates, cost analysis, methodology, economic feasibility (service extension), revenue requirement.
- Led and prepared the development of lead-lag studies, rate base, revenue requirements on many occasions between 1998 and 2008 for Manitoba's natural gas utility.

Leadership and Communication

- Extensively interacted with a variety of styles and experience levels having led large multi-disciplinary teams with dozens of professionals and routinely presenting to Executive Management, Board of Directors, Retail Customers, Stakeholders and the Regulator.
- Successfully advanced many regulatory applications and related hearing processes, at times concurrently, accomplished through building cross-departmental co-operation, periodically with disparate in-house teams, with a genuine interpersonal style that engenders trust and commitment. For example, over a 12-month period beginning in the fall of 2006, led and developed 4 major applications including a Cost of Gas Application, a 4-Party Trench Application; a General Rate Application; and a generic competition-related application.

- Managed and mentored a team of professional accountants. By creating a collaborative atmosphere, and encouraging measured autonomy proudly developed a well-respected flexible team with strong expertise.
- Developed productive relationships with regulator staff and advisors, key stakeholders and interest groups.
- Routinely presents at regulatory workshops and industry conferences, to strengthen skills and importantly to share knowledge and experience with others.
- Strength in translating complex ratemaking subject matter, into practical, clear solutions based on traditional and contemporary best practice and the related strategy and evidence development of a regulatory case.

PROFESSIONAL EXPERIENCE

Independent Consultant in Public Utility Regulation & Rates	2018 - Present
Manitoba Hydro - Manager, Cost of Service & Rates	2009 - 2017
Manitoba Hydro - Manager, Gas Rates & Regulatory Affairs	2006 - 2009
Manitoba Hydro - Senior Analyst, Gas Rates	2002 - 2006
Manitoba Hydro- Analyst, Gas Rates	1999 - 2002
Centra Gas – Revenue Requirement Analyst, Regulatory Affairs	1998 - 1999
Centra Gas - Coordinator, Regulatory Affairs	1995 - 1998

A SELECTION OF RELEVANT PROJECT EXPERIENCE:

- Developed an integrated internal cost allocation methodology for a large water utility with numerous Canadian and U.S. based subsidiaries;
- Reviewed zone of reasonableness policy and developed the related strategy and evidence;
- Addressed the treatment of International Financial Reporting Standards (IFRS) within external cost of service;
- Treatment of large hydraulic generation cost measurement within embedded cost to serve;
- Treatment of significant export revenue priced the margin (at times 40% or more of total revenue requirement) within embedded cost to serve (effectively a matter of public policy)
- Treatment of demand side management cost within cost to serve;
- Economic development rates/energy intensive rates/low income rates;
- Uneconomic bi-pass (distributed solar PV); economic bi-pass;
- Costing assumptions in feasibility tests to address divergence between embedded and marginal cost to service and related service extension policy (including to support business expansion and growth opportunities);
- Allocation treatment of revenues and costs (and related rate base) associated with unique partnerships with First Nations developed to support new, multi-billion-dollar hydraulic generation;
- Wheeling tariffs—provided the underlying cost analysis and regulatory advice;
- Treatment and determination of variance accounts (cost trackers);
- Led Revenue Decoupling evidence and testimony during 2008 Centra GRA;
- Evaluated the appropriateness and level of Month Basic Charges, developed evidence and led testimony;
- Evaluated the appropriateness and level of Demand Charges, developed evidence and led testimony;
- Fixed rate alternatives (within and outside of regulated utility);
- Successfully developed a solution for and executed the disposal of \$100 million in gas costs (nearly 40% of total asset investment) accumulated during the natural gas market conditions in early 2001, and the accumulation of \$46 million in gas costs during the 2013/2014 record cold winter;
- Rate unbundling to support service unbundling flowing from natural gas market restructuring to facilitate competition;
- Analysis and research assessing a competition-related role of the utility in the provision of gas supply application;
- Successfully developed a treatment for costs incurred to facilitate competition; and
- Developed codes of conduct between regulated and unregulated utility affiliates.