

Undertaking for PUB – Prepared by Gerdau

Industrial Rate Comparison Ontario versus Manitoba

The Board Chair requested a comparison of the general rates available to Gerdau in Manitoba and Ontario following Gerdau's public presentation on May 16th. The request was further clarified to include a description of the various programs providing rate flexibility to Gerdau in Ontario and the relative impact this added flexibility has for the effective rates paid by Gerdau in Ontario [Transcript 16-05-2023 p.94 -96].

The following response to the Board Chair's requested undertaking contrasts the industrial rate structures for a mini mill in Manitoba versus a similar operation in Ontario, highlighting the impacts of rate flexibility offered under various programs offered in Ontario.

Electricity Utilization

A mini mill describes a steel making operation where metal scrap, primarily from shredded cars, is melted in an electric arc furnace (EAF). The EAF passes large amounts of power through the scrap transforming it into molten steel. The EAF load represents about 75% of the total energy consumed in the mill. The EAF is very flexible and can be turned off or curtailed within minutes of notification and remain "down" for periods of minutes or even hours. This ability to provide load relief is seen by the power grid as the equivalent to adding dispatchable generation.

EAF flexibility is valued under many utility or independent system operator-initiated programs such as:

- Industrial Conservation Initiatives
- Transmission/Demand Coincident Peak (CP) Capacity Programs
- Operating Reserve, Spinning Reserve, Sync Reserve Services
- Demand Response (DR) Programs

Industrial Conservation Initiative (ICI)

The Industrial Conservation Initiative (ICI) in Ontario is also known as the five (5) Coincident Peak (CP) and Global Adjustment (GA) programs.

The HOEP (Hourly Ontario Energy Price) is one component of the total commodity cost for electricity in Ontario. As a transmission customer, Gerdau purchases energy at the hourly market price, as overseen by the Independent Electric System Operator (IESO) in Ontario. Gerdau has access to all the mechanisms offered by the IESO and the market for purchasing energy, including real-time pricing, price hedging, etc.

Note: These real-time and hedging options for energy purchases are not available in Manitoba under the current rate and regulatory structure.

GA is another component of the total commodity cost for electricity in Ontario. The GA covers the cost of building new electricity infrastructure, maintaining and refurbishing existing generation resources, and costs for delivering conservation programs, necessary for ensuring adequate supply over the long term.

As a Class A customer in Ontario, Gerdau pays its portion of the GA based on its coincident peak contribution to the top five provincial peak hours in the year (5 CP).

In the absence of a four(4) or five(5) CP tariff option (or pilot), Gerdau does not have the same opportunity to manage allocated demand costs in Manitoba. Gerdau's share of allocated demand costs is based its peak non-coincident demand and a class average allocation of Manitoba Hydro's demand costs assuming an average coincident contribution to the 50 highest system peaks. This approach provides no value to Gerdau's load flexibility and the related capability to reduce its contribution to the coincident system peak, and thereby reducing overall demand costs for Manitoba Hydro.

Operating Reserve, Spinning Reserve or Sync Reserve

Operating Reserve (OR) refers to a stand-by power resource or load demand reduction that can be called on with short notice to address an unexpected mismatch between generation and load. Dispatchable generators or load reductions must be able to provide additional capacity and energy (or equivalent reduced load demand and energy consumption) within the time frame specified by the class of operating reserve involved (either 10 minutes or 30 minutes) and be able to sustain this supply of operating reserve energy for up to one hour.

Manitoba Hydro has capped participation in the existing Curtailable Load Program (CRP), which is currently closed to new participants. This current cap prevents Gerdau from participating in the CRP and benefitting from the opportunity to earn credits available under the program.

Demand Response (DR)

Program participants reduce (or eliminate) their energy use during times when the electricity system is experiencing high customer demand and is at risk for the provision of generation/transmission capacity and delivery of energy. Customers offer their flexible load through the yearly competitive Capacity Auction where successful bidders are paid a reservation fee (\$/MW-day). A warning notice typically arrives 24 hours before a potential curtailment. On the day of curtailment loads are notified to reduce their demand by the amount in their offer for a period varying from 1 to 4 hours.

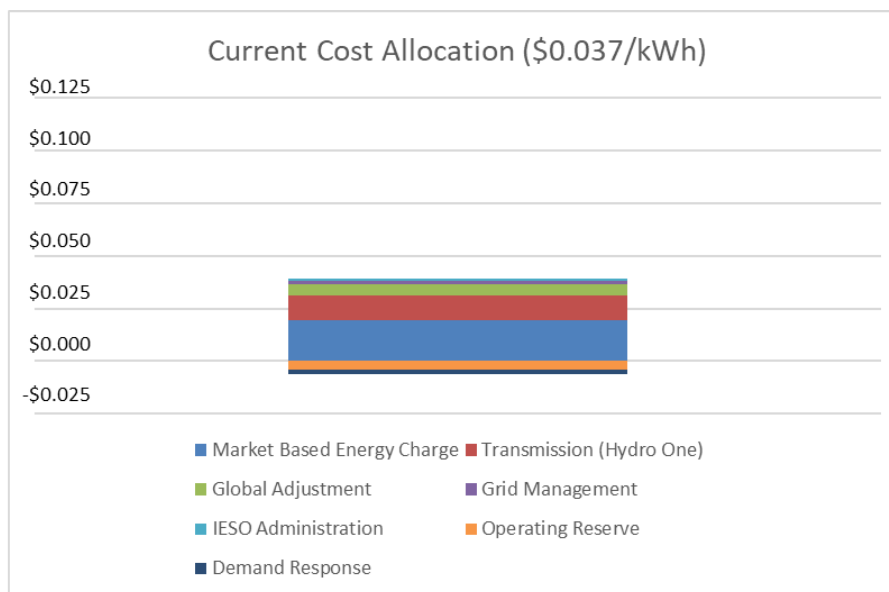
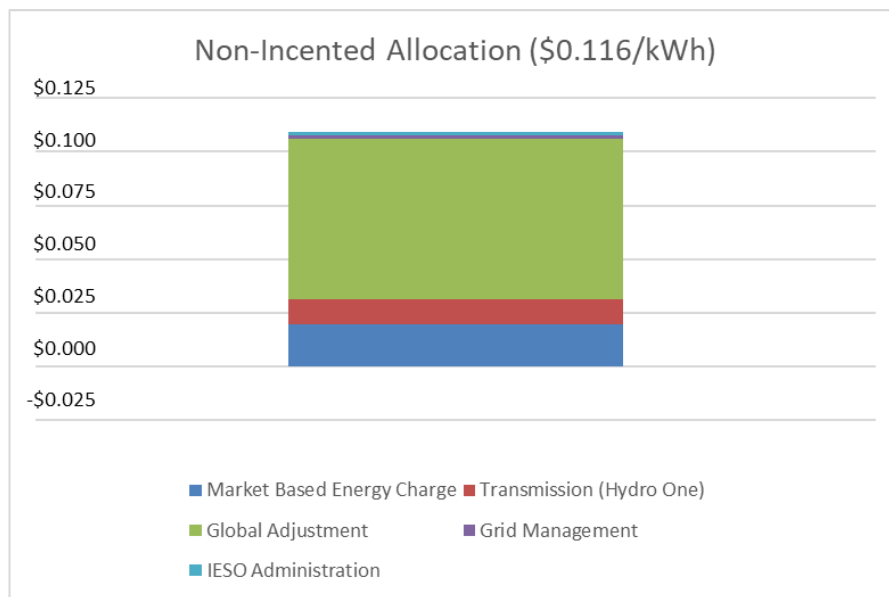
The absence of a DR program in Manitoba prevents Gerdau from offering its load flexibility as a dispatchable resource for load reductions during periods of system constraint. This load relief can be applied during generation shortage or transmission constraint, serving as a replacement for conventional dispatchable generation or otherwise necessary transmission system upgrades. It could also be used to provide export demand and energy that may be monetized by MH to bordering jurisdictions during peak pricing periods.

Cost Impact of Ontario Power Reduction Programs:

The following two charts compare the breakdown of the costs for a Class A customer in Ontario. The rates referenced in the charts will vary with changes in the HOEP and Global Adjustment amounts that are allocated to customers monthly.

The Non-Incented Allocation results in the full impact of the GA costs with no value given for load flexibility. The Current Cost Allocation reflects the benefits of the ICI program to GA impact, with Operating Reserve and Demand Response credits shown as negative costs. The result:

- Non-Incented Allocation monthly weighted cost: \$0.116/kWh
- Current Cost Allocation monthly weighted cost: \$0.037/kWh



Comparable Manitoba Industrial Rates

Manitoba Hydro, >100 kV Industrial Rate				
	Energy		Demand	
	Rate	Allocation	Rate	Allocation
2022	\$0.03766	69%	\$ 7.36	31%
2023	\$0.03766	67%	\$ 7.79	33%
2024	\$0.03766	66%	\$ 8.31	34%

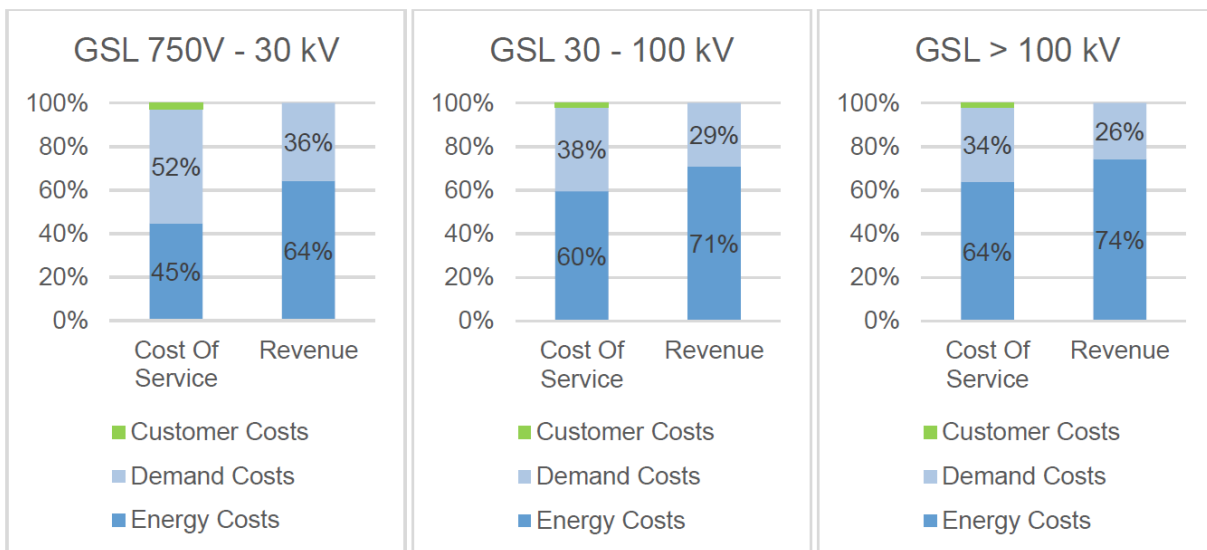
The noted Manitoba Hydro allocation ratios for Demand and Energy are dependent on the customer load factor during the monthly billing period. A higher monthly load factor will decrease the allocation percentage for demand, while a lower monthly load factor will increase the allocation percentage for demand. The allocations noted in the table above were based on applicable or proposed demand and energy rates for Gerdau based on a typical monthly load factor.

Comments Related to Manitoba Hydro Rate Design

Manitoba Hydro’s proposed “Demand Only” rate increases for the General Service Large >100 kV rate class disproportionately harm customers like Gerdau with mid-level load factors, resulting in rate increases that are materially greater than the class average rate increase. The proposed rate treatment further weakens Gerdau’s competitive position in world markets as these cost increases can not be downloaded or passed onto our customers.

Figure 8.21 from Tab 8 in the Manitoba Hydro Application indicates a revenue split of 26% Demand and 74% Energy for the GSL >100 kV rate class.

Figure 8.21 Comparison of Demand and Energy Costs vs Revenue Recovery



Gerdau's current revenue split equates to 31% Demand and 69% Energy, which is reasonably aligned with Manitoba Hydro's allocated cost split of 36% for Demand (34%) and Customer costs (2%), and 64% Energy costs. Gerdau's ratio of demand and energy revenues will change to 34% Demand and 66% Energy by April 2024 if Manitoba Hydro's rate proposal is accepted, reflecting an even stronger alignment with Manitoba Hydro's presentation of demand and energy costs. Further demand-only rate increases, beyond this current rate application, would result in a situation where Gerdau may over-contribute to demand costs while continuing to incur higher than class average rate increases. This risk exists even though the GSL >100 kV rate class continues to show revenue cost coverage ratios that are considerably higher than the upper limit of the 95% - 105% Zone of Reasonableness.

Interval Demand Measurement

Ontario uses a 60-minute window for determination of load demand, in contrast to Manitoba, where a 15-minute window is used. The 60-minute window used in Ontario provides Gerdau with greater flexibility for managing its peak billing demand. The load cycle for a mini mill requires higher levels of demand when a furnace is charged with scrap metal followed by longer periods of lower demand during which the melt is conditioned and poured. The 60-minute window in Ontario reduces the impact of the relatively short demand increase when the furnace is charged. In Manitoba, the shorter 15-minute demand window causes these relatively short demand peaks to set Gerdau's peak billing demand. As a result, similar operations in Manitoba and Ontario will have materially different peak demands for billing purposes.

Implementation of the 5 CP methodologies and other programs that recognize the benefits of customer load flexibility programs require transparency in real-time reporting for system load. Transparent real-time reporting of system load is facilitated by the IESO in Ontario, enabling customers to recognize system behavior and appropriately plan for their response to periods of peak system load, and thereby realize the savings available under the 5 CP methodology and Demand Response programs. Such reporting does not presently exist in Manitoba.

Overall, the current Manitoba pathway contrasts directly with Ontario's approach, where Gerdau is able to make use of its load flexibility to manage allocations of fixed costs, and thereby control its effective all-in energy costs.

Conclusion

The implementation of rates and programs that recognize load flexibility have helped Ontario industrial customers remain competitive in North American and World markets. The continued escalation of rates and lack of rate programs that value load flexibility threatens the long-term viability of Manitoba's industrial customer base.