

October 21, 2019



Re: Your request for access to information under Part II of the *Access to Information and Protection of Privacy Act* (File # NR-217-2019)

On October 18, 2019, the Department of Natural Resources received your request for access to the following records/information:

RE: NR-200-2019 ATIPP Response please provide Information Note on Synapse Energy Economics Phase 2 Report On Rate Mitigation

I am pleased to inform you that a decision has been made by the Department of Natural Resources, confirmed by the Deputy Minister, to provide access to the requested records. The record is attached.

As set out in section 42 of the Act you may ask the Information and Privacy Commissioner to review the department's decision to provide access to the requested information. A request to the Commissioner must be made in writing within 15 business days of the date of this letter or within a longer period that may be allowed by the Commissioner. Your request should identify your concerns with the department's response and why you are requesting a review.

The request for review may be addressed to the Information and Privacy Commissioner is as follows:

Office of the Information and Privacy Commissioner
2 Canada Drive
P.O. Box 13004, Stn. A
St. John's, NL. A1B 3V8
Telephone: (709) 729-6309
Toll-Free: 1-877-729-6309
Facsimile: (709) 729-6500

Pursuant to section 52 of the Act, you may also appeal directly to the Supreme Court

Trial Division within 15 business days after receiving the department's decision.

Please be advised that responsive records will be published following a 72 hour period after the response is sent electronically to you or five business days in the case where records are mailed to you. It is the goal to have the responsive records posted to the Completed Access to Information Requests website within one business day following the applicable period of time. Please note that requests for personal information will not be posted online.

For further details about how an access to information request is processed, please refer to the Access to Information Policy and Procedures Manual at <http://www.atipp.gov.nl.ca/info/index.html>.

If you have any questions, please feel free to contact me at 709-729-0463 or rhynes@gov.nl.ca.

Sincerely,

A handwritten signature in cursive script that reads "Rod Hynes".

Rod Hynes
ATIPP Coordinator

Information Note
Department of Natural Resources

Title: Synapse Energy Economics Phase Two Report on Rate Mitigation

Issue: To provide a summary of Synapse Energy Economics Phase Two Report on Muskrat Falls Rate Mitigation options in response to the Board of Commissioners of Public Utilities (PUB).

Background and Current Status:

- On September 5, 2018, Government provided a reference question to the PUB to examine options to mitigate the impact of the Muskrat Falls Project (MFP). The PUB engaged two expert consultants to assist with the question: Liberty Consulting Group and Synapse. Both consultants' interim reports were released on January 2, 2019. Final reports were released on September 3, 2019.
- Synapse's Phase Two report reflects refinements to key findings identified in Phase One (the interim report) in the four areas of Load Forecasts, Electrification, Conservation and Demand Management (CDM), and Export Markets. Synapse has identified a series of 30 scenarios built on various combinations of rates, adoption of CDM programs, levels of electrification and electric vehicle (EV) penetration, rate design (including Time of Use (TOU) pricing and Critical Peak Pricing), export price, and load growth.
- For each scenario, Synapse shows mitigation potential as well as export market volumes. Key scenarios highlighted by Synapse include high CDM, high electrification, high electrification with EV Time of Use rates, and high electrification with EV Time of Use rates plus high CDM.
- Synapse uses a "low-rate" reference case that assumes rates increase from 11.3 cents per kWh in 2019 to 23.3 cents per kWh in 2023. This represents a "do-nothing" approach and other scenarios are compared to this reference case to illustrate impacts.
- Synapse provides a table (see Annex 1) of select scenarios and their impact on utility revenues, finding that scenario 12a – high electrification with EV time of use pricing and demand response – shows the greatest increase in utility revenues. Under this scenario, utility revenues increase by \$41 million in 2025 and \$72 million in 2030.
- Synapse finds that the single most beneficial rate mitigation tool is electrification, as it directly increases load and allows increased contributions to pay for Muskrat Falls project (MFP) fixed costs. The report finds that heating end use (mostly in the large institutional sector) dominates the increased energy use during the early years, but transportation electrification grows to become a significant share by 2030. The net increase in electric revenues in the high electrification scenario is \$55 million by 2030.
- Synapse finds that CDM and Demand Response scenarios exhibit poor mitigation from an overall utility rates perspective. However, these scenarios showed the best net benefits for ratepayers because total average energy consumption declines and reduces customer average monthly electricity bills.

- The report notes that maximizing export energy sales would not optimize rate mitigation while also noting that ongoing CDM, especially on the Island, can help increase export sales as a valuable and cost-effective means to help reduce customer bills. A table of Export Market Revenues by Scenario is provided in Annex 2.
- Synapse finds that CDM complements electrification elements not only because it allows increases in export sales, but it also mitigates the peak-load-increasing effect of electrification consumption that spills into peak periods. CDM frees up energy for sale to export markets while simultaneously reducing future capacity expenditure needs.
- Synapse notes that rate design using TOU pricing results in a reduction in peak load. TOU rates apply different prices to consumption according to a set schedule, which is designed to correspond to the costs of providing electricity during different hours of the day. Using TOU rates to reduce peak demand results in a relative reduction in required generation capacity and associated reductions in revenue requirements, leading to lower bills and rates for customers.
- Synapse also states that rate design at the sectoral level can help to provide the price signals required to optimize load in the Province for rate mitigation and encourage customers to reduce demand when capacity is constrained, while increasing consumption when the costs on the system are low, as well as, providing an opportunity for maximizing exports.
- Overall, Synapse concluded that high levels of policy-supported electrification combined with enhanced CDM and the use of multiple forms of rate design offers the best overall rate and bill mitigation effect. Scenarios that implement these pathways show reductions in the total energy bills paid by consumers in the Province.

Analysis

- Synapse describes its reference scenario as “low-rate” even though it appears to contemplate a rate of 23.3 cents per kWh in 2023. A more thorough description of underlying assumptions with respect to rates would be helpful. In fact, while Synapse does use descriptive titles for its scenarios that give a relatively clear indication of what each entails, there is no detailed statement of the underlying assumptions and parameters.

Action Being Taken:

- NR will continue to analyze the report and its relationship with ongoing rate mitigation efforts.
- Synapse and Liberty will present their reports to at the PUB Reference Questions public hearings beginning October 3, 2019.

Prepared/Reviewed by: Y. Khan/R. Bates/K. Bradbury/ C. Snook

Approved by:



September 4, 2019

Annex 1

Table 1: IIS Net Mitigation Effects for CDM, DR and Electrification Relative to Baseline, for Select Scenarios, 2025 and 2030: \$ Millions, \$¢/kWh, \$/month Bill Impact, and Average Fossil Fuel Savings Impact

Scenario	Delta Utility Revenues (Millions)		Avg Rate Mitigation (cents/kWh)		Delta Total Energy Expenditures (Millions)		Delta Avg Electric Bill \$/month		Delta Avg Energy Expenditures \$/month	
	2025	2030	2025	2030	2025	2030	2025	2030	2025	2030
6. High CDM	(\$41)	(\$84)	0.549	1.431	(\$41)	(\$84)	(\$6)	(\$20)	(\$6)	(\$20)
10. High Elec	\$34	\$55	(0.490)	(0.799)	(\$78)	(\$189)	\$9	\$21	(\$22)	(\$46)
12. High Elec w/EV TOU	\$35	\$58	(0.505)	(0.847)	(\$77)	(\$186)	\$9	\$20	(\$22)	(\$47)
12a. High Elec w/EV TOU w/DR	\$41	\$72	(0.600)	(1.070)	(\$71)	(\$171)	\$7	\$16	(\$24)	(\$52)
20. High Elec w/EV TOU, High CDM	(\$2)	(\$15)	(0.039)	0.310	(\$114)	(\$259)	\$2	(\$1)	(\$29)	(\$69)
20a. High Elec w/EV TOU, High CDM w/DR	\$4	(\$1)	(0.136)	0.069	(\$108)	(\$245)	\$1	(\$6)	(\$31)	(\$73)
24. High Elec w/EV TOU, High CDM w/TOU+CPP	\$3	\$5	(0.108)	(0.038)	(\$109)	(\$239)	\$1	(\$8)	(\$30)	(\$75)

Source: Synapse.

Note: Delta Average Energy Expenditures is average across all customers and does not reflect the average savings seen for a residential customer, as a large fraction of oil savings is for larger buildings. Positive "Delta Utility Revenues" indicate increased utility revenues relative to the Synapse LR Scenario. Negative "Average Rate Mitigation" values indicate a decrease in rates relative to the Synapse LR Scenario. Negative "Delta Total Energy Expenditures" indicate a decrease in total energy expenditures relative to the Synapse LR Scenario.

Annex 2

Export Market Revenues by Scenario

Figure 55: Export Market Revenue net of Admin Costs by Scenario (\$000)

Export Market Revenues by Scenario (\$000)	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
1. Synapse LR	\$ 28,198	\$ 99,822	\$ 120,252	\$ 115,290	\$ 114,073	\$ 119,377	\$ 125,031	\$ 137,081	\$ 141,833	\$ 159,320	\$ 162,527	\$ 169,803
2. Synapse MR	\$ 28,215	\$ 99,774	\$ 122,020	\$ 120,321	\$ 121,185	\$ 129,240	\$ 135,555	\$ 148,517	\$ 153,783	\$ 173,022	\$ 177,077	\$ 185,810
3. Synapse FR	\$ 28,198	\$ 99,810	\$ 123,407	\$ 122,063	\$ 123,612	\$ 132,664	\$ 144,342	\$ 151,515	\$ 167,672	\$ 188,804	\$ 194,539	\$ 206,859
5. Low CDM	\$ 28,198	\$ 99,822	\$ 120,265	\$ 116,557	\$ 114,301	\$ 120,289	\$ 125,397	\$ 139,179	\$ 144,751	\$ 163,706	\$ 167,262	\$ 178,390
6. High CDM	\$ 28,198	\$ 100,114	\$ 121,539	\$ 119,068	\$ 119,944	\$ 128,719	\$ 138,765	\$ 155,101	\$ 164,329	\$ 188,713	\$ 198,426	\$ 214,887
7. Low CDM w/TOU	\$ 28,198	\$ 99,822	\$ 120,250	\$ 115,527	\$ 114,152	\$ 120,305	\$ 125,401	\$ 139,379	\$ 144,907	\$ 163,731	\$ 168,321	\$ 178,087
8. High CDM w/TOU	\$ 28,198	\$ 100,114	\$ 121,934	\$ 119,042	\$ 120,527	\$ 128,734	\$ 138,401	\$ 155,571	\$ 164,438	\$ 188,719	\$ 198,354	\$ 214,905
9. Low Elec	\$ 28,177	\$ 99,494	\$ 117,329	\$ 112,764	\$ 111,016	\$ 116,454	\$ 121,744	\$ 134,557	\$ 138,649	\$ 154,325	\$ 156,549	\$ 163,331
10. High Elec	\$ 28,166	\$ 98,723	\$ 113,992	\$ 108,225	\$ 105,795	\$ 109,173	\$ 113,275	\$ 123,271	\$ 125,975	\$ 139,780	\$ 138,337	\$ 141,149
11. Low Elec w/EV TOU	\$ 28,162	\$ 99,551	\$ 118,086	\$ 112,763	\$ 111,055	\$ 116,463	\$ 121,747	\$ 133,375	\$ 137,689	\$ 154,378	\$ 155,382	\$ 162,250
12. High Elec w/EV TOU	\$ 28,159	\$ 98,759	\$ 114,541	\$ 108,705	\$ 106,379	\$ 109,153	\$ 114,050	\$ 123,267	\$ 126,192	\$ 139,781	\$ 140,035	\$ 141,205
13. Low Elec, Low CDM	\$ 28,178	\$ 99,497	\$ 117,739	\$ 113,207	\$ 111,735	\$ 117,338	\$ 123,244	\$ 136,380	\$ 140,723	\$ 158,781	\$ 161,949	\$ 170,688
14. Low Elec, High CDM	\$ 28,178	\$ 99,873	\$ 119,252	\$ 116,546	\$ 117,133	\$ 125,808	\$ 135,369	\$ 151,550	\$ 160,486	\$ 184,051	\$ 192,262	\$ 208,816
15. High Elec, Low CDM	\$ 28,166	\$ 98,720	\$ 114,208	\$ 109,030	\$ 106,359	\$ 110,068	\$ 115,343	\$ 125,448	\$ 129,174	\$ 144,310	\$ 144,972	\$ 149,762
16. High Elec, High CDM	\$ 28,166	\$ 99,021	\$ 115,786	\$ 112,692	\$ 111,848	\$ 118,613	\$ 125,549	\$ 142,122	\$ 149,331	\$ 170,336	\$ 176,504	\$ 189,183
17. Low Elec w/EV TOU, Low CDM	\$ 28,162	\$ 99,551	\$ 118,160	\$ 113,398	\$ 111,379	\$ 117,358	\$ 123,871	\$ 135,523	\$ 140,732	\$ 158,800	\$ 161,963	\$ 170,700
18. High Elec w/EV TOU, Low CDM	\$ 28,156	\$ 98,752	\$ 114,725	\$ 108,485	\$ 106,155	\$ 110,114	\$ 114,738	\$ 126,454	\$ 129,183	\$ 144,368	\$ 145,494	\$ 149,852
19. Low Elec w/EV TOU, High CDM	\$ 28,162	\$ 99,852	\$ 119,534	\$ 117,479	\$ 117,696	\$ 125,813	\$ 135,645	\$ 151,564	\$ 160,510	\$ 184,076	\$ 193,255	\$ 208,062
20. High Elec w/EV TOU, High CDM	\$ 28,156	\$ 99,054	\$ 116,464	\$ 112,084	\$ 112,392	\$ 118,627	\$ 125,884	\$ 142,308	\$ 149,371	\$ 170,397	\$ 177,499	\$ 189,271
21. Low Elec w/EV TOU, Low CDM w/TOU	\$ 28,162	\$ 99,551	\$ 118,048	\$ 113,011	\$ 112,258	\$ 117,347	\$ 123,243	\$ 135,551	\$ 140,729	\$ 158,809	\$ 162,929	\$ 170,670
22. Low Elec w/EV TOU, High CDM w/TOU	\$ 28,162	\$ 99,852	\$ 119,723	\$ 116,555	\$ 118,037	\$ 125,829	\$ 135,414	\$ 152,182	\$ 160,479	\$ 184,093	\$ 193,908	\$ 208,756
23. High Elec w/EV TOU, Low CDM w/TOU	\$ 28,156	\$ 98,752	\$ 114,706	\$ 108,452	\$ 106,704	\$ 110,100	\$ 114,752	\$ 125,496	\$ 129,113	\$ 144,344	\$ 145,023	\$ 150,449
24. High Elec w/EV TOU, High CDM w/TOU	\$ 28,156	\$ 99,054	\$ 116,457	\$ 112,108	\$ 112,000	\$ 118,618	\$ 127,311	\$ 141,560	\$ 149,250	\$ 170,402	\$ 177,433	\$ 188,935
25. Synapse LR, Low Export Price	\$ 28,198	\$ 99,822	\$ 120,252	\$ 108,700	\$ 102,647	\$ 103,355	\$ 104,539	\$ 115,688	\$ 120,452	\$ 133,093	\$ 135,149	\$ 139,250
26. Synapse LR, High Export Price	\$ 28,198	\$ 99,822	\$ 120,252	\$ 127,186	\$ 134,908	\$ 148,651	\$ 162,483	\$ 185,792	\$ 196,870	\$ 225,843	\$ 233,343	\$ 245,288
29. Extreme Low Load	\$ 28,198	\$ 101,439	\$ 129,553	\$ 130,273	\$ 134,200	\$ 142,942	\$ 155,152	\$ 171,919	\$ 182,024	\$ 207,694	\$ 219,519	\$ 237,266
30. Synapse LR, Lab New Cust Load	\$ 8,846	\$ 75,724	\$ 92,579	\$ 87,349	\$ 86,510	\$ 91,392	\$ 95,737	\$ 107,464	\$ 111,391	\$ 125,790	\$ 126,399	\$ 130,895

Source: Synapse Calculations.