

NON-CONFIDENTIAL

Request IR-1:

Please provide all inputs and outputs to the customer count models for all classes relying upon such a model in excel format like those provided in Attachments 5-9.

Response IR-1:

Please refer to Attachment 1. Only the Residential and Small General classes have customer count forecasts. The Residential forecast adds the Conference Board of Canada's housing completions to the existing customer count, while the Small General count comes from a model that uses non-manufacturing GDP and a binary starting in 2021 to account for the impact of COVID-19.

Residential					Small General Inputs							Small General Coefficients							Small General Outputs					
	Customer accounts	Single Family Completions (Conference Board data)	Multi Family Completions (Conference Board Data)	Residential Customer Count	Year	Month	SmlGenCus	NManGDP	Yr20Plus	XMissing	YMissing	Variable	Coefficient	StdErr	T-Stat	P-Value	Units	Definition	Year	Month	Pred	NManGDP	Yr20Plus	X-Missing
2012	447,613			447,613	2012	1	23,475.00	31,998.55	0	0	0	MEcon.NM	0.742	0.001	1255.398	0.00%			2012	1	23,752.85	23,752.85	0	0
2013	450,977			450,977	2012	2	23,452.00	31,980.38	0	0	0	MBin.Yr20f	-700.803	62.72	-11.173	0.00%			2012	2	23,739.36	23,739.36	0	0
2014	453,877			453,877	2012	3	23,432.00	31,962.20	0	0	0								2012	3	23,725.87	23,725.87	0	0
2015	456,655			456,655	2012	4	23,479.00	31,944.03	0	0	0								2012	4	23,712.38	23,712.38	0	0
2016	459,875			459,875	2012	5	23,529.00	31,925.85	0	0	0								2012	5	23,698.89	23,698.89	0	0
2017	463,739			463,739	2012	6	23,583.00	31,907.68	0	0	0								2012	6	23,685.39	23,685.39	0	0
2018	468,049			468,049	2012	7	23,645.00	31,889.50	0	0	0								2012	7	23,671.90	23,671.90	0	0
2019	472,369			472,369	2012	8	23,662.00	31,888.71	0	0	0								2012	8	23,671.31	23,671.31	0	0
2020	477,035			477,035	2012	9	23,689.00	31,887.92	0	0	0								2012	9	23,670.73	23,670.73	0	0
2021	484,271			484,271	2012	10	23,719.00	31,887.12	0	0	0								2012	10	23,670.14	23,670.14	0	0
2022		1,729	2,522	488,522	2012	11	23,731.00	31,886.33	0	0	0								2012	11	23,669.55	23,669.55	0	0
2023		1,559	2,384	492,465	2012	12	23,733.00	31,885.54	0	0	0								2012	12	23,668.96	23,668.96	0	0
2024		1,439	2,222	496,126	2013	1	23,711.00	31,884.75	0	0	0								2013	1	23,668.38	23,668.38	0	0
2025		1,249	1,958	499,334	2013	2	23,708.00	31,883.96	0	0	0								2013	2	23,667.79	23,667.79	0	0
2026		1,058	1,672	502,064	2013	3	23,698.00	31,883.17	0	0	0								2013	3	23,667.20	23,667.20	0	0
2027		899	1,436	504,399	2013	4	23,709.00	31,882.37	0	0	0								2013	4	23,666.61	23,666.61	0	0
2028		822	1,292	506,513	2013	5	23,706.00	31,881.58	0	0	0								2013	5	23,666.03	23,666.03	0	0
2029		768	1,192	508,474	2013	6	23,725.00	31,880.79	0	0	0								2013	6	23,665.44	23,665.44	0	0
2030		721	1,103	510,297	2013	7	23,780.00	31,880.00	0	0	0								2013	7	23,664.85	23,664.85	0	0
2031		674	1,013	511,985	2013	8	23,837.00	31,919.17	0	0	0								2013	8	23,693.92	23,693.92	0	0
2032		628	924	513,536	2013	9	23,852.00	31,958.33	0	0	0								2013	9	23,723.00	23,723.00	0	0
					2013	10	23,841.00	31,997.50	0	0	0								2013	10	23,752.07	23,752.07	0	0
					2013	11	23,841.00	32,036.67	0	0	0								2013	11	23,781.15	23,781.15	0	0
					2013	12	23,885.00	32,075.83	0	0	0								2013	12	23,810.22	23,810.22	0	0
					2014	1	23,855.00	32,115.00	0	0	0								2014	1	23,839.29	23,839.29	0	0
					2014	2	23,888.00	32,154.17	0	0	0								2014	2	23,868.37	23,868.37	0	0
					2014	3	23,880.00	32,193.33	0	0	0								2014	3	23,897.44	23,897.44	0	0
					2014	4	23,883.00	32,232.50	0	0	0								2014	4	23,926.51	23,926.51	0	0
					2014	5	23,917.00	32,271.67	0	0	0								2014	5	23,955.59	23,955.59	0	0
					2014	6	23,921.00	32,310.83	0	0	0								2014	6	23,984.66	23,984.66	0	0
					2014	7	23,921.00	32,350.00	0	0	0								2014	7	24,013.74	24,013.74	0	0
					2014	8	23,905.00	32,368.41	0	0	0								2014	8	24,027.40	24,027.40	0	0
					2014	9	23,989.00	32,386.82	0	0	0								2014	9	24,041.07	24,041.07	0	0
					2014	10	24,016.00	32,405.23	0	0	0								2014	10	24,054.73	24,054.73	0	0
					2014	11	24,063.00	32,423.63	0	0	0								2014	11	24,068.39	24,068.39	0	0
					2014	12	24,125.00	32,442.04	0	0	0								2014	12	24,082.06	24,082.06	0	0
					2015	1	24,236.00	32,460.45	0	0	0								2015	1	24,095.72	24,095.72	0	0
					2015	2	24,331.00	32,478.86	0	0	0								2015	2	24,109.39	24,109.39	0	0
					2015	3	24,355.00	32,497.27	0	0	0								2015	3	24,123.05	24,123.05	0	0
					2015	4	24,354.00	32,515.68	0	0	0								2015	4	24,136.72	24,136.72	0	0
					2015	5	24,391.00	32,534.08	0	0	0								2015	5	24,150.38	24,150.38	0	0
					2015	6	24,368.00	32,552.49	0	0	0								2015	6	24,164.05	24,164.05	0	0
					2015	7	24,401.00	32,570.90	0	0	0								2015	7	24,177.71	24,177.71	0	0
					2015	8	24,418.00	32,608.94	0	0	0								2015	8	24,205.95	24,205.95	0	0
					2015	9	24,473.00	32,646.98	0	0	0								2015	9	24,234.19	24,234.19	0	0
					2015	10	24,486.00	32,685.03	0	0	0								2015	10	24,262.43	24,262.43	0	0
					2015	11	24,520.00	32,723.07	0	0	0								2015	11	24,290.67	24,290.67	0	0
					2015	12	24,549.00	32,761.11	0	0	0								2015	12	24,318.91	24,318.91	0	0
					2016	1	24,592.00	32,799.15	0	0	0								2016	1	24,347.14	24,347.14	0	0
					2016	2	24,617.00	32,837.19	0	0	0								2016	2	24,375.38	24,375.38	0	0

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				2016	3	24,661.00	32,875.23	0	0	0									2016	3	24,403.62	24,403.62	0	0
				2016	4	24,708.00	32,913.28	0	0	0									2016	4	24,431.86	24,431.86	0	0
				2016	5	24,755.00	32,951.32	0	0	0									2016	5	24,460.10	24,460.10	0	0
				2016	6	24,727.00	32,989.36	0	0	0									2016	6	24,488.34	24,488.34	0	0
				2016	7	24,748.00	33,027.40	0	0	0									2016	7	24,516.58	24,516.58	0	0
				2016	8	24,755.00	33,085.40	0	0	0									2016	8	24,559.63	24,559.63	0	0
				2016	9	24,824.00	33,143.40	0	0	0									2016	9	24,602.68	24,602.68	0	0
				2016	10	24,836.00	33,201.40	0	0	0									2016	10	24,645.74	24,645.74	0	0
				2016	11	24,900.00	33,259.40	0	0	0									2016	11	24,688.79	24,688.79	0	0
				2016	12	24,939.00	33,317.40	0	0	0									2016	12	24,731.85	24,731.85	0	0
				2017	1	24,965.00	33,375.40	0	0	0									2017	1	24,774.90	24,774.90	0	0
				2017	2	24,970.00	33,433.40	0	0	0									2017	2	24,817.95	24,817.95	0	0
				2017	3	24,987.00	33,491.40	0	0	0									2017	3	24,861.01	24,861.01	0	0
				2017	4	25,034.00	33,549.40	0	0	0									2017	4	24,904.06	24,904.06	0	0
				2017	5	25,072.00	33,607.40	0	0	0									2017	5	24,947.12	24,947.12	0	0
				2017	6	25,114.00	33,665.40	0	0	0									2017	6	24,990.17	24,990.17	0	0
				2017	7	25,154.00	33,723.40	0	0	0									2017	7	25,033.22	25,033.22	0	0
				2017	8	25,125.00	33,768.45	0	0	0									2017	8	25,066.67	25,066.67	0	0
				2017	9	25,145.00	33,813.50	0	0	0									2017	9	25,100.11	25,100.11	0	0
				2017	10	25,143.00	33,858.55	0	0	0									2017	10	25,133.55	25,133.55	0	0
				2017	11	25,178.00	33,903.60	0	0	0									2017	11	25,166.99	25,166.99	0	0
				2017	12	25,191.00	33,948.65	0	0	0									2017	12	25,200.43	25,200.43	0	0
				2018	1	25,212.00	33,993.70	0	0	0									2018	1	25,233.87	25,233.87	0	0
				2018	2	25,235.00	34,038.75	0	0	0									2018	2	25,267.31	25,267.31	0	0
				2018	3	25,264.00	34,083.80	0	0	0									2018	3	25,300.75	25,300.75	0	0
				2018	4	25,321.00	34,128.85	0	0	0									2018	4	25,334.19	25,334.19	0	0
				2018	5	25,349.00	34,173.90	0	0	0									2018	5	25,367.64	25,367.64	0	0
				2018	6	25,397.00	34,218.95	0	0	0									2018	6	25,401.08	25,401.08	0	0
				2018	7	25,389.00	34,264.00	0	0	0									2018	7	25,434.52	25,434.52	0	0
				2018	8	25,388.00	34,339.53	0	0	0									2018	8	25,490.59	25,490.59	0	0
				2018	9	25,397.00	34,415.07	0	0	0									2018	9	25,546.66	25,546.66	0	0
				2018	10	25,427.00	34,490.60	0	0	0									2018	10	25,602.73	25,602.73	0	0
				2018	11	25,464.00	34,566.13	0	0	0									2018	11	25,658.79	25,658.79	0	0
				2018	12	25,487.00	34,641.67	0	0	0									2018	12	25,714.86	25,714.86	0	0
				2019	1	25,507.00	34,717.20	0	0	0									2019	1	25,770.93	25,770.93	0	0
				2019	2	25,509.00	34,792.73	0	0	0									2019	2	25,827.00	25,827.00	0	0
				2019	3	25,488.00	34,868.27	0	0	0									2019	3	25,883.07	25,883.07	0	0
				2019	4	25,493.00	34,943.80	0	0	0									2019	4	25,939.14	25,939.14	0	0
				2019	5	25,508.00	35,019.33	0	0	0									2019	5	25,995.21	25,995.21	0	0
				2019	6	25,512.00	35,094.87	0	0	0									2019	6	26,051.28	26,051.28	0	0
				2019	7	25,539.00	35,170.40	0	0	0									2019	7	26,107.35	26,107.35	0	0
				2019	8	25,554.00	35,097.92	0	0	0									2019	8	26,053.54	26,053.54	0	0
				2019	9	25,537.00	35,025.43	0	0	0									2019	9	25,999.74	25,999.74	0	0
				2019	10	25,579.00	34,952.95	0	0	0									2019	10	25,945.93	25,945.93	0	0
				2019	11	25,596.00	34,880.47	0	0	0									2019	11	25,892.13	25,892.13	0	0
				2019	12	25,599.00	34,807.98	0	0	0									2019	12	25,838.32	25,838.32	0	0
				2020	1	25,674.00	34,735.50	0	0	0									2020	1	25,784.52	25,784.52	0	0
				2020	2	25,680.00	34,663.02	0	0	0									2020	2	25,730.71	25,730.71	0	0
				2020	3	25,655.00	34,590.53	0	0	0									2020	3	25,676.91	25,676.91	0	0
				2020	4	25,661.00	34,518.05	0	0	0									2020	4	25,623.10	25,623.10	0	0

Residential				Small General Inputs							Small General Coefficients						Small General Outputs						
Customer accounts	Single Family Completions (Conference Board data)	Multi Family Completions (Conference Board Data)	Residential Customer Count	Year	Month	SmlGenCus	NManGDP	Yr20Plus	XMissing	YMissing	Variable	Coefficient	StdErr	T-Stat	P-Value	Units	Definition	Year	Month	Pred	NManGDP	Yr20Plus	X-Missing
				2020	5	25,711.00	34,445.57	0	0	0								2020	5	25,569.30	25,569.30	0	0
				2020	6	25,732.00	34,373.08	0	0	0								2020	6	25,515.49	25,515.49	0	0
				2020	7	25,757.00	34,300.60	0	0	0								2020	7	25,461.69	25,461.69	0	0
				2020	8	25,755.00	34,448.38	0	0	0								2020	8	25,571.39	25,571.39	0	0
				2020	9	25,792.00	34,596.16	0	0	0								2020	9	25,681.08	25,681.08	0	0
				2020	10	25,770.00	34,743.94	0	0	0								2020	10	25,790.78	25,790.78	0	0
				2020	11	25,798.00	34,891.72	0	0	0								2020	11	25,900.48	25,900.48	0	0
				2020	12	25,817.00	35,039.50	0	0	0								2020	12	26,010.18	26,010.18	0	0
				2021	1	25,818.00	35,187.28	1	0	0								2021	1	25,419.08	26,119.88	-700.803	0
				2021	2	25,840.00	35,335.06	1	0	0								2021	2	25,528.77	26,229.58	-700.803	0
				2021	3	25,860.00	35,482.84	1	0	0								2021	3	25,638.47	26,339.28	-700.803	0
				2021	4	25,866.00	35,630.62	1	0	0								2021	4	25,748.17	26,448.97	-700.803	0
				2021	5	25,918.00	35,778.40	1	0	0								2021	5	25,857.87	26,558.67	-700.803	0
				2021	6	25,943.00	35,926.18	1	0	0								2021	6	25,967.57	26,668.37	-700.803	0
				2021	7	25,977.00	36,073.96	1	0	0								2021	7	26,077.27	26,778.07	-700.803	0
				2021	8	25,965.00	36,125.28	1	0	0								2021	8	26,115.37	26,816.17	-700.803	0
				2021	9	25,971.00	36,176.61	1	0	0								2021	9	26,153.46	26,854.27	-700.803	0
				2021	10	25,980.00	36,227.93	1	0	0								2021	10	26,191.56	26,892.36	-700.803	0
				2021	11	26,001.00	36,279.25	1	0	0								2021	11	26,229.66	26,930.46	-700.803	0
				2021	12	26,056.00	36,330.58	1	0	0								2021	12	26,267.76	26,968.56	-700.803	0
				2022	1		36,381.90	1	0	1								2022	1	26,305.85	27,006.66	-700.803	0
				2022	2		36,433.22	1	0	1								2022	2	26,343.95	27,044.75	-700.803	0
				2022	3		36,484.55	1	0	1								2022	3	26,382.05	27,082.85	-700.803	0
				2022	4		36,535.87	1	0	1								2022	4	26,420.15	27,120.95	-700.803	0
				2022	5		36,587.19	1	0	1								2022	5	26,458.24	27,159.05	-700.803	0
				2022	6		36,638.52	1	0	1								2022	6	26,496.34	27,197.14	-700.803	0
				2022	7		36,689.84	1	0	1								2022	7	26,534.44	27,235.24	-700.803	0
				2022	8		36,752.15	1	0	1								2022	8	26,580.70	27,281.50	-700.803	0
				2022	9		36,814.47	1	0	1								2022	9	26,626.95	27,327.76	-700.803	0
				2022	10		36,876.78	1	0	1								2022	10	26,673.21	27,374.01	-700.803	0
				2022	11		36,939.10	1	0	1								2022	11	26,719.47	27,420.27	-700.803	0
				2022	12		37,001.41	1	0	1								2022	12	26,765.73	27,466.53	-700.803	0
				2023	1		37,063.73	1	0	1								2023	1	26,811.98	27,512.79	-700.803	0
				2023	2		37,126.04	1	0	1								2023	2	26,858.24	27,559.04	-700.803	0
				2023	3		37,188.36	1	0	1								2023	3	26,904.50	27,605.30	-700.803	0
				2023	4		37,250.67	1	0	1								2023	4	26,950.75	27,651.56	-700.803	0
				2023	5		37,312.99	1	0	1								2023	5	26,997.01	27,697.81	-700.803	0
				2023	6		37,375.30	1	0	1								2023	6	27,043.27	27,744.07	-700.803	0
				2023	7		37,437.62	1	0	1								2023	7	27,089.53	27,790.33	-700.803	0
				2023	8		37,460.33	1	0	1								2023	8	27,106.39	27,807.19	-700.803	0
				2023	9		37,483.05	1	0	1								2023	9	27,123.25	27,824.05	-700.803	0
				2023	10		37,505.76	1	0	1								2023	10	27,140.11	27,840.91	-700.803	0
				2023	11		37,528.47	1	0	1								2023	11	27,156.97	27,857.77	-700.803	0
				2023	12		37,551.19	1	0	1								2023	12	27,173.83	27,874.63	-700.803	0
				2024	1		37,573.90	1	0	1								2024	1	27,190.69	27,891.49	-700.803	0
				2024	2		37,596.61	1	0	1								2024	2	27,207.55	27,908.35	-700.803	0
				2024	3		37,619.33	1	0	1								2024	3	27,224.41	27,925.21	-700.803	0
				2024	4		37,642.04	1	0	1								2024	4	27,241.27	27,942.07	-700.803	0
				2024	5		37,664.75	1	0	1								2024	5	27,258.13	27,958.93	-700.803	0
				2024	6		37,687.47	1	0	1								2024	6	27,274.99	27,975.79	-700.803	0

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				2024	7		37,710.18		1	0								2024	7	27,291.85	27,992.65	-700.803	0
				2024	8		37,738.22		1	0								2024	8	27,312.66	28,013.46	-700.803	0
				2024	9		37,766.25		1	0								2024	9	27,333.47	28,034.27	-700.803	0
				2024	10		37,794.29		1	0								2024	10	27,354.28	28,055.09	-700.803	0
				2024	11		37,822.32		1	0								2024	11	27,375.09	28,075.90	-700.803	0
				2024	12		37,850.36		1	0								2024	12	27,395.90	28,096.71	-700.803	0
				2025	1		37,878.39		1	0								2025	1	27,416.72	28,117.52	-700.803	0
				2025	2		37,906.43		1	0								2025	2	27,437.53	28,138.33	-700.803	0
				2025	3		37,934.46		1	0								2025	3	27,458.34	28,159.14	-700.803	0
				2025	4		37,962.50		1	0								2025	4	27,479.15	28,179.95	-700.803	0
				2025	5		37,990.53		1	0								2025	5	27,499.96	28,200.76	-700.803	0
				2025	6		38,018.57		1	0								2025	6	27,520.77	28,221.57	-700.803	0
				2025	7		38,046.61		1	0								2025	7	27,541.58	28,242.38	-700.803	0
				2025	8		38,076.00		1	0								2025	8	27,563.40	28,264.21	-700.803	0
				2025	9		38,105.40		1	0								2025	9	27,585.22	28,286.03	-700.803	0
				2025	10		38,134.79		1	0								2025	10	27,607.04	28,307.85	-700.803	0
				2025	11		38,164.19		1	0								2025	11	27,628.87	28,329.67	-700.803	0
				2025	12		38,193.59		1	0								2025	12	27,650.69	28,351.49	-700.803	0
				2026	1		38,222.98		1	0								2026	1	27,672.51	28,373.31	-700.803	0
				2026	2		38,252.38		1	0								2026	2	27,694.33	28,395.13	-700.803	0
				2026	3		38,281.77		1	0								2026	3	27,716.15	28,416.95	-700.803	0
				2026	4		38,311.17		1	0								2026	4	27,737.97	28,438.77	-700.803	0
				2026	5		38,340.57		1	0								2026	5	27,759.79	28,460.60	-700.803	0
				2026	6		38,369.96		1	0								2026	6	27,781.61	28,482.42	-700.803	0
				2026	7		38,399.36		1	0								2026	7	27,803.43	28,504.24	-700.803	0
				2026	8		38,434.43		1	0								2026	8	27,829.47	28,530.27	-700.803	0
				2026	9		38,469.50		1	0								2026	9	27,855.50	28,556.30	-700.803	0
				2026	10		38,504.57		1	0								2026	10	27,881.54	28,582.34	-700.803	0
				2026	11		38,539.64		1	0								2026	11	27,907.57	28,608.37	-700.803	0
				2026	12		38,574.72		1	0								2026	12	27,933.60	28,634.41	-700.803	0
				2027	1		38,609.79		1	0								2027	1	27,959.64	28,660.44	-700.803	0
				2027	2		38,644.86		1	0								2027	2	27,985.67	28,686.47	-700.803	0
				2027	3		38,679.93		1	0								2027	3	28,011.70	28,712.51	-700.803	0
				2027	4		38,715.00		1	0								2027	4	28,037.74	28,738.54	-700.803	0
				2027	5		38,750.07		1	0								2027	5	28,063.77	28,764.58	-700.803	0
				2027	6		38,785.14		1	0								2027	6	28,089.81	28,790.61	-700.803	0
				2027	7		38,820.22		1	0								2027	7	28,115.84	28,816.64	-700.803	0
				2027	8		38,854.08		1	0								2027	8	28,140.98	28,841.78	-700.803	0
				2027	9		38,887.95		1	0								2027	9	28,166.12	28,866.93	-700.803	0
				2027	10		38,921.82		1	0								2027	10	28,191.26	28,892.07	-700.803	0
				2027	11		38,955.69		1	0								2027	11	28,216.41	28,917.21	-700.803	0
				2027	12		38,989.56		1	0								2027	12	28,241.55	28,942.35	-700.803	0
				2028	1		39,023.43		1	0								2028	1	28,266.69	28,967.49	-700.803	0
				2028	2		39,057.30		1	0								2028	2	28,291.83	28,992.63	-700.803	0
				2028	3		39,091.17		1	0								2028	3	28,316.97	29,017.78	-700.803	0
				2028	4		39,125.04		1	0								2028	4	28,342.11	29,042.92	-700.803	0
				2028	5		39,158.91		1	0								2028	5	28,367.26	29,068.06	-700.803	0
				2028	6		39,192.78		1	0								2028	6	28,392.40	29,093.20	-700.803	0
				2028	7		39,226.65		1	0								2028	7	28,417.54	29,118.34	-700.803	0
				2028	8		39,261.10		1	0								2028	8	28,443.12	29,143.92	-700.803	0

Residential				Small General Inputs							Small General Coefficients						Small General Outputs						
Customer accounts	Single Family Completions (Conference Board data)	Multi Family Completions (Conference Board Data)	Residential Customer Count	Year	Month	SmlGenCus	NManGDP	Yr20Plus	XMissing	YMissing	Variable	Coefficient	StdErr	T-Stat	P-Value	Units	Definition	Year	Month	Pred	NManGDP	Yr20Plus	X-Missing
				2028	9	39,295.56		1	0	1								2028	9	28,468.69	29,169.49	-700.803	0
				2028	10	39,330.01		1	0	1								2028	10	28,494.27	29,195.07	-700.803	0
				2028	11	39,364.47		1	0	1								2028	11	28,519.84	29,220.65	-700.803	0
				2028	12	39,398.92		1	0	1								2028	12	28,545.42	29,246.22	-700.803	0
				2029	1	39,433.38		1	0	1								2029	1	28,571.00	29,271.80	-700.803	0
				2029	2	39,467.83		1	0	1								2029	2	28,596.57	29,297.38	-700.803	0
				2029	3	39,502.29		1	0	1								2029	3	28,622.15	29,322.95	-700.803	0
				2029	4	39,536.75		1	0	1								2029	4	28,647.73	29,348.53	-700.803	0
				2029	5	39,571.20		1	0	1								2029	5	28,673.30	29,374.11	-700.803	0
				2029	6	39,605.66		1	0	1								2029	6	28,698.88	29,399.68	-700.803	0
				2029	7	39,640.11		1	0	1								2029	7	28,724.46	29,425.26	-700.803	0
				2029	8	39,674.81		1	0	1								2029	8	28,750.22	29,451.02	-700.803	0
				2029	9	39,709.52		1	0	1								2029	9	28,775.98	29,476.78	-700.803	0
				2029	10	39,744.22		1	0	1								2029	10	28,801.74	29,502.54	-700.803	0
				2029	11	39,778.92		1	0	1								2029	11	28,827.50	29,528.30	-700.803	0
				2029	12	39,813.62		1	0	1								2029	12	28,853.26	29,554.06	-700.803	0
				2030	1	39,848.33		1	0	1								2030	1	28,879.02	29,579.82	-700.803	0
				2030	2	39,883.03		1	0	1								2030	2	28,904.78	29,605.58	-700.803	0
				2030	3	39,917.73		1	0	1								2030	3	28,930.54	29,631.34	-700.803	0
				2030	4	39,952.43		1	0	1								2030	4	28,956.30	29,657.10	-700.803	0
				2030	5	39,987.14		1	0	1								2030	5	28,982.06	29,682.86	-700.803	0
				2030	6	40,021.84		1	0	1								2030	6	29,007.82	29,708.62	-700.803	0
				2030	7	40,056.54		1	0	1								2030	7	29,033.58	29,734.38	-700.803	0
				2030	8	40,090.40		1	0	1								2030	8	29,058.71	29,759.51	-700.803	0
				2030	9	40,124.25		1	0	1								2030	9	29,083.84	29,784.64	-700.803	0
				2030	10	40,158.10		1	0	1								2030	10	29,108.97	29,809.77	-700.803	0
				2030	11	40,191.95		1	0	1								2030	11	29,134.10	29,834.90	-700.803	0
				2030	12	40,225.81		1	0	1								2030	12	29,159.22	29,860.03	-700.803	0
				2031	1	40,259.66		1	0	1								2031	1	29,184.35	29,885.16	-700.803	0
				2031	2	40,293.51		1	0	1								2031	2	29,209.48	29,910.29	-700.803	0
				2031	3	40,327.37		1	0	1								2031	3	29,234.61	29,935.42	-700.803	0
				2031	4	40,361.22		1	0	1								2031	4	29,259.74	29,960.55	-700.803	0
				2031	5	40,395.07		1	0	1								2031	5	29,284.87	29,985.67	-700.803	0
				2031	6	40,428.92		1	0	1								2031	6	29,310.00	30,010.80	-700.803	0
				2031	7	40,462.78		1	0	1								2031	7	29,335.13	30,035.93	-700.803	0
				2031	8	40,496.28		1	0	1								2031	8	29,360.00	30,060.80	-700.803	0
				2031	9	40,529.78		1	0	1								2031	9	29,384.87	30,085.67	-700.803	0
				2031	10	40,563.28		1	0	1								2031	10	29,409.73	30,110.54	-700.803	0
				2031	11	40,596.78		1	0	1								2031	11	29,434.60	30,135.40	-700.803	0
				2031	12	40,630.28		1	0	1								2031	12	29,459.47	30,160.27	-700.803	0
				2032	1	40,663.78		1	0	1								2032	1	29,484.34	30,185.14	-700.803	0
				2032	2	40,697.28		1	0	1								2032	2	29,509.20	30,210.01	-700.803	0
				2032	3	40,730.78		1	0	1								2032	3	29,534.07	30,234.87	-700.803	0
				2032	4	40,764.28		1	0	1								2032	4	29,558.94	30,259.74	-700.803	0
				2032	5	40,797.78		1	0	1								2032	5	29,583.81	30,284.61	-700.803	0
				2032	6	40,831.28		1	0	1								2032	6	29,608.67	30,309.48	-700.803	0
				2032	7	40,864.78		1	0	1								2032	7	29,633.54	30,334.35	-700.803	0
				2032	8	40,897.67		1	0	1								2032	8	29,657.96	30,358.76	-700.803	0
				2032	9	40,930.56		1	0	1								2032	9	29,682.37	30,383.17	-700.803	0
				2032	10	40,963.45		1	0	1								2032	10	29,706.79	30,407.59	-700.803	0

Residential			
	Single Family	Multi Family	
	Completions	Completions	Residential
Customer	(Conference	(Conference	Customer
accounts	Board data)	Board Data)	Count

Small General Inputs							Small General Coefficients							Small General Outputs					
Year	Month	SmlGenCus	NManGDP	Yr20Plus	XMissing	YMissing	Variable	Coefficient	StdErr	T-Stat	P-Value	Units	Definition	Year	Month	Pred	NManGDP	Yr20Plus	X-Missing
2032	11		40,996.34		1	0								2032	11	29,731.20	30,432.00	-700.803	0
2032	12		41,029.23		1	0								2032	12	29,755.62	30,456.42	-700.803	0

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Request IR-2:

Please refer to page 52 of the 2022 Load Forecast Report (the “Filing”), Lines 14-18:

- (a) Please provide federal and provincial targets for electrification assumed for this forecast and their sources.**
- (b) Please provide a list of electrification programs and any associated incentives for customers.**
- (c) Is NSPI planning or currently providing any electrification programs for commercial and industrial customers?**
- (d) Please provide details of any funding offered by the federal and provincial governments to NSPI or directly to customers for implementing electrification.**

Response IR-2:

- (a) Nova Scotia’s *Environmental Goals and Climate Change Reduction Act* (EGCCRA) sets carbon reduction goals of 53 percent below 2005 levels by 2030 and net zero emissions (by balancing greenhouse gas emissions with greenhouse gas removals and other offsetting measures) by 2050. The EGCCRA also includes specific targets such as a zero-emission vehicle (ZEV) mandate requiring 30 percent of light duty vehicle (LDV) and personal vehicle sales to be zero-emission by 2030, and the development and implementation of supporting initiatives to achieve this goal. The EGCCRA also targets improved building emissions performance for government buildings, including schools and hospitals, adoption of updated building codes as they become available, and the creation of a strategic plan to achieve these emissions targets by accelerating the integration of sustainable and innovative technologies and approaches.**

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1 Federally, the *Canadian Net-Zero Emissions Accountability Act*¹ commits Canada to
2 achieving a 2050 net zero emissions target, and allows for the setting of interim targets
3 under the Act. These targets are currently set at 20 percent below 2005 levels by 2026 and
4 40 percent below 2005 levels by 2030, as outlined in *Canada's 2030 Emissions Reduction*
5 *Plan*². This plan also includes targets of a 100 percent ZEV LDV sales mandate by 2035,
6 with interim targets of 20 percent of sales in 2026 and 60 percent in 2030. The interim
7 targets were released after the development of the 2022 Load Forecast Report and as such,
8 so are not directly included in that report; the 2035 target is included in the stock rollover
9 model. *Canada's 2030 Emissions Reduction Plan* targets increased electrification of
10 transportation, industrial, and commercial end-uses to achieve the net zero targets. For
11 example, with regard to building emissions the plan states:

12
13 Much of the technology needed to decarbonize the buildings sector exists
14 today. For example, electrification of heating by switching from fossil-fuels
15 (e.g. oil, natural gas) to electric heat pumps is an economic and viable option
16 in most parts of Canada, particularly as electrical grids expand capacity and
17 decarbonize in parallel.³

18
19 With regard to industrial emissions, the plan states:

20
21 A growing number of Canadian companies, including those in all industrial sectors,
22 are producing or adopting clean and low emissions technologies to drive growth
23 and remain competitive. This emphasis on clean growth, coupled with emerging
24 opportunities in areas such as critical minerals, electrification, low-carbon
25 construction materials and an array of clean technologies, will help lay the
26 groundwork for further reducing Canada's industrial emissions and meeting
27 demand for clean products.⁴

28
29 With regard to the transportation sector, the plan states:

¹ [Canadian Net-Zero Emissions Accountability Act \(justice.gc.ca\)](https://justice.gc.ca/canadian-net-zero-emissions-accountability-act)

² [Canada's 2030 Emissions Reduction Plan - Canada.ca](https://canada.ca/canadas-2030-emissions-reduction-plan)

³ [En4-460-2022-eng.pdf \(publications.gc.ca\)](#) page 33 of 240

⁴ [En4-460-2022-eng.pdf \(publications.gc.ca\)](#) page 43 of 240

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1 To meet Canada's climate objectives, it will be necessary to decarbonize
2 the transportation sector in Canada through actions such as enabling active
3 and public transportation, increasing the share of zero-emission vehicles
4 (ZEVs)* on the road, and investing in clean fuels for all transportation
5 modes and vehicle sizes.

6
7 *Where a ZEV is defined as battery-electric, plug-in hybrid electric, or a
8 hydrogen fuel cell vehicle.⁵
9

10 (b&d) NS Power does not have a comprehensive a list of currently active provincial and federal
11 electrification programs but notes that *Canada's 2030 Emissions Reduction Plan* includes
12 many examples of programs that achieve this result.
13

14 (c) NSPI provides commercial & industrial customers the opportunity to finance their electric
15 technology through our Commercial On-Bill Financing Program. In addition, NS Power's
16 Key Accounts & Commercial Solutions advisors provide advice to customers by assessing
17 electrification opportunities at customer facilities, discussing electrification technologies
18 available in the market, and facilitating applications to other funding and rebate programs
19 to assist customers in minimizing upfront capital costs related to decarbonization &
20 electrification.

⁵ [En4-460-2022-eng.pdf \(publications.gc.ca\)](#) page 52 of 240

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Request IR-3:

Please refer to Figure 34 of the Filing:

(a) Are there any technologies other than heat pumps assumed for space heating electrification?

(b) Please provide Figure 34 separated into three figures – one representing load incurred by electrification of heating needs, one representing load incurred by electrification of cooling needs, and one representing load incurred by electrification of transportation.

Response IR-3:

(a) Mini-Split Heat Pump
Central Heat Pump
Heat Pump Roof Top
Split Heat Pump Systems
Air Source Chillers
Water Sourced Chillers
Heat Pump Chiller Systems
Heat Recovery Chillers
Wastewater Heat Pump Systems
Variable Refrigerant Flow
Electric Resistance Domestic Hot Water
Heat Pump Domestic Hot Water
Electric Thermal Storage
Electric Boiler
Unit Heaters
Electric Roof Top

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1 Electric Baseboards

2 Electric Ovens

3 Electric Infrared Heating

4
5 (b) Small General & General Estimates

6 Year (Heating%/Cooling%/Transportation%)

7 2022 (70/29/1)

8 2023 (69/29/2)

9 2024 (68/30/2)

10 2025 (68/30/2)

11 2026 (68/30/2)

12 2027 (67/30/3)

13 2028 (67/30/3)

14 2029 (66/31/3)

15 2030 (66/31/3)

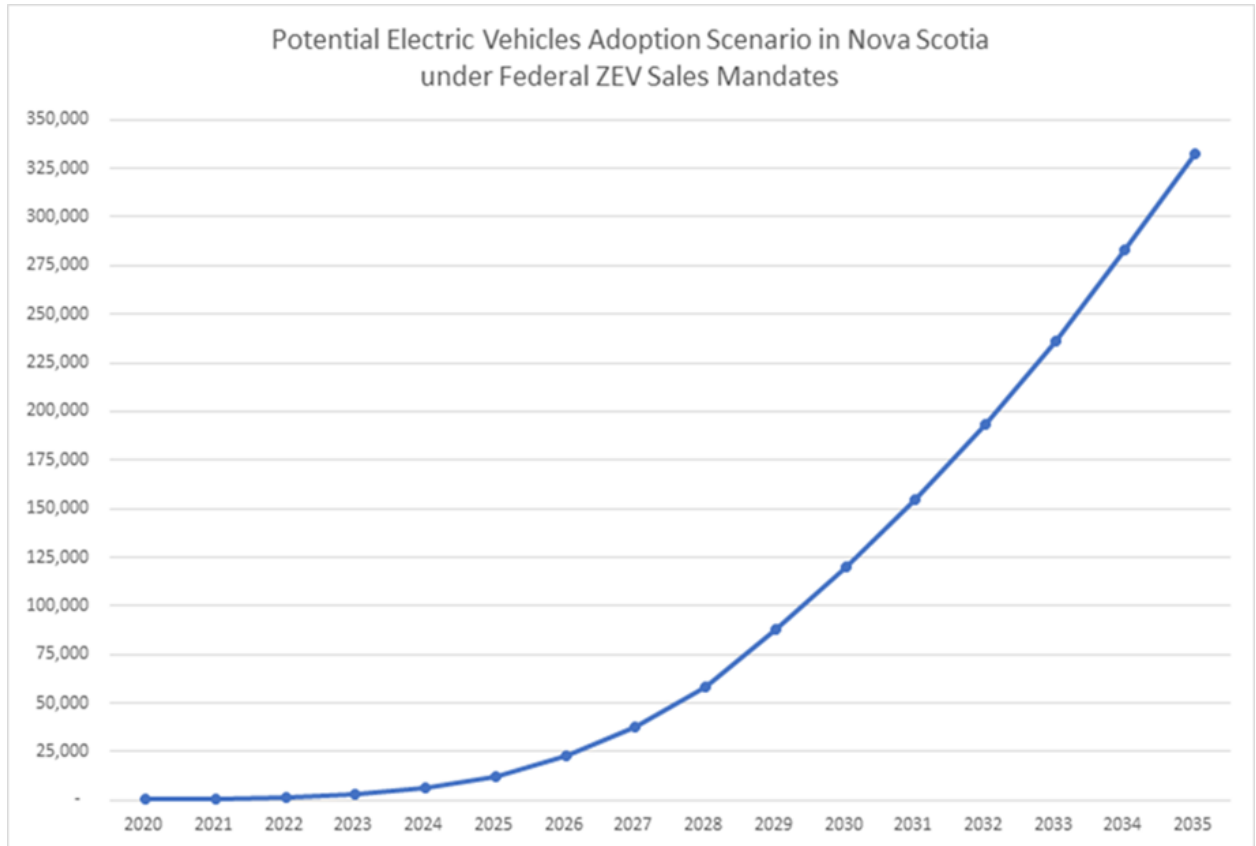
16 2031 (65/31/4)

17 2032 (65/31/4)

18
19 Most growth stems from heating. While transportation and cooling increase due to EV
20 adoption uptake across Nova Scotia and increase in cooling demand due to increase in
21 temperatures and longer summers. Please refer to the table below.
22

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Federal Zero Emission Vehicle Sales Mandates



*Assumption : Based on 50,000 yearly car sales in NS versus Federal government EV adoptions targets

Large General, Small Industrial, Medium Industrial, Large Industrial

In Industrial applications, most electric load at sites is used by industrial process equipment as opposed to traditional heating & cooling systems. Therefore, the expectation that most of the electric load growth from industrial customers is expected to be based on process equipment/process system electrification. The IEA has made projections that only 1-3% of Med/Heavy duty transportation to be electrified by 2030, therefore it is expected that transportation electrification will account for a nominal fraction of industrial load growth. Most industrial load growth is anticipated to come

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1 from existing process electrification & construction of net-new industrial facilities in the
2 province.

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Request IR-4:

Please refer to page 10 of the Filing: What are the underlying assumptions for the system peak to grow by 10% as compared to 2021? Please provide supporting documentation, including any qualitative factors relating to the recovery from the COVID-19 pandemic.

Response IR-4:

The primary drivers of the system peak growth compared to the 2021 forecast are the electrification of space heating in both the residential and commercial sectors, as well as increased EV sales. Both are driven by government emission reduction targets and the anticipated trajectories required to align with those targets. For the specific inputs, please refer to Figure 58 in the Report. Further information on the space heating and EV forecasts can be found in Synapse IR-42.

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Request IR-5:

Please refer to page 42, Lines 8-11, of the Filing.

(a) What led to an increase in the forecasted estimate of EVs in Nova Scotia by 2031 (75,000+) compared to the 2021 report that only forecasted 58,000?

(b) Are current supply chain issues related to EV battery production taken into consideration in the forecasts, or is it assumed that the issues will be largely resolved by 2031?

Response IR-5:

(a) The forecast has been updated to estimate the adoption required to meet the federal government's target of EVs representing 100 percent of new vehicles sales by 2035. Please refer to section 4.4 (Electric Vehicles) of the Report.

(b) The forecast does not take into account short-term shortages of vehicles, which would not have a material impact the long-term forecast as 2023 sales are forecast to be around 1,900 electric vehicles, or less than 2 percent of the total stock of 97,000 forecast by 2032.

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Request IR-6:

Please refer to Figure 54: Demand Response on page 81 of the Filing.

(a) Why is the ELCC for demand response less than 50%? Is demand response not occurring during load peaks?

(b) Please provide ELCC values for demand response for “Direct Load Control”, “Critical Peak Pricing” and “Business, Non-Profit & Industrial Curtailment” separately for Figure 54.

(c) Is response time a factor considered while computing these ELCC values?

Response IR-6:

(a) Demand Response (DR) is anticipated to be called upon during peak demand hours. The relationship between DR program capacity and response duration was assessed in the Planning Reserve Marginal and Capacity Value Study, part of the pre-IRP work to the 2020 Integrated Resource Plan (IRP). In this study, illustrative DR programs (n=3) were evaluated with different characteristics (e.g. number of calls allowed and duration of call). NS Power based its DR ELCC assumptions on a program identified as having 10 calls year with a 4 hour duration per call. The resultant ELCC curve generated via E3s RECAP reliability model, like the curves of other duration limited resources, declines with increasing penetration. At 74MW of DR potential (nameplate), the modeling produced an ELCC range of 32 percent - 48 percent (at 100MW and 50MW penetration respectively). NS Power used the 48% value and will continue to assess this value as DR programs continue through the development and pilot stages.

(b) Please refer to the response to part (a) above. NS Power does not have ELCC calculations for individual programs. A program estimate was created as described.

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- 1 (c) The ELCC analysis completed for the 2020 IRP did not consider response time as an input
2 to the capacity value modeling.

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Request IR-7:

Please refer to Figure 54: Demand Response on page 81 of the Filing.

(a) Do the values represented in the Business, Non-Profit & Industrial (BNI) Curtailment column correspond to the Guidehouse analysis of BNI Curtailment in Figure 4 of the Efficiency One (E1) 2023-2025 DSM Resource Plan, Appendix A – Attachment 5 page 10?

(b) If not, please provide the analysis and workpapers with formulae intact that informed Figure 54.

Response IR-7:

(a) No, the values represented in the Business, Non-Profit & Industrial (BNI) Curtailment column correspond to the 'Base' Demand Response assumptions from the E1 2019 DSM Potential study. The amounts have been shifted, as described in the 2022 Load Forecast report.

(b) Please see the 2019 DSM Potential Study. Demand Response assumptions are found in Appendix D.

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Request IR-8:

Please refer to the Filing, page 7 of Appendix E. It states that "Managed charging shown assumes NSP or a third-party aggregator performs additional coordinated charge management across EVs to flatten peak loads during off-peak periods."

(a) Has a third-party aggregator been identified to perform these managed charging responsibilities?

(b) If yes, please identify the third-party. If no, what steps are being taken to either find a third-party or ensure NSPI can coordinate charge management?

Response IR-8:

(a) No.

(b) NS Power continues to develop this capability as part of its Smart Grid Nova Scotia program. The pilot program is working with multiple vendors to study which managed charging approach can provide the most value.

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Request IR-9:

Please refer to Page 43, Lines 12-22. This section states that it is assumed 70% of EV charging is managed by NSPI, resulting in a peak contribution of 0.9kW/vehicle instead of an unmanaged level of 1.3kW/vehicle.

(a) Is this management purely based on the Time-of-Use rates, as implied on Page 43, or is it in conjunction with Page 7 of Appendix E referenced in SBA IR-8?

(b) Does this management have any impact on total kWh load from EV in the 2022-2032 period?

(c) Please provide total EV load and peak figures for the 2022-2032 period resulting from both the managed and unmanaged scenarios, and please describe any impact that the unmanaged scenario may have on other types of load.

Response IR-9:

(a) It is a combination of time-based rates and aggregator based charge management.

(b) No. It is assumed that the charging is shifted to off-peak periods with no impact to overall consumption (which is based on average km driven).

(c) The managed and unmanaged scenarios were not used in the forecast. The annual load is the same in all cases, while the estimated coincident peaks per vehicle are as set out in the table below (MDV and HDV were modeled only as managed and unmanaged):

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Vehicle Type	Average Peak Blended (kW/vehicle)	Average Peak Unmanaged (kW/vehicle)	Average Peak Managed (kW/vehicle)
LDV	0.9	1.5	0.6
MDV	1.6	1.1	1.6
HDV	7.3	28.2	7.3

NS Power is not aware of any impact the unmanaged scenario may have on other types of load.

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Request IR-10:

Please refer to the Filing, page 8 of Appendix E. It states that "to achieve policy targets, E3 scenarios assume most sales are heat pumps sales by 2030s."

(a) What incentives are in place that support this assumption?

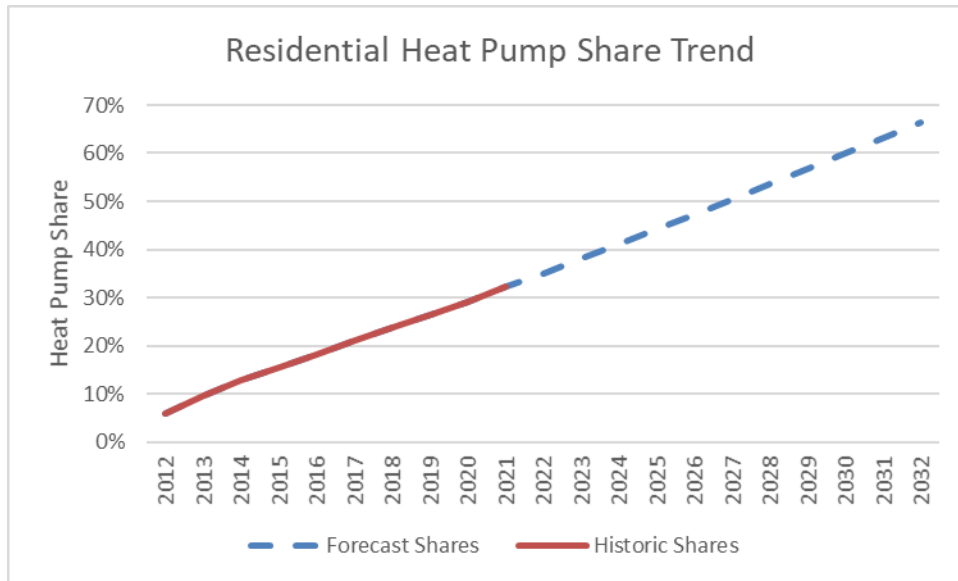
(b) Excluding policy targets, are actual heat pump adoption rates following the trend shown in the figures on this page? In other words, do current initiatives in the province support high levels of heat pump installation by 2031 without assuming that policy targets alone will be enough to achieve them?

(c) What steps are being taken to ensure that incentives are and will continue to support achieving policy targets?

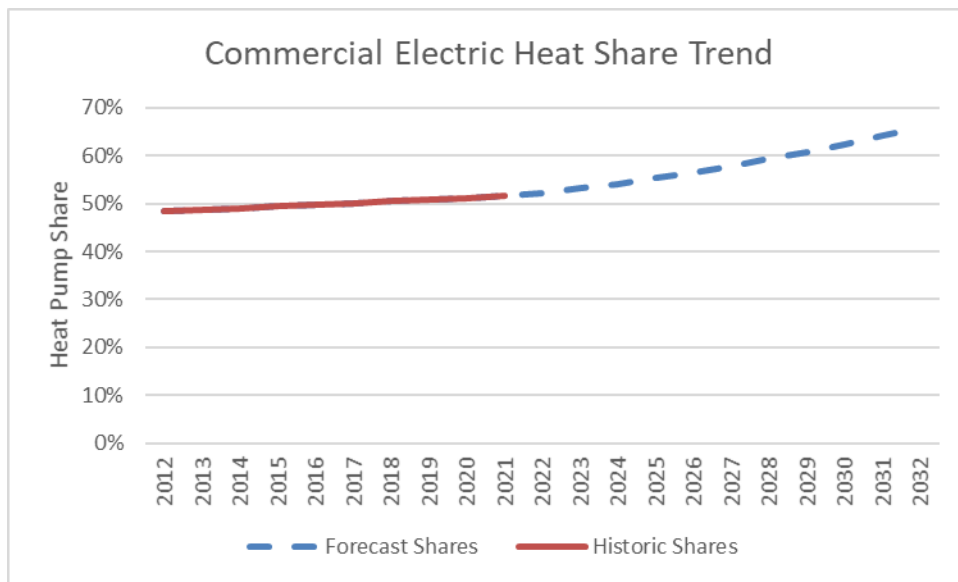
Response IR-10:

(a-c) The adoption rate assumptions are not based on incentives or economic analysis. The rates are based on a trajectory that would be required to align with carbon emission reduction targets set out by both the provincial and federal governments. Current incentives for heat pumps are available from E1, and the trajectory is in line with historic rates for residential customers, as shown in the graph below:

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On the commercial side, electric space heating is expected to increase compared to historic trends, with the growth provided by heat pump space heating as shown in the graph below:



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Request IR-11:

Please refer to page 36, Lines 4-7 of the Filing. NSPI states that E3 has provided a “forecast for heat pump adoption that would be required to achieve carbon reduction targets of net zero by 2050,” resulting in a saturation of heat pump shifting 66% of residential homes by 2032.

(a) Is it truly accurate to describe this as a forecast, or would it best be termed as an “adoption scenario”?

(b) Given that this is one scenario, has NSPI or E3 forecasted adoption rates under currently available incentives? If so, please provide the results per class, overall Net System Requirements results, and resulting changes to the Peak Load based upon currently available incentives.

Response IR-11:

(a) This forecast was developed to provide a smoothed adoption profile toward 2050 net zero emissions targets. Varying input assumptions is possible, however would lead to relatively minor changes in the profile if the starting point (current state) and ending point (net zero by 2050) are held constant.

(b) No.

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1 **Request IR-12:**

2
3 **Please refer to Figure 53 on Page 79 and Figure 34 on Page 53. Please explain the**
4 **discrepancy between the additional 83 GWh of C&I Electrification attributable to the**
5 **Commercial classes and the 36 GWh attributable to the Industrial classes over the 2022-**
6 **2032 period shown in Figure 53, when Figure 34 implies 93 GWh in the Commercial classes**
7 **and 41 GWh in the Industrial classes.**

8
9 Response IR-12:

10
11 Figure 53 shows the difference between 2032 and 2022, so based on the values in Figure 34 the
12 total difference for that time period would be 72 GWh in commercial and 31 GWh in industrial.
13 Figure 34 shows the annualized amount achieved in each year, but the actual impact in a given
14 year is assumed to be offset by approximately 6 months to account for the timing of the various
15 projects. This would mean that the calculation of the difference based on the numbers in Figure
16 34 would be the 2032 values less half the 2022 values. The result is 93 GWh in the commercial
17 class less half of 21 GWh, or the 83 GWh as shown in Figure 54. Likewise, the industrial
18 difference would be 41 GWh less half of 10 GWh, or the 36 GWh shown in Figure 53.

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1 **Request IR-13:**

2
3 **Please refer to Figure 53, Page 79. Please confirm that the category in this Figure labeled**
4 **“C&I Electrification” incorporates both electrification of heating/cooling and**
5 **electrification of transportation.**

6
7 Response IR-13:

8
9 Yes, the values for C&I electrification include heating, cooling and transportation. However, the
10 majority of the electrification in the industrial sector is expected to come from electrifying
11 process/manufacturing equipment.

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Request IR-14:

Please refer to Figure 32 on Page 51.

(a) Please confirm that commercial heat pump adoption is incorporated into the “Heat” and “Cool” categories. If not, please describe where this is represented in this figure.

(b) Please confirm that commercial electric vehicle adoption is incorporated into the “Misc” category. If not, please describe where this adoption is represented in this figure.

(c) If neither are represented in Figure 32, please describe how electrification is accounted for in the Commercial classes.

Response IR-14:

(a) Confirmed.

(b-c) EV adoption is not included in the commercial intensities, all of the EV load is included in the residential model. The commercial model has not been updated to accommodate the new EV forecast that includes commercial vehicles and commercial charging stations. These will be allocated to the commercial class in the 2023 forecast. The impact is minimal in the near term, approximately 25 GWh by 2025, but increases to approximately 200GWh by 2032 that will be moved from the residential class to the commercial class.

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1 **Request IR-15:**

2
3 **Please describe in detail how electrification is accounted for in the forecasts for Industrial**
4 **classes.**

5
6 Response IR-15:

7
8 As the industrial models do not have end-use inputs, the electrification amounts in Figure 34 are
9 added to their respective classes outside of the models.

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1 **Request IR-16:**

2
3 **Please refer to Page 18, Lines 13-16. Why does residential and commercial use historical**
4 **billed sales data since January 2012, while the Small industrial class utilizes January 2010,**
5 **and the Medium Industrial class uses 2006?**

6
7 Response IR-16:

8
9 Please refer to page 31 of the Report for an explanation of the different timescales.

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1 **Request IR-17:**

2
3 **Please refer to Page 19, Lines 9-20.**

4
5 **(a) Why does the weather data start year (Jan 2012) not align with the periods described**
6 **above per rate class? Please provide a detailed response as to why the method used**
7 **still provides for a consistent forecast across all classes.**

8
9 **(b) Why does the peak demand forecast not use the same time frames as the load**
10 **forecast? Does having different time frames impact the accuracy of the peak forecast**
11 **relative to the load forecast?**

12
13 **Response IR-17:**

14
15 **(a) Weather data is only used in the residential, small general, and general demand models, all**
16 **of which use historic data starting in 2012, so the timeframes for those models are aligned.**
17 **The small and medium industrial forecasts are econometric and are generally not sensitive**
18 **to weather, so the difference in the timeframe for weather data has no impact.**

19
20 **(b) The peak demand forecast uses the 2012 to 2021 timeframe for historic data, which is aligned**
21 **with the residential, small general, and general demand models. Inputs from the small and**
22 **medium industrial forecasts are provided for this timeframe as well, the fact that the small**
23 **and medium industrial energy forecasts use a longer historic data series for the energy**
24 **models has no impact on the peak forecast.**

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1 **Request IR-18:**

2
3 **Understanding these are proprietary models, please provide a detailed description of the**
4 **methodology used in E3's RESHAPE and EV Load Shaping Tool models to determine load**
5 **shapes of electric heat and EV needs.**

6
7 **(a) Please confirm Figure 27 is an output of the EV Load Shaping Tool model.**

8
9 Response IR-18:

10
11 (a) The kWh/year and kW/vehicle on peak are outputs. The average km/year is an input.
12 Please refer to Synapse IR-9 for further details on E3's EV model.

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1 **Request IR-19:**

2
3 **Please refer to Electric Vehicles (EVs), page 42 of 98, Lines 2-11, which states:**

4
5 *“The EV forecast has been updated for 2022 based on a stock rollover model*
6 *prepared by E3 that estimates adoption to meet 2050 net-zero emissions goals*
7 *combined with the provincial mandate of 30 percent of vehicles sales being EVs*
8 *by 2030 and the federal target of 100 percent of vehicle sales being EVs by 2035.*
9 *The 2022 Load Forecast for EVs includes both light duty vehicles (LDV) as well*
10 *as medium duty vehicles (MDV) such as delivery trucks and other medium duty*
11 *fleet vehicles, and heavy-duty vehicles (HDV) focusing on buses. The EV forecast*
12 *estimates that Nova Scotia will have over 75,000 EVs on the road by 2031, mostly*
13 *made up of LDVs (see Figure 26), compared to a forecast of 58,000 vehicles by*
14 *2031 in the 2021 Load Forecast, which had an estimate of 20 percent of vehicle*
15 *sales by 2030.”*
16

17 **(a) Does Figure 27 represent NS Power’s forecast of Light Duty Vehicle stock through**
18 **2050? Or is this figure meant to be illustrative of the growth curve that would be**
19 **required to meet the referenced target?**

20
21 **(b) Did NS Power validate this growth curve against that experienced in Nova Scotia for**
22 **a similar customer investment technology that has reached broader market**
23 **penetration/saturation at this time?**

24
25 **(c) Please describe in detail any adjustments NS Power made to the forecast in Figure 27**
26 **before using it as a driver in its forecast model.**
27

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1 Response IR-19:

2
3 (a) No. Figure 27 represents the underlying assumptions for average km driven per year,
4 average kWh consumption per year, and average vehicle contribution to peak. Figure 26
5 represents the growth curve to meet government EV sales targets (100 percent EV sales
6 by 2035).

7
8 (b) No. Light duty EV adoption/stock estimate was developed in E3's PATHWAYS stock
9 rollover model, based on assumption of 100 percent electric LDV sales by 2035. Today,
10 EV sales are less than 1 percent of vehicle sales in Nova Scotia and must ramp up to 100
11 percent (for passenger vehicles and trucks) by 2035 to meet federal targets.

12
13 (c) No adjustments were made.