TABLED DOCUMENT 398-18(3) TABLED ON MARCH 14, 2019

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MLA, FRAME LAKE

MAR 1 3 2019

Oral Question 535-18(3) Taltson Project Expansion

This letter is in follow-up to the Oral Question you raised on February 8, 2019 regarding the Taltson hydropower expansion project. I committed to providing calculations for the estimated 240 thousand-tonne reduction in greenhouse gas (GHG) emissions that would result from the expansion, and to tabling the calculations in the Legislative Assembly.

The proposed 60 megawatt (MW) Taltson hydropower expansion will produce anywhere from 336 million kilowatt hours (kWh) up to 563 million kWh of additional electricity generation, based on our 50-year hydrology record. From within that range, we have applied an average (50%) water year to arrive at 447 million kWh. From there, we reduced the potential sales by 20% to consider line loss (5%) resulting from the transmission of energy over long distances, and assumed we could sell 85% of the power to industry and arrive at 357.6 million kWh of potential energy sales. Since the average generation efficiency for larger diesel generation units at existing mines is about 4.1 kilowatt hours per litre (kWh/L) of diesel consumed, we can then calculate the volume of diesel displaced by dividing the power production by 4.1, which is equivalent to 87 million litres.

The combustion of one litre of diesel, according to the Canadian GHG National Inventory Report, is equal to 2.8 kilograms of carbon dioxide (CO_2) produced. Therefore, 87 million litres, multiplied by 2.8 kg of CO_2 per litre, equals 244 thousand tonnes of CO_2 displaced per year. Attachment A provides a summary of these calculations.

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It should be noted that in the *2030 Energy Strategy*, the GHG emissions reduction is estimated to be 227 thousand tonnes for the Taltson expansion. A 5 to 10% variation in the published numbers is attributable to changing assumptions such as residual heat, exhaust gas heat recovery, and other energy efficiency opportunities for industry to pursue.

Wally Schumann
Minister
Infrastructure

Attachment

c. Clerk of the Legislative Assembly

Legislative Coordinator
Executive and Indigenous Affairs

Attachment A:
Summary of Taltson Greenhouse Gas (GHG) Reduction Calculations

Taltson GHG Reduction Estimate		
Inputs		
Energy Potential of Taltson Expansion (90% - 10%)	336,000,000 - 563,000,000	kWh
Average Generation Potential based on 50 years (50%)	447,000,000	kWh
Line Loss (%)	- 5%	
Contingency (%)	- 15%	
Power Sold to Industry (%)	80%	
	= 80%	
Industrial Sales		
Power Sold	357,600,000	kWh
Divide by Average Mine Efficiency	4.1	kWh per Litre
Generation (Diesel) Fuel Savings	87,219,512	Litres
GHG Emissions per Litre of Oil	2.8	kg of CO_2e per litre
Litres of Oil Saved x 2.8 kg/Litre = GHG Emission Reduced	**244,215**	**Tonnes of CO_2e**