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July 17, 2020

City Council, City of Unalaska
Ms. Erin Reinders, City Manager
City of Unalaska
PO Box 610
Unalaska, AK 99685

Dear Councilmembers:

On June 16, 2020, the Financial Engineering Company provided the City with a written report summarizing the analysis and findings regarding the potential risks and benefits of the proposed Makushin Geothermal Project (the "Project" or "Makushin"). Since the time of the report, City staff and the developer of the Project (Ounalashka Corporation/Chena Power, or "OCCP") have met several times to develop a Power Purchase Agreement ("PPA") for the sale and purchase of Makushin power. City staff and OCCP also met with the processors who now self-generate to discuss the Project.

Negotiation of the PPA has focused solely on a 30-megawatt resource, and OCCP has increased the fixed payment by approximately 1.7 percent above that used in the June 16 analysis. Accordingly, this letter report provides an update of the June 16 analysis for the 30-megawatt resource using the updated cost numbers.

ASSUMPTIONS

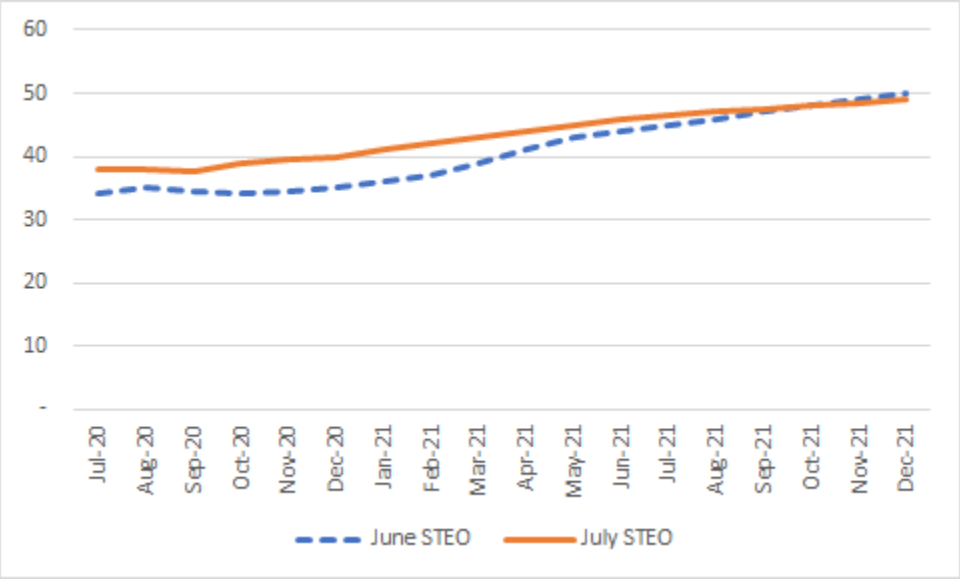
Many of the assumptions used in the June 16 analysis are used herein, but certain ones have been modified. The assumptions are re-capped here to facilitate the review of this report.

Losses (unchanged). 3.8 percent for the City core load and 2.0 percent for energy delivered to the processors.

Inflation (unchanged). Assumed to be 1.5 percent from 2020 – 2021, 2.0 percent for the next two years, and 2.25 percent thereafter.

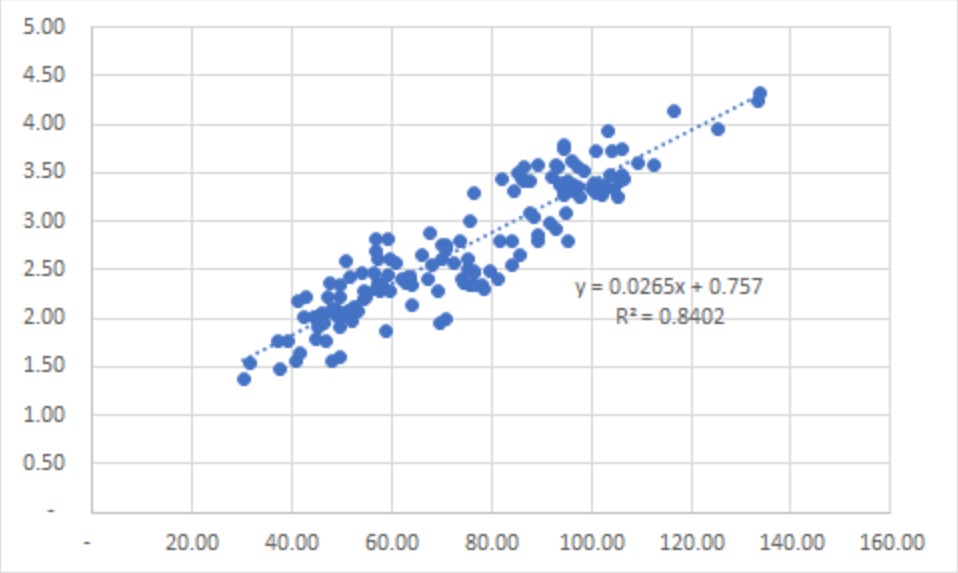
Fuel Prices (modified). The June 16 analysis used two fuel forecasts, one based on Nymex Futures and one based on the US Department of Energy Energy Information Administration's Short-Term Energy Outlook June 9, 2020 ("STEO"). Since then, the EIA has released an updated STEO dated July 7, 2020, and this update forecasts oil to be higher in the near term but lower at the end of 2021 than that forecasted in the June 9 STEO ($49/barrel as compared to $50/barrel).

Figure 1
EIA STEO Forecasts of WTI
($/bbl)



Subsequent to the June 16 analysis, a regression was performed investigating the relationship between the price of diesel fuel and oil. That regression showed a strong correlation and is summarized in the following figure. Future oil prices are based on the July 7, 2020, STEO of $49/barrel at the end of 2021 and escalated at the assumed inflation rate thereafter. Oil prices are then converted to generating fuel prices using the equation shown in the figure.

Figure 2
Diesel Fuel Price vs WTI



Fuel prices will play perhaps the most important role in the economics of the Project. Thus, the breakeven price of fuel is calculated for each year, and this breakeven fuel price is then converted to oil prices using the equation in the preceding figure.

Generating Efficiency (unchanged). 15.7 kWh (generated)/gallon for the City and 14.0 kWh (generated)/gallon for the processors.

Maintenance Fuel (unchanged).

	City	Westward	Alyeska	UniSea
Hours/Unit/Month	8	8	8	8
Gallons/Hour/Unit	215.6	125	50	125
Number of Units	5	3	6	6

Spinning Reserve (modified). No costs for spinning reserves are included in the analysis. The Project will provide some spinning reserve, and any amount required above that by the City or processors is considered outside the Project analysis.

City Costs (unchanged). The Project is assumed to allow the City to reduce staff supporting generation over a period of time as well as reductions in overtime, repairs, maintenance, and supplies.

Processor Variable O&M (unchanged). $0.0275/kWh in 2021 dollars.

SCENARIOS RUN

The City's present load is approximately 40 million kWh/year exclusive of any sales to self-generators. Three separate scenarios were investigated where the Project is assumed to provide for all of the City core load plus varying amounts of sales to the self-generators. The three assumed amounts of sales to the self-generators include:

1. Scenario 1: 60 million kWh/year, which represents nearly all of the self-generation loads.

2. Scenario 2: 30 million kWh/year

3. Scenario 3: No sales to self-generators

For Scenario 2, the maintenance fuel is assumed to a combined seven units for the processors; and Scenario 3 has no additional maintenance fuel for the processors.

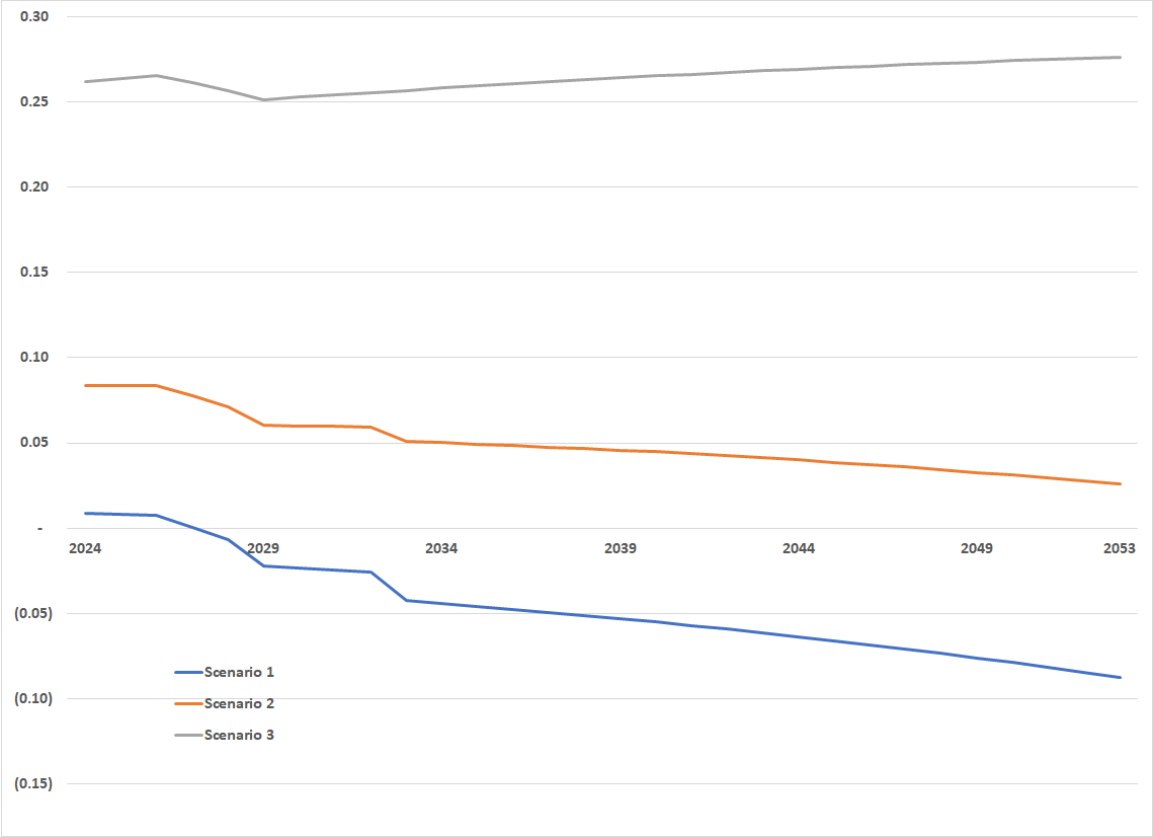
SUMMARY OF RESULTS

Table 1 provides a summary of the savings to the City and processors over the 30-year life of the Project. As expected from past studies, sales to the processors are key to the economics of Makushin. Figure 3 summarizes the effect Makushin is projected to have on City retail rates as compared to continued use of diesel generation.

Table 1
Summary of Results

Sales to Self Gen		Cumulative Combined Benefits (000) 5-yr	10-yr	15-yr	20-yr	25-yr	30-yr	First Op Yr w/ Savings
Scenario 1 60,000,000	City	$ (680)	$ 4,845	$ 14,358	$ 25,791	$ 39,474	$ 55,785	5
	Self Gen	4,214	8,399	12,528	19,429	29,635	43,753	1
	Combined	$ 3,534	$ 13,244	$ 26,886	$ 45,220	$ 69,109	$ 99,537	1
Scenario 2 30,000,000	City	$ (16,001)	$ (27,610)	$ (37,306)	$ (46,022)	$ (53,472)	$ (59,330)	>30
	Self Gen	(8,343)	(17,233)	(26,709)	(35,386)	(43,027)	(49,359)	>30
	Combined	$ (24,344)	$ (44,843)	$ (64,015)	$ (81,408)	$ (96,499)	$ (108,690)	>30
Scenario 3 0	City	$ (52,325)	$ (103,143)	$ (155,250)	$ (208,498)	$ (262,710)	$ (317,672)	>30
	Self Gen	-	-	-	-	-	-	
	Combined	$ (52,325)	$ (103,143)	$ (155,250)	$ (208,498)	$ (262,710)	$ (317,672)	>30

Figure 3
Increase (Decrease) in City Retail Rates
As Compared to Without Makushin

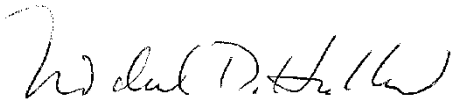


The results are, obviously, dependent on a number of assumptions regarding future events, most notably the cost of fuel. Therefore, the breakeven cost of fuel was calculated for each scenario to give a perspective on what the cost of fuel must be for the Project to provide benefits to the ratepayers. The breakeven costs in Figures 4 – 6 on the following pages are provided in both $/gallon and in $/barrel of WTI based on the regression analysis described earlier. If actual fuel prices are greater than the breakeven price, the Project would provide benefits to the ratepayers. Conversely if actual prices are less than the breakeven price, the Project would result in additional costs to the ratepayers.

Details of each scenario are provided in Attachments 1 – 3.

Very truly yours,

THE FINANCIAL ENGINEERING COMPANY



Michael D. Hubbard

Figure 4A
Breakeven Fuel Price for <u>City</u>
<u>(Diesel Fuel</u> - $/gallon)

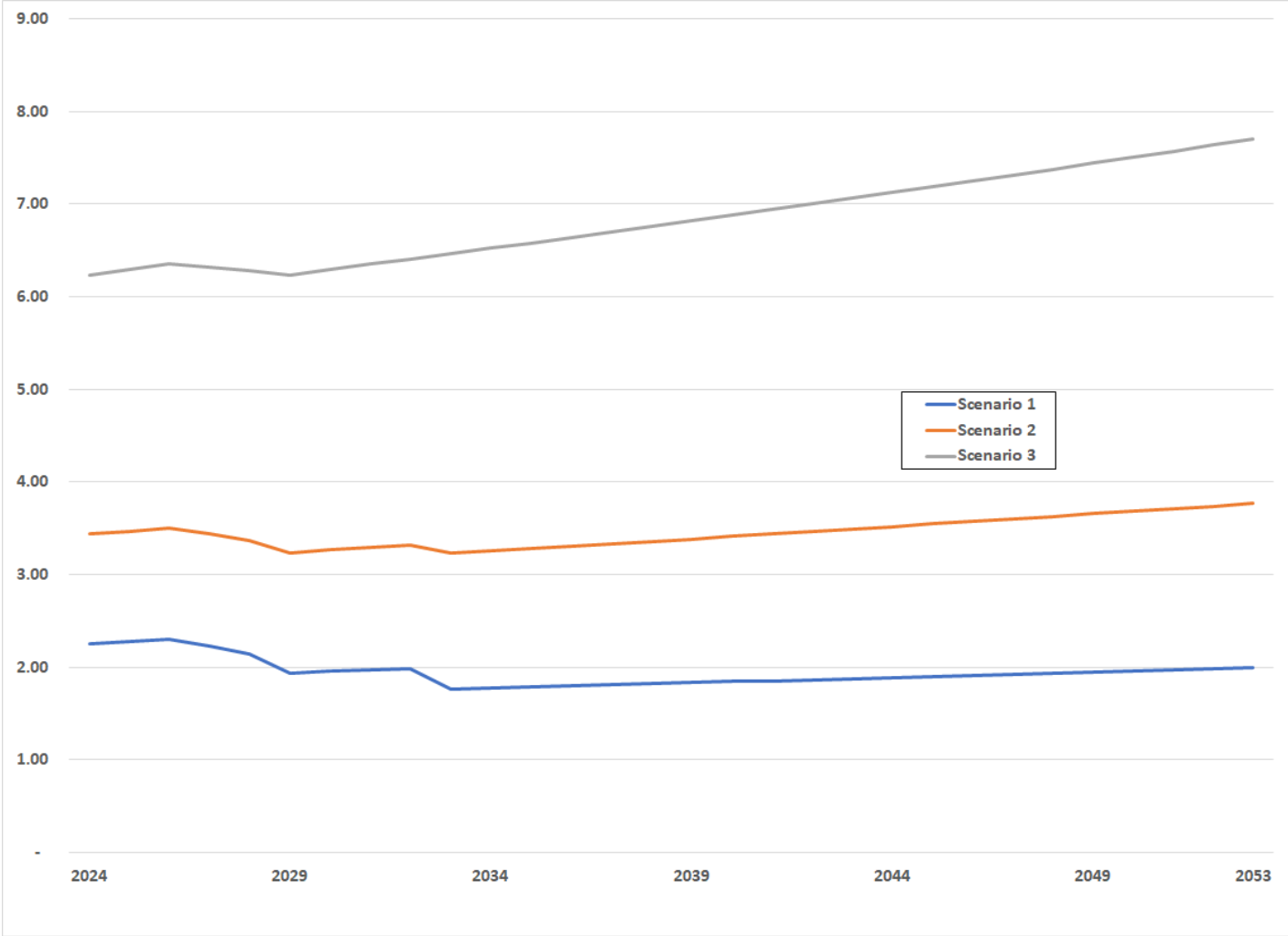


Figure 4B
Breakeven Fuel Price for <u>City</u>
(<u>WTI Oil</u> - $/barrel)

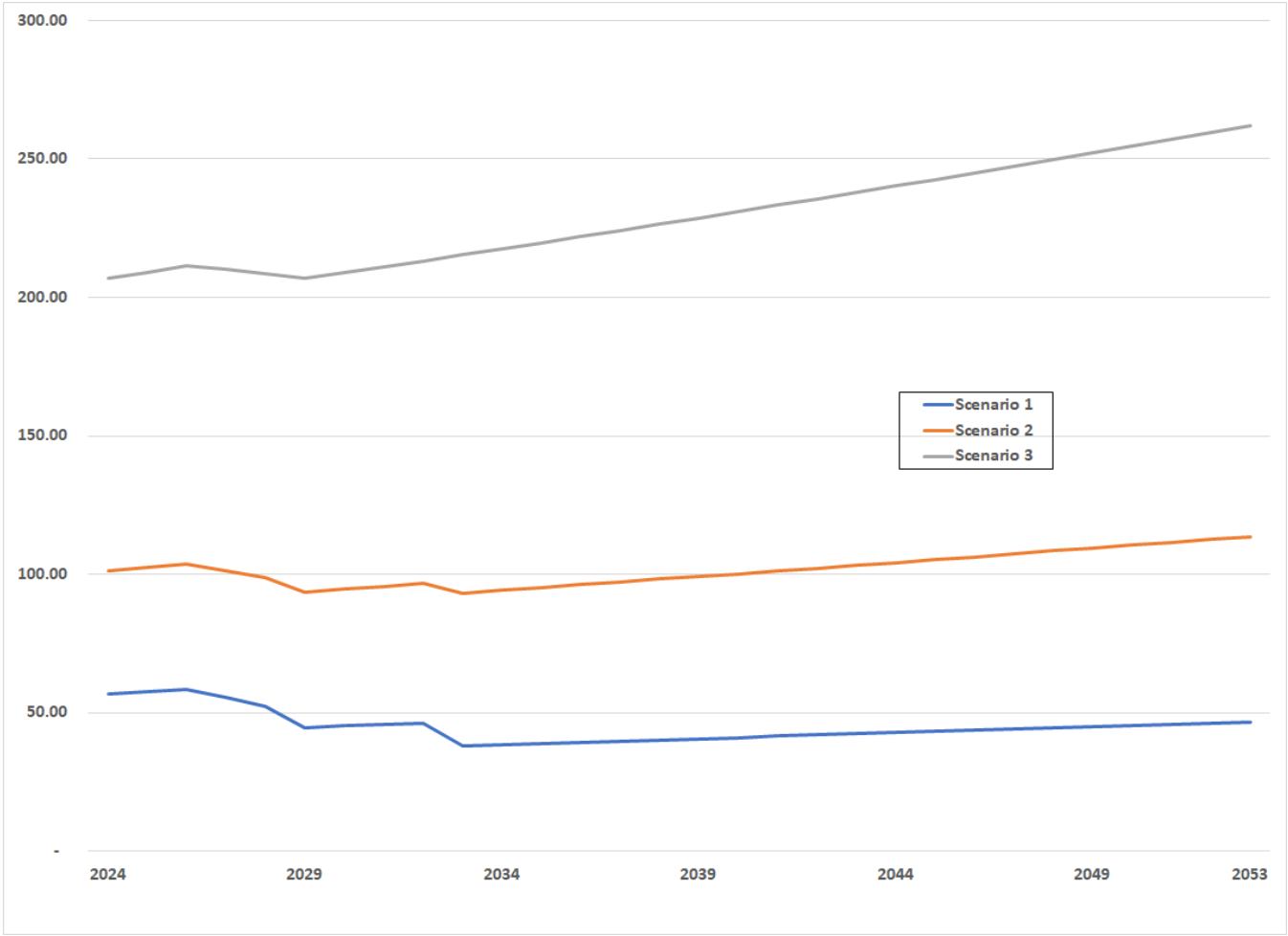


Figure 5A
Breakeven Fuel Price for <u>Self-Generators</u>
<u>(Diesel Fuel</u> - $/gallon)

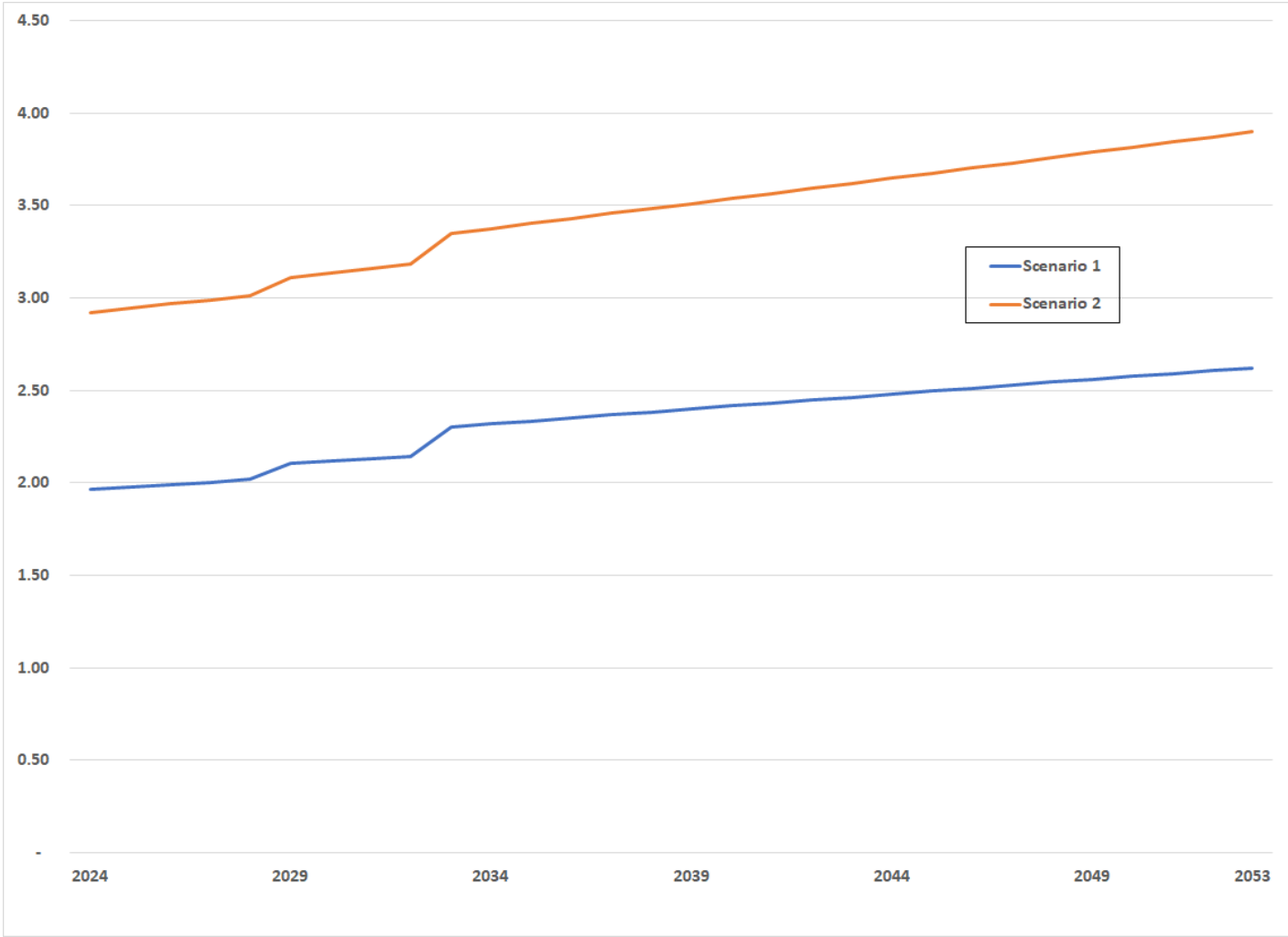


Figure 5B
Breakeven Fuel Price for <u>Self-Generators</u>
(<u>WTI Oil</u> - $/barrel)

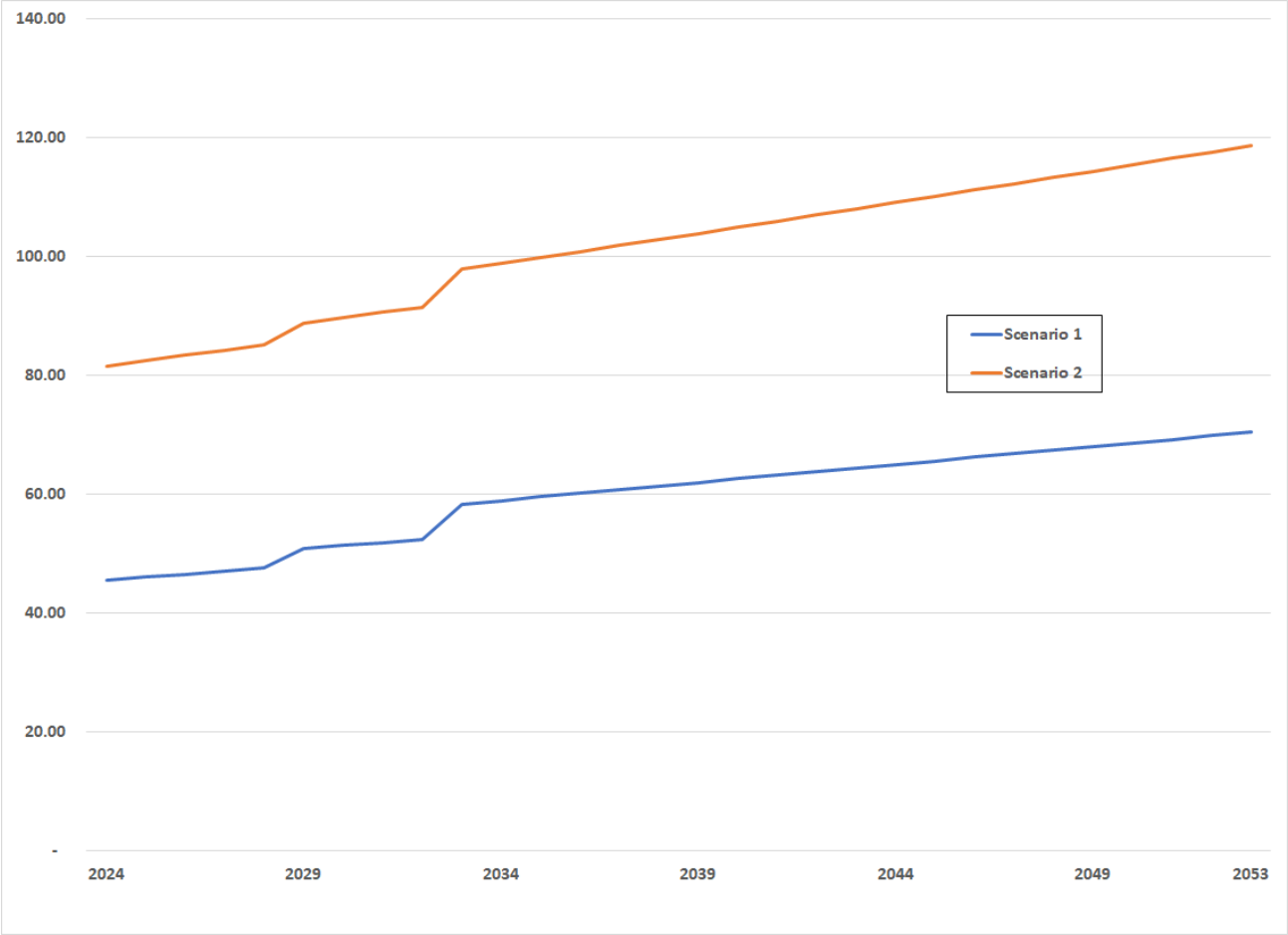


Figure 6A
Breakeven Fuel Price for <u>Combined</u>
<u>(Diesel Fuel</u> - $/gallon)

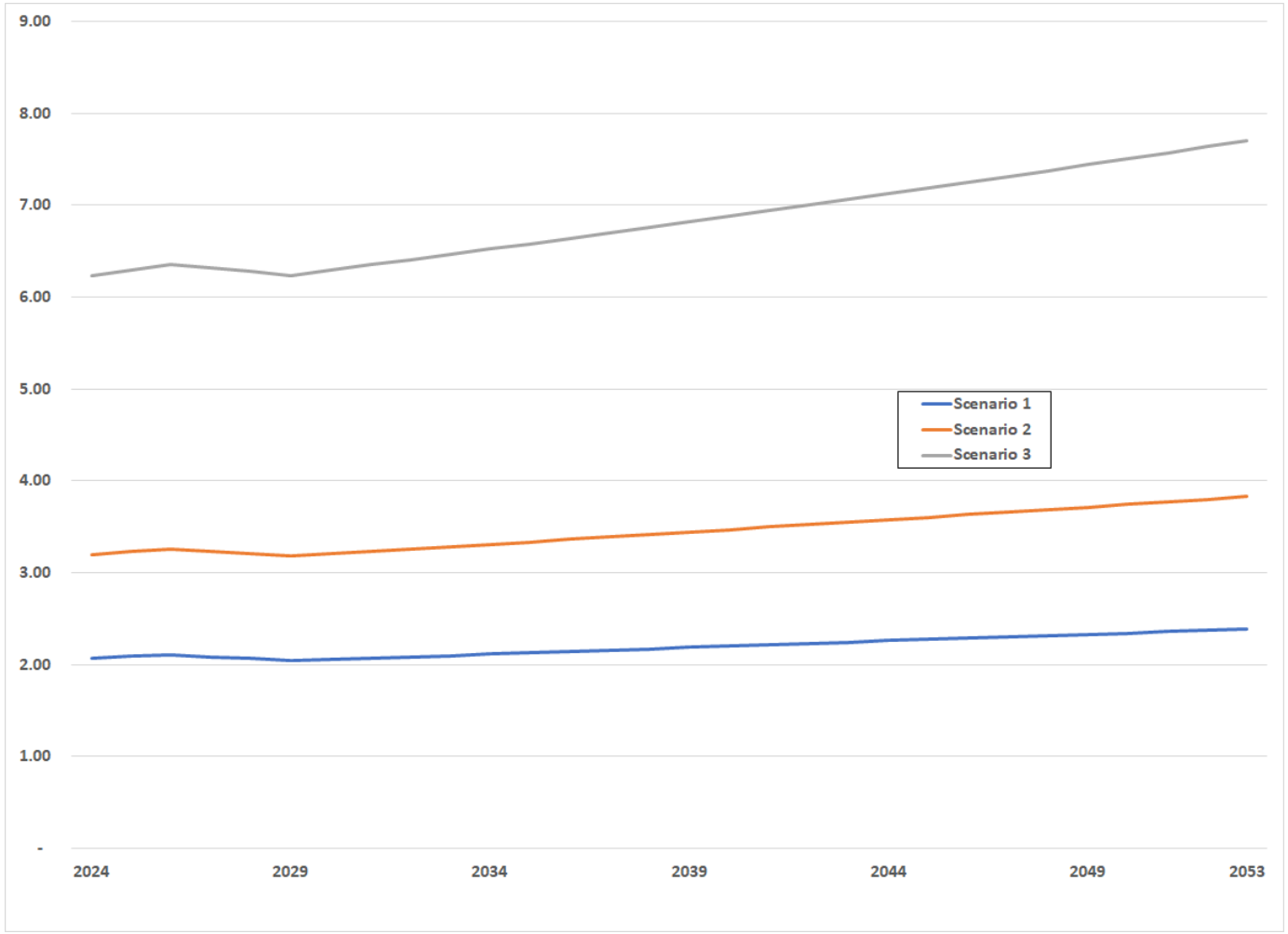
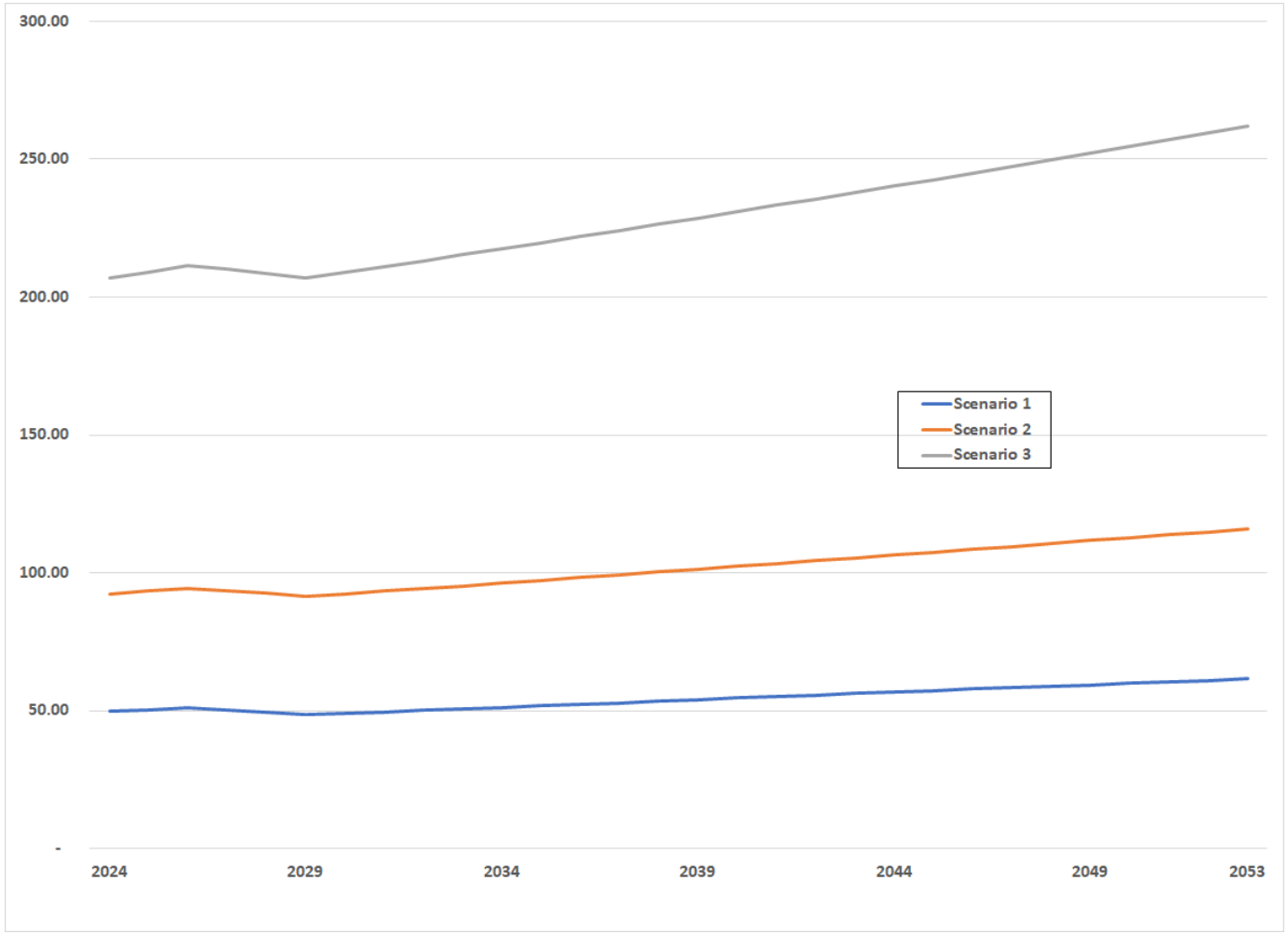


Figure 6B
Breakeven Fuel Price for <u>Self-Generators</u>
(<u>WTI Oil</u> - $/barrel)



Attachment 1

Scenario 1: 60 million kWh Sales to Self-Generators

1																		
2	Makushin Size	30																
3	Fuel Forecast	EIA - Regression																
4	Fuel Price: Self Generator (Pct > City)	3.0%																
5	Sales to Self Generators	60,000,000																
6	Rate Esc	0.75%																
7	Gen Efficiency: City	15.7																
8	Gen Efficiency: Self Generator	14.0																
9	Self Gen VOM ($/kWh - 2021)	0.0275																
10	**SCENARIO 1**																	
11	Breakeven Year																	
12	City	0	0	0	0	0	0	0	2028	0	0	0	0	0	0	0	0	
13	Self Generators	0	0	0	2024	0	0	0	0	0	0	0	0	0	0	0	0	
14	Combined	0	0	0	2024	0	0	0	0	0	0	0	0	0	0	0	0	
15					Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	
16		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	
17	Inflation		1.50%	2.00%	2.00%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	
18	Price Level	1.000	1.015	1.035	1.056	1.080	1.104	1.129	1.154	1.180	1.207	1.234	1.262	1.290	1.319	1.349	1.379	
19	Cost of Fuel ($/gallon)			.														
20	City	1.97	2.07	2.09	2.12	2.16	2.19	2.22	2.25	2.29	2.32	2.36	2.39	2.43	2.47	2.50	2.54	
21	Self Generators	2.03	2.13	2.16	2.19	2.22	2.25	2.29	2.32	2.35	2.39	2.43	2.46	2.50	2.54	2.58	2.62	
22	Self Generator VOM ($/kWh)	0.028	0.028	0.028	0.029	0.030	0.030	0.031	0.032	0.032	0.033	0.034	0.035	0.035	0.036	0.037	0.038	
23	Fuel Efficiency (kWh/gal)																	
24	City	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	
25	Self Generator	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	
26	Fuel Usage With Makushin for Maint/etc. (000 gallons)																	
27	City																	
28	Hours/Unit/Month	-	-	-	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	
29	Gallons/Hour	-	-	-	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	
30	Number of Units	-	-	-	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
31	Self Generators																	
32	Hours/Unit/Month	-	-	-	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	
33	Gallons/Hour	-	-	-	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	
34	Number of Units	-	-	-	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	
35	Makushin Rate																	
36	Fixed Payment - 30 MW (000)	-	-	-	16,300	16,463	16,628	16,794	16,962	17,131	17,303	17,476	17,651	17,827	18,005	18,185	18,367	
37	Wheeling Rate ($/kWh)	-	-	-	0.005	0.005	0.005	0.005	0.005	0.010	0.010	0.010	0.010	0.020	0.020	0.020	0.020	

1																		
2	Makushin Size																	
3	Fuel Forecast																	
4	Fuel Price: Self Generator (Pct > City)																	
5	Sales to Self Generators																	
6	Rate Esc																	
7	Gen Efficiency: City																	
8	Gen Efficiency: Self Generator																	
9	Self Gen VOM ($/kWh - 2021)																	
10	**SCENARIO 1**																	
11	Breakeven Year																	
12	City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Self Generators	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Combined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15		Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo
16		2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
17	Inflation	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%
18	Price Level	1.410	1.442	1.474	1.508	1.541	1.576	1.612	1.648	1.685	1.723	1.762	1.801	1.842	1.883	1.926	1.969	2.013
19	Cost of Fuel ($/gallon)																	
20	City	2.58	2.62	2.67	2.71	2.75	2.80	2.84	2.89	2.94	2.99	3.04	3.09	3.14	3.20	3.25	3.31	3.36
21	Self Generators	2.66	2.70	2.75	2.79	2.84	2.88	2.93	2.98	3.03	3.08	3.13	3.18	3.24	3.29	3.35	3.41	3.47
22	Self Generator VOM ($/kWh)	0.039	0.040	0.041	0.041	0.042	0.043	0.044	0.045	0.046	0.047	0.048	0.050	0.051	0.052	0.053	0.054	0.055
23	Fuel Efficiency (kWh/gal)																	
24	City	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7
25	Self Generator	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
26	Fuel Usage With Makushin for Maint/etc. (000																	
27	City																	
28	Hours/Unit/Month	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
29	Gallons/Hour	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6
30	Number of Units	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
31	Self Generators																	
32	Hours/Unit/Month	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
33	Gallons/Hour	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0
34	Number of Units	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
35	Makushin Rate																	
36	Fixed Payment - 30 MW (000)	18,551	18,736	18,924	19,113	19,304	19,497	19,692	19,889	20,088	20,289	20,492	20,697	20,904	21,113	21,324	21,537	21,752
37	Wheeling Rate ($/kWh)	0.021	0.021	0.021	0.021	0.021	0.021	0.022	0.022	0.022	0.022	0.022	0.022	0.023	0.023	0.023	0.023	0.023

SCENARIO 1

Breakeven Year																	
City	0	0	0	0	0	0	0	2028	0	0	0	0	0	0	0	0	0
Self Generators	0	0	0	2024	0	0	0	0	0	0	0	0	0	0	0	0	0
Combined	0	0	0	2024	0	0	0	0	0	0	0	0	0	0	0	0	0
				Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	
Without Makushin (Dollars in Thousands)																	
Loads (million kWh)																	
City																	
Sales																	
City Core	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	
City Heat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
City Sales to Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total City Sales	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	
Losses																	
Core/Heat	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	
Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total Generation	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	
Self Generators	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	
Costs																	
City																	
Admin/Depr/Int	$ 6,024	$ 6,115	$ 6,237	$ 6,362	$ 6,505	$ 6,651	$ 6,801	$ 6,954	$ 7,110	$ 7,270	$ 7,434	$ 7,601	$ 7,772	$ 7,947	$ 8,126	$ 8,309	
Line Repair	1,349	1,369	1,396	1,424	1,456	1,489	1,522	1,557	1,592	1,627	1,664	1,701	1,740	1,779	1,819	1,860	
Vehicles	64	65	67	68	70	71	73	74	76	78	79	81	83	85	87	89	
Facilities	145	147	150	153	157	160	164	168	171	175	179	183	187	192	196	200	
Production																	
Personnel	1,444	1,465	1,494	1,524	1,559	1,594	1,630	1,666	1,704	1,742	1,781	1,821	1,862	1,904	1,947	1,991	
Ops	789	801	817	833	852	871	891	911	931	952	974	995	1,018	1,041	1,064	1,088	
Fuel	5,207	5,478	5,548	5,627	5,709	5,792	5,877	5,965	6,054	6,145	6,238	6,333	6,431	6,530	6,632	6,736	
Spinning Reserve Fuel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Makushin																	
To OCCP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Payments from Self Gen																	
Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total City	15,022	15,440	15,709	15,992	16,307	16,629	16,958	17,294	17,638	17,990	18,349	18,717	19,093	19,478	19,871	20,273	
Self Gen Costs																	
Fuel	8,679	9,131	9,247	9,380	9,515	9,654	9,796	9,942	10,090	10,242	10,397	10,556	10,718	10,884	11,054	11,227	
Variable O&M	1,650	1,675	1,708	1,742	1,782	1,822	1,863	1,905	1,947	1,991	2,036	2,082	2,129	2,177	2,226	2,276	
Payments to City																	
Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total Self Gen	10,329	10,806	10,955	11,122	11,297	11,476	11,659	11,846	12,038	12,233	12,433	12,638	12,847	13,061	13,280	13,503	
Total Costs	25,351	26,246	26,664	27,114	27,604	28,105	28,617	29,140	29,676	30,223	30,783	31,355	31,940	32,539	33,150	33,776	
City Costs @ Production Level ($/kWh)																	
Production																	
Fuel	$ 0.125	$ 0.132	$ 0.133	$ 0.135	$ 0.137	$ 0.139	$ 0.141	$ 0.143	$ 0.146	$ 0.148	$ 0.150	$ 0.152	$ 0.155	$ 0.157	$ 0.159	$ 0.162	
Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Other Production	0.054	0.054	0.056	0.057	0.058	0.059	0.061	0.062	0.063	0.065	0.066	0.068	0.069	0.071	0.072	0.074	
Other	0.182	0.185	0.189	0.193	0.197	0.201	0.206	0.210	0.215	0.220	0.225	0.230	0.235	0.241	0.246	0.252	
Revenues from Self Gen Base Rate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total																	
At Production Level	$ 0.361	$ 0.371	$ 0.378	$ 0.385	$ 0.392	$ 0.400	$ 0.408	$ 0.416	$ 0.424	$ 0.433	$ 0.441	$ 0.450	$ 0.459	$ 0.468	$ 0.478	$ 0.488	
At Sales Level	$ 0.376	$ 0.386	$ 0.393	$ 0.400	$ 0.408	$ 0.416	$ 0.424	$ 0.432	$ 0.441	$ 0.450	$ 0.459	$ 0.468	$ 0.477	$ 0.487	$ 0.497	$ 0.507	
Self Gen Costs ($/kWh)	$ 0.172	$ 0.180	$ 0.183	$ 0.185	$ 0.188	$ 0.191	$ 0.194	$ 0.197	$ 0.201	$ 0.204	$ 0.207	$ 0.211	$ 0.214	$ 0.218	$ 0.221	$ 0.225	

SCENARIO 1																		
Breakeven Year																		
City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Self Generators	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Combined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo
	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	
Without Makushin (Dollars in Thousands)																		
Loads (million kWh)																		
City																		
Sales																		
City Core	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	
City Heat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
City Sales to Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total City Sales	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	
Losses																		
Core/Heat	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	
Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total Generation	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	
Self Generators	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	
Costs																		
City																		
Admin/Depr/Int	$ 8,496	$ 8,687	$ 8,882	$ 9,082	$ 9,287	$ 9,496	$ 9,709	$ 9,928	$ 10,151	$ 10,379	$ 10,613	$ 10,852	$ 11,096	$ 11,346	$ 11,601	$ 11,862	$ 12,129	
Line Repair	1,902	1,944	1,988	2,033	2,079	2,125	2,173	2,222	2,272	2,323	2,376	2,429	2,484	2,540	2,597	2,655	2,715	
Vehicles	91	93	95	97	99	101	104	106	109	111	113	116	119	121	124	127	130	
Facilities	205	209	214	219	224	229	234	239	245	250	256	262	268	274	280	286	293	
Production																		
Personnel	2,036	2,081	2,128	2,176	2,225	2,275	2,326	2,379	2,432	2,487	2,543	2,600	2,659	2,719	2,780	2,842	2,906	
Ops	1,113	1,138	1,163	1,189	1,216	1,243	1,271	1,300	1,329	1,359	1,390	1,421	1,453	1,486	1,519	1,553	1,588	
Fuel	6,843	6,951	7,063	7,176	7,293	7,412	7,533	7,658	7,785	7,915	8,048	8,184	8,323	8,465	8,611	8,759	8,911	
Spinning Reserve Fuel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Makushin																		
To OCCP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Payments from Self Gen																		
Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total City	20,684	21,104	21,534	21,973	22,423	22,882	23,352	23,832	24,323	24,825	25,339	25,864	26,401	26,950	27,511	28,085	28,671	
Self Gen Costs																		
Fuel	11,405	11,586	11,772	11,961	12,155	12,354	12,557	12,764	12,976	13,193	13,414	13,641	13,873	14,110	14,352	14,600	14,853	
Variable O&M	2,327	2,379	2,433	2,488	2,543	2,601	2,659	2,719	2,780	2,843	2,907	2,972	3,039	3,107	3,177	3,249	3,322	
Payments to City																		
Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total Self Gen	13,732	13,966	14,205	14,449	14,699	14,954	15,216	15,483	15,756	16,035	16,321	16,613	16,912	17,217	17,529	17,848	18,175	
Total Costs	34,416	35,070	35,738	36,422	37,121	37,836	38,567	39,315	40,079	40,861	41,660	42,477	43,312	44,166	45,040	45,933	46,846	
City Costs @ Production Level ($/kWh)																		
Production																		
Fuel	$ 0.165	$ 0.167	$ 0.170	$ 0.173	$ 0.175	$ 0.178	$ 0.181	$ 0.184	$ 0.187	$ 0.190	$ 0.194	$ 0.197	$ 0.200	$ 0.204	$ 0.207	$ 0.211	$ 0.214	
Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Other Production	0.076	0.077	0.079	0.081	0.083	0.085	0.087	0.088	0.090	0.093	0.095	0.097	0.099	0.101	0.103	0.106	0.108	
Other	0.257	0.263	0.269	0.275	0.281	0.287	0.294	0.301	0.307	0.314	0.321	0.328	0.336	0.343	0.351	0.359	0.367	
Revenues from Self Gen Base Rate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total																		
At Production Level	$ 0.497	$ 0.508	$ 0.518	$ 0.528	$ 0.539	$ 0.550	$ 0.562	$ 0.573	$ 0.585	$ 0.597	$ 0.609	$ 0.622	$ 0.635	$ 0.648	$ 0.662	$ 0.675	$ 0.690	
At Sales Level	$ 0.517	$ 0.528	$ 0.538	$ 0.549	$ 0.561	$ 0.572	$ 0.584	$ 0.596	$ 0.608	$ 0.621	$ 0.633	$ 0.647	$ 0.660	$ 0.674	$ 0.688	$ 0.702	$ 0.717	
Self Gen Costs ($/kWh)	$ 0.229	$ 0.233	$ 0.237	$ 0.241	$ 0.245	$ 0.249	$ 0.254	$ 0.258	$ 0.263	$ 0.267	$ 0.272	$ 0.277	$ 0.282	$ 0.287	$ 0.292	$ 0.297	$ 0.303	

10	**SCENARIO 1**																
11	Breakeven Year																
12	City	0	0	0	0	0	0	0	2028	0	0	0	0	0	0	0	0
13	Self Generators	0	0	0	2024	0	0	0	0	0	0	0	0	0	0	0	0
14	Combined	0	0	0	2024	0	0	0	0	0	0	0	0	0	0	0	0
15					Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo
16		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
88	**With Makushin (Dollars in Thousands)**																
89	Loads (million kWh)																
90	City																
91	Sales																
92	City Core	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
93	City Heat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
94	City Sales to Self Gen	-	-	-	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00
95	Total City Sales	40.00	40.00	40.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
96	Losses																
97	Core/Heat	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58
98	Self Gen	-	-	-	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
99	Total Generation	41.58	41.58	41.58	101.58	101.58	101.58	101.58	101.58	101.58	101.58	101.58	101.58	101.58	101.58	101.58	101.58
100	Self Generators	60.00	60.00	60.00	-	-	-	-	-	-	-	-	-	-	-	-	-
101	City Costs																
102	Admin/Depr/Int	$ 6,024	$ 6,115	$ 6,237	$ 6,362	$ 6,505	$ 6,651	$ 6,801	$ 6,954	$ 7,110	$ 7,270	$ 7,434	$ 7,601	$ 7,772	$ 7,947	$ 8,126	$ 8,309
103	Line Repair	1,349	1,369	1,396	1,424	1,456	1,489	1,522	1,557	1,592	1,627	1,664	1,701	1,740	1,779	1,819	1,860
104	Vehicles	64	65	67	68	70	71	73	74	76	78	79	81	83	85	87	89
105	Facilities	145	147	150	153	157	160	164	168	171	175	179	183	187	192	196	200
106	Production																
107	Personnel	1,444	1,465	1,494	1,499	1,533	1,568	1,353	1,127	891	911	931	952	974	995	1,018	1,041
108	Ops	789	801	817	434	443	453	463	474	485	495	507	518	530	542	554	566
109	Fuel	5,207	5,478	5,548	220	223	226	230	233	237	240	244	247	251	255	259	263
110	Spinning Reserve Fuel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
111	Makushin																
112	To OCCP	-	-	-	16,300	16,463	16,628	16,794	16,962	17,131	17,303	17,476	17,651	17,827	18,005	18,185	18,367
113	Payments from Self Gen																
114	Makushin	-	-	-	(9,824)	(9,923)	(10,022)	(10,122)	(10,223)	(10,326)	(10,429)	(10,533)	(10,638)	(10,745)	(10,852)	(10,961)	(11,070)
115	Other	-	-	-	(306)	(306)	(306)	(306)	(306)	(612)	(612)	(612)	(612)	(1,224)	(1,234)	(1,243)	(1,252)
116	Total City	15,022	15,440	15,709	16,330	16,621	16,918	16,971	17,019	16,755	17,059	17,369	17,685	17,395	17,714	18,040	18,373
117	Self Gen Costs																
118	Fuel	8,679	9,131	9,247	299	304	308	313	317	322	327	332	337	342	347	353	358
119	Variable O&M	1,650	1,675	1,708	-	-	-	-	-	-	-	-	-	-	-	-	-
120	Payments to City																
121	Makushin	-	-	-	9,824	9,923	10,022	10,122	10,223	10,326	10,429	10,533	10,638	10,745	10,852	10,961	11,070
122	Other	-	-	-	306	306	306	306	306	612	612	612	612	1,224	1,234	1,243	1,252
123	Total Self Gen	10,329	10,806	10,955	10,430	10,532	10,636	10,741	10,847	11,260	11,368	11,477	11,588	12,311	12,433	12,556	12,681
124	Total Costs	25,351	26,246	26,664	26,759	27,154	27,555	27,712	27,866	28,015	28,427	28,846	29,272	29,706	30,148	30,597	31,054
125	City Costs @ Production Level ($/kWh)																
126	Production																
127	Fuel	$ 0.125	$ 0.132	$ 0.133	$ 0.005	$ 0.005	$ 0.005	$ 0.006	$ 0.006	$ 0.006	$ 0.006	$ 0.006	$ 0.006	$ 0.006	$ 0.006	$ 0.006	$ 0.006
128	Makushin	-	-	-	0.156	0.157	0.159	0.160	0.162	0.164	0.165	0.167	0.169	0.170	0.172	0.174	0.175
129	Other Production	0.054	0.054	0.056	0.046	0.048	0.049	0.044	0.039	0.033	0.034	0.035	0.035	0.036	0.037	0.038	0.039
130	Other	0.182	0.185	0.189	0.193	0.197	0.201	0.206	0.210	0.215	0.220	0.225	0.230	0.235	0.241	0.246	0.252
131	Revenues from Self Gen Base Rate	-	-	-	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.015)	(0.015)	(0.015)	(0.015)	(0.029)	(0.030)	(0.030)	(0.030)
132	Total																
133	At Production Level	0.361	0.371	0.378	0.393	0.400	0.407	0.408	0.409	0.403	0.410	0.418	0.425	0.418	0.426	0.434	0.442
134	At Sales Level	0.376	0.386	0.393	0.408	0.416	0.423	0.424	0.425	0.419	0.426	0.434	0.442	0.435	0.443	0.451	0.459
135	Self Gen Costs ($/kWh)	0.172	0.180	0.183	0.174	0.176	0.177	0.179	0.181	0.188	0.189	0.191	0.193	0.205	0.207	0.209	0.211

10	**SCENARIO 1**																	
11	Breakeven Year																	
12	City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Self Generators	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Combined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15		Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo
16		2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
88	**With Makushin (Dollars in Thousands)**																	
89	Loads (million kWh)																	
90	City																	
91	Sales																	
92	City Core	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
93	City Heat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
94	City Sales to Self Gen	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00
95	Total City Sales	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
96	Losses																	
97	Core/Heat	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58
98	Self Gen	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
99	Total Generation	101.58	101.58	101.58	101.58	101.58	101.58	101.58	101.58	101.58	101.58	101.58	101.58	101.58	101.58	101.58	101.58	101.58
100	Self Generators	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
101	City Costs																	
102	Admin/Depr/Int	$ 8,496	$ 8,687	$ 8,882	$ 9,082	$ 9,287	$ 9,496	$ 9,709	$ 9,928	$ 10,151	$ 10,379	$ 10,613	$ 10,852	$ 11,096	$ 11,346	$ 11,601	$ 11,862	$ 12,129
103	Line Repair	1,902	1,944	1,988	2,033	2,079	2,125	2,173	2,222	2,272	2,323	2,376	2,429	2,484	2,540	2,597	2,655	2,715
104	Vehicles	91	93	95	97	99	101	104	106	109	111	113	116	119	121	124	127	130
105	Facilities	205	209	214	219	224	229	234	239	245	250	256	262	268	274	280	286	293
106	Production																	
107	Personnel	1,064	1,088	1,113	1,138	1,163	1,189	1,216	1,243	1,271	1,300	1,329	1,359	1,390	1,421	1,453	1,486	1,519
108	Ops	579	592	605	619	633	647	662	677	692	707	723	740	756	773	791	808	827
109	Fuel	267	272	276	280	285	290	294	299	304	309	314	320	325	331	336	342	348
110	Spinning Reserve Fuel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
111	Makushin																	
112	To OCCP	18,551	18,736	18,924	19,113	19,304	19,497	19,692	19,889	20,088	20,289	20,492	20,697	20,904	21,113	21,324	21,537	21,752
113	Payments from Self Gen																	
114	Makushin	(11,181)	(11,293)	(11,406)	(11,520)	(11,635)	(11,751)	(11,869)	(11,988)	(12,107)	(12,229)	(12,351)	(12,474)	(12,599)	(12,725)	(12,852)	(12,981)	(13,111)
115	Other	(1,262)	(1,271)	(1,281)	(1,290)	(1,300)	(1,310)	(1,319)	(1,329)	(1,339)	(1,349)	(1,360)	(1,370)	(1,380)	(1,390)	(1,401)	(1,411)	(1,422)
116	Total City	18,712	19,058	19,411	19,771	20,139	20,514	20,896	21,287	21,685	22,092	22,506	22,930	23,362	23,802	24,252	24,711	25,180
117	Self Gen Costs																	
118	Fuel	364	370	376	382	388	394	401	407	414	421	428	435	443	450	458	466	474
119	Variable O&M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
120	Payments to City																	
121	Makushin	11,181	11,293	11,406	11,520	11,635	11,751	11,869	11,988	12,107	12,229	12,351	12,474	12,599	12,725	12,852	12,981	13,111
122	Other	1,262	1,271	1,281	1,290	1,300	1,310	1,319	1,329	1,339	1,349	1,360	1,370	1,380	1,390	1,401	1,411	1,422
123	Total Self Gen	12,807	12,934	13,062	13,192	13,323	13,455	13,589	13,724	13,861	13,999	14,139	14,279	14,422	14,566	14,711	14,858	15,007
124	Total Costs	31,519	31,992	32,473	32,963	33,462	33,969	34,486	35,011	35,546	36,091	36,645	37,209	37,783	38,368	38,963	39,569	40,186
125	City Costs @ Production Level ($/kWh)																	
126	Production																	
127	Fuel	$ 0.006	$ 0.007	$ 0.007	$ 0.007	$ 0.007	$ 0.007	$ 0.007	$ 0.007	$ 0.007	$ 0.007	$ 0.008	$ 0.008	$ 0.008	$ 0.008	$ 0.008	$ 0.008	$ 0.008
128	Makushin	0.177	0.179	0.181	0.183	0.184	0.186	0.188	0.190	0.192	0.194	0.196	0.198	0.200	0.202	0.204	0.206	0.208
129	Other Production	0.040	0.040	0.041	0.042	0.043	0.044	0.045	0.046	0.047	0.048	0.049	0.050	0.052	0.053	0.054	0.055	0.056
130	Other	0.257	0.263	0.269	0.275	0.281	0.287	0.294	0.301	0.307	0.314	0.321	0.328	0.336	0.343	0.351	0.359	0.367
131	Revenues from Self Gen Base Rate	(0.030)	(0.031)	(0.031)	(0.031)	(0.031)	(0.031)	(0.032)	(0.032)	(0.032)	(0.032)	(0.033)	(0.033)	(0.033)	(0.033)	(0.034)	(0.034)	(0.034)
132	Total																	
133	At Production Level	0.450	0.458	0.467	0.475	0.484	0.493	0.503	0.512	0.522	0.531	0.541	0.551	0.562	0.572	0.583	0.594	0.606
134	At Sales Level	0.468	0.476	0.485	0.494	0.503	0.513	0.522	0.532	0.542	0.552	0.563	0.573	0.584	0.595	0.606	0.618	0.629
135	Self Gen Costs ($/kWh)	0.213	0.216	0.218	0.220	0.222	0.224	0.226	0.229	0.231	0.233	0.236	0.238	0.240	0.243	0.245	0.248	0.250

10	**SCENARIO 1**																
11	Breakeven Year																
12	City	0	0	0	0	0	0	0	2028	0	0	0	0	0	0	0	0
13	Self Generators	0	0	0	2024	0	0	0	0	0	0	0	0	0	0	0	0
14	Combined	0	0	0	2024	0	0	0	0	0	0	0	0	0	0	0	0
15					Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo
16		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
136	**Savings (Losses)**																
137	Dollars (000)																
138	City	-	-	-	(337)	(314)	(290)	(14)	275	883	931	981	1,032	1,698	1,763	1,831	1,900
139	Self Generators	-	-	-	692	765	840	918	999	778	865	956	1,050	536	628	723	822
140	Combined	-	-	-	355	450	550	904	1,275	1,661	1,796	1,937	2,083	2,234	2,391	2,554	2,722
141	$/kWh																
142	City	-	-	-	(0.008)	(0.008)	(0.007)	(0.000)	0.007	0.022	0.023	0.025	0.026	0.042	0.044	0.046	0.048
143	Self Generators	-	-	-	0.012	0.013	0.014	0.015	0.017	0.013	0.014	0.016	0.018	0.009	0.010	0.012	0.014
144	Combined	-	-	-	0.004	0.005	0.005	0.009	0.013	0.017	0.018	0.019	0.021	0.022	0.024	0.026	0.027
	Breakeven Price																
	City	1.97	2.07	2.09	2.26	2.28	2.30	2.22	2.14	1.94	1.95	1.97	1.99	1.76	1.77	1.78	1.80
	SelfGen	1.97	2.07	2.09	1.96	1.98	1.99	2.00	2.02	2.10	2.12	2.13	2.15	2.30	2.32	2.33	2.35
	Combined	1.97	2.07	2.09	2.07	2.09	2.11	2.09	2.07	2.04	2.06	2.07	2.09	2.10	2.12	2.13	2.14

10	**SCENARIO 1**																	
11	Breakeven Year																	
12	City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Self Generators	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Combined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15		Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo
16		2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
136	**Savings (Losses)**																	
137	Dollars (000)																	
138	City	1,972	2,046	2,123	2,202	2,284	2,368	2,455	2,545	2,638	2,734	2,832	2,934	3,039	3,147	3,259	3,374	3,492
139	Self Generators	925	1,032	1,142	1,257	1,376	1,499	1,627	1,758	1,895	2,036	2,182	2,334	2,490	2,651	2,818	2,990	3,168
140	Combined	2,897	3,078	3,265	3,459	3,660	3,867	4,082	4,304	4,533	4,770	5,015	5,268	5,529	5,798	6,077	6,364	6,660
141	$/kWh																	
142	City	0.049	0.051	0.053	0.055	0.057	0.059	0.061	0.064	0.066	0.068	0.071	0.073	0.076	0.079	0.081	0.084	0.087
143	Self Generators	0.015	0.017	0.019	0.021	0.023	0.025	0.027	0.029	0.032	0.034	0.036	0.039	0.041	0.044	0.047	0.050	0.053
144	Combined	0.029	0.031	0.033	0.035	0.037	0.039	0.041	0.043	0.045	0.048	0.050	0.053	0.055	0.058	0.061	0.064	0.067
	Breakeven Price																	
	City	1.81	1.82	1.83	1.84	1.86	1.87	1.88	1.89	1.90	1.91	1.93	1.94	1.95	1.96	1.97	1.98	1.99
	SelfGen	2.37	2.38	2.40	2.42	2.43	2.45	2.46	2.48	2.50	2.51	2.53	2.54	2.56	2.58	2.59	2.61	2.62
	Combined	2.16	2.17	2.19	2.20	2.22	2.23	2.25	2.26	2.27	2.29	2.30	2.32	2.33	2.35	2.36	2.37	2.39

Attachment 2

Scenario 2: 30 million kWh Sales to Self-Generators

1																		
2	Makushin Size	30																
3	Fuel Forecast	EIA - Regression																
4	Fuel Price: Self Generator (Pct > City)	3.0%																
5	Sales to Self Generators	30,000,000																
6	Rate Esc	0.75%																
7	Gen Efficiency: City	15.7																
8	Gen Efficiency: Self Generator	14.0																
9	Self Gen VOM ($/kWh - 2021)	0.0275																
10	**SCENARIO 2**																	
11	Breakeven Year																	
12	City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Self Generators	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Combined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15					Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo
16		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	
17	Inflation		1.50%	2.00%	2.00%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%
18	Price Level	1.000	1.015	1.035	1.056	1.080	1.104	1.129	1.154	1.180	1.207	1.234	1.262	1.290	1.319	1.349	1.379	
19	Cost of Fuel ($/gallon)			.														
20	City	1.97	2.07	2.09	2.12	2.16	2.19	2.22	2.25	2.29	2.32	2.36	2.39	2.43	2.47	2.50	2.54	
21	Self Generators	2.03	2.13	2.16	2.19	2.22	2.25	2.29	2.32	2.35	2.39	2.43	2.46	2.50	2.54	2.58	2.62	
22	Self Generator VOM ($/kWh)	0.028	0.028	0.028	0.029	0.030	0.030	0.031	0.032	0.032	0.033	0.034	0.035	0.035	0.036	0.037	0.038	
23	Fuel Efficiency (kWh/gal)																	
24	City	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	
25	Self Generator	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	
26	Fuel Usage With Makushin for Maint/etc. (000 gallons)																	
27	City																	
28	Hours/Unit/Month	-	-	-	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	
29	Gallons/Hour	-	-	-	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	
30	Number of Units	-	-	-	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
31	Self Generators																	
32	Hours/Unit/Month	-	-	-	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	
33	Gallons/Hour	-	-	-	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	
34	Number of Units	-	-	-	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
35	Makushin Rate																	
36	Fixed Payment - 30 MW (000)	-	-	-	16,300	16,463	16,628	16,794	16,962	17,131	17,303	17,476	17,651	17,827	18,005	18,185	18,367	
37	Wheeling Rate ($/kWh)	-	-	-	0.005	0.005	0.005	0.005	0.005	0.010	0.010	0.010	0.010	0.020	0.020	0.020	0.020	

1																		
2	Makushin Size																	
3	Fuel Forecast																	
4	Fuel Price: Self Generator (Pct > City)																	
5	Sales to Self Generators																	
6	Rate Esc																	
7	Gen Efficiency: City																	
8	Gen Efficiency: Self Generator																	
9	Self Gen VOM ($/kWh - 2021)																	
10	**SCENARIO 2**																	
11	Breakeven Year																	
12	City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Self Generators	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Combined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15		Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo
16		2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
17	Inflation	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%
18	Price Level	1.410	1.442	1.474	1.508	1.541	1.576	1.612	1.648	1.685	1.723	1.762	1.801	1.842	1.883	1.926	1.969	2.013
19	Cost of Fuel ($/gallon)																	
20	City	2.58	2.62	2.67	2.71	2.75	2.80	2.84	2.89	2.94	2.99	3.04	3.09	3.14	3.20	3.25	3.31	3.36
21	Self Generators	2.66	2.70	2.75	2.79	2.84	2.88	2.93	2.98	3.03	3.08	3.13	3.18	3.24	3.29	3.35	3.41	3.47
22	Self Generator VOM ($/kWh)	0.039	0.040	0.041	0.041	0.042	0.043	0.044	0.045	0.046	0.047	0.048	0.050	0.051	0.052	0.053	0.054	0.055
23	Fuel Efficiency (kWh/gal)																	
24	City	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7
25	Self Generator	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
26	Fuel Usage With Makushin for Maint/etc. (000																	
27	City																	
28	Hours/Unit/Month	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
29	Gallons/Hour	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6
30	Number of Units	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
31	Self Generators																	
32	Hours/Unit/Month	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
33	Gallons/Hour	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0
34	Number of Units	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
35	Makushin Rate																	
36	Fixed Payment - 30 MW (000)	18,551	18,736	18,924	19,113	19,304	19,497	19,692	19,889	20,088	20,289	20,492	20,697	20,904	21,113	21,324	21,537	21,752
37	Wheeling Rate ($/kWh)	0.021	0.021	0.021	0.021	0.021	0.021	0.022	0.022	0.022	0.022	0.022	0.022	0.023	0.023	0.023	0.023	0.023

SCENARIO 2

Breakeven Year																
City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Self Generators	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Combined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
				Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Without Makushin (Dollars in Thousands)																
Loads (million kWh)																
City																
Sales																
City Core	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
City Heat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
City Sales to Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total City Sales	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Losses																
Core/Heat	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58
Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Generation	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58
Self Generators	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00
Costs																
City																
Admin/Depr/Int	$ 6,024	$ 6,115	$ 6,237	$ 6,362	$ 6,505	$ 6,651	$ 6,801	$ 6,954	$ 7,110	$ 7,270	$ 7,434	$ 7,601	$ 7,772	$ 7,947	$ 8,126	$ 8,309
Line Repair	1,349	1,369	1,396	1,424	1,456	1,489	1,522	1,557	1,592	1,627	1,664	1,701	1,740	1,779	1,819	1,860
Vehicles	64	65	67	68	70	71	73	74	76	78	79	81	83	85	87	89
Facilities	145	147	150	153	157	160	164	168	171	175	179	183	187	192	196	200
Production																
Personnel	1,444	1,465	1,494	1,524	1,559	1,594	1,630	1,666	1,704	1,742	1,781	1,821	1,862	1,904	1,947	1,991
Ops	789	801	817	833	852	871	891	911	931	952	974	995	1,018	1,041	1,064	1,088
Fuel	5,207	5,478	5,548	5,627	5,709	5,792	5,877	5,965	6,054	6,145	6,238	6,333	6,431	6,530	6,632	6,736
Spinning Reserve Fuel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Makushin																
To OCCP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Payments from Self Gen																
Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total City	15,022	15,440	15,709	15,992	16,307	16,629	16,958	17,294	17,638	17,990	18,349	18,717	19,093	19,478	19,871	20,273
Self Gen Costs																
Fuel	4,339	4,565	4,623	4,690	4,758	4,827	4,898	4,971	5,045	5,121	5,199	5,278	5,359	5,442	5,527	5,614
Variable O&M	825	837	854	871	891	911	931	952	974	996	1,018	1,041	1,064	1,088	1,113	1,138
Payments to City																
Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Self Gen	5,164	5,403	5,477	5,561	5,649	5,738	5,830	5,923	6,019	6,117	6,217	6,319	6,423	6,530	6,640	6,752
Total Costs	20,186	20,843	21,187	21,553	21,955	22,367	22,787	23,217	23,657	24,106	24,566	25,036	25,517	26,008	26,511	27,024
City Costs @ Production Level ($/kWh)																
Production																
Fuel	$ 0.125	$ 0.132	$ 0.133	$ 0.135	$ 0.137	$ 0.139	$ 0.141	$ 0.143	$ 0.146	$ 0.148	$ 0.150	$ 0.152	$ 0.155	$ 0.157	$ 0.159	$ 0.162
Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Production	0.054	0.054	0.056	0.057	0.058	0.059	0.061	0.062	0.063	0.065	0.066	0.068	0.069	0.071	0.072	0.074
Other	0.182	0.185	0.189	0.193	0.197	0.201	0.206	0.210	0.215	0.220	0.225	0.230	0.235	0.241	0.246	0.252
Revenues from Self Gen Base Rate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total																
At Production Level	$ 0.361	$ 0.371	$ 0.378	$ 0.385	$ 0.392	$ 0.400	$ 0.408	$ 0.416	$ 0.424	$ 0.433	$ 0.441	$ 0.450	$ 0.459	$ 0.468	$ 0.478	$ 0.488
At Sales Level	$ 0.376	$ 0.386	$ 0.393	$ 0.400	$ 0.408	$ 0.416	$ 0.424	$ 0.432	$ 0.441	$ 0.450	$ 0.459	$ 0.468	$ 0.477	$ 0.487	$ 0.497	$ 0.507
Self Gen Costs ($/kWh)	$ 0.172	$ 0.180	$ 0.183	$ 0.185	$ 0.188	$ 0.191	$ 0.194	$ 0.197	$ 0.201	$ 0.204	$ 0.207	$ 0.211	$ 0.214	$ 0.218	$ 0.221	$ 0.225

SCENARIO 2

Breakeven Year																		
City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Self Generators	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Combined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo
	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	
Without Makushin (Dollars in Thousands)																		
Loads (million kWh)																		
City																		
Sales																		
City Core	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	
City Heat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
City Sales to Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total City Sales	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	
Losses																		
Core/Heat	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	
Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total Generation	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	
Self Generators	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	
Costs																		
City																		
Admin/Depr/Int	$ 8,496	$ 8,687	$ 8,882	$ 9,082	$ 9,287	$ 9,496	$ 9,709	$ 9,928	$ 10,151	$ 10,379	$ 10,613	$ 10,852	$ 11,096	$ 11,346	$ 11,601	$ 11,862	$ 12,129	
Line Repair	1,902	1,944	1,988	2,033	2,079	2,125	2,173	2,222	2,272	2,323	2,376	2,429	2,484	2,540	2,597	2,655	2,715	
Vehicles	91	93	95	97	99	101	104	106	109	111	113	116	119	121	124	127	130	
Facilities	205	209	214	219	224	229	234	239	245	250	256	262	268	274	280	286	293	
Production																		
Personnel	2,036	2,081	2,128	2,176	2,225	2,275	2,326	2,379	2,432	2,487	2,543	2,600	2,659	2,719	2,780	2,842	2,906	
Ops	1,113	1,138	1,163	1,189	1,216	1,243	1,271	1,300	1,329	1,359	1,390	1,421	1,453	1,486	1,519	1,553	1,588	
Fuel	6,843	6,951	7,063	7,176	7,293	7,412	7,533	7,658	7,785	7,915	8,048	8,184	8,323	8,465	8,611	8,759	8,911	
Spinning Reserve Fuel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Makushin																		
To OCCP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Payments from Self Gen																		
Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total City	20,684	21,104	21,534	21,973	22,423	22,882	23,352	23,832	24,323	24,825	25,339	25,864	26,401	26,950	27,511	28,085	28,671	
Self Gen Costs																		
Fuel	5,702	5,793	5,886	5,981	6,078	6,177	6,278	6,382	6,488	6,596	6,707	6,820	6,936	7,055	7,176	7,300	7,426	
Variable O&M	1,163	1,190	1,216	1,244	1,272	1,300	1,330	1,360	1,390	1,421	1,453	1,486	1,520	1,554	1,589	1,624	1,661	
Payments to City																		
Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total Self Gen	6,866	6,983	7,102	7,224	7,349	7,477	7,608	7,741	7,878	8,018	8,161	8,307	8,456	8,608	8,765	8,924	9,087	
Total Costs	27,550	28,087	28,636	29,198	29,772	30,359	30,960	31,573	32,201	32,843	33,499	34,170	34,856	35,558	36,275	37,009	37,759	
City Costs @ Production Level ($/kWh)																		
Production																		
Fuel	$ 0.165	$ 0.167	$ 0.170	$ 0.173	$ 0.175	$ 0.178	$ 0.181	$ 0.184	$ 0.187	$ 0.190	$ 0.194	$ 0.197	$ 0.200	$ 0.204	$ 0.207	$ 0.211	$ 0.214	
Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Other Production	0.076	0.077	0.079	0.081	0.083	0.085	0.087	0.088	0.090	0.093	0.095	0.097	0.099	0.101	0.103	0.106	0.108	
Other	0.257	0.263	0.269	0.275	0.281	0.287	0.294	0.301	0.307	0.314	0.321	0.328	0.336	0.343	0.351	0.359	0.367	
Revenues from Self Gen Base Rate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total																		
At Production Level	$ 0.497	$ 0.508	$ 0.518	$ 0.528	$ 0.539	$ 0.550	$ 0.562	$ 0.573	$ 0.585	$ 0.597	$ 0.609	$ 0.622	$ 0.635	$ 0.648	$ 0.662	$ 0.675	$ 0.690	
At Sales Level	$ 0.517	$ 0.528	$ 0.538	$ 0.549	$ 0.561	$ 0.572	$ 0.584	$ 0.596	$ 0.608	$ 0.621	$ 0.633	$ 0.647	$ 0.660	$ 0.674	$ 0.688	$ 0.702	$ 0.717	
Self Gen Costs ($/kWh)	$ 0.229	$ 0.233	$ 0.237	$ 0.241	$ 0.245	$ 0.249	$ 0.254	$ 0.258	$ 0.263	$ 0.267	$ 0.272	$ 0.277	$ 0.282	$ 0.287	$ 0.292	$ 0.297	$ 0.303	

10	**SCENARIO 2**																
11	Breakeven Year																
12	City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Self Generators	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Combined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15					Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo
16		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
88	**With Makushin (Dollars in Thousands)**																
89	Loads (million kWh)																
90	City																
91	Sales																
92	City Core	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
93	City Heat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
94	City Sales to Self Gen	-	-	-	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00
95	Total City Sales	40.00	40.00	40.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00
96	Losses																
97	Core/Heat	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58
98	Self Gen	-	-	-	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
99	Total Generation	41.58	41.58	41.58	71.58	71.58	71.58	71.58	71.58	71.58	71.58	71.58	71.58	71.58	71.58	71.58	71.58
100	Self Generators	30.00	30.00	30.00	-	-	-	-	-	-	-	-	-	-	-	-	-
101	City Costs																
102	Admin/Depr/Int	$ 6,024	$ 6,115	$ 6,237	$ 6,362	$ 6,505	$ 6,651	$ 6,801	$ 6,954	$ 7,110	$ 7,270	$ 7,434	$ 7,601	$ 7,772	$ 7,947	$ 8,126	$ 8,309
103	Line Repair	1,349	1,369	1,396	1,424	1,456	1,489	1,522	1,557	1,592	1,627	1,664	1,701	1,740	1,779	1,819	1,860
104	Vehicles	64	65	67	68	70	71	73	74	76	78	79	81	83	85	87	89
105	Facilities	145	147	150	153	157	160	164	168	171	175	179	183	187	192	196	200
106	Production																
107	Personnel	1,444	1,465	1,494	1,499	1,533	1,568	1,353	1,127	891	911	931	952	974	995	1,018	1,041
108	Ops	789	801	817	434	443	453	463	474	485	495	507	518	530	542	554	566
109	Fuel	5,207	5,478	5,548	220	223	226	230	233	237	240	244	247	251	255	259	263
110	Spinning Reserve Fuel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
111	Makushin																
112	To OCCP	-	-	-	16,300	16,463	16,628	16,794	16,962	17,131	17,303	17,476	17,651	17,827	18,005	18,185	18,367
113	Payments from Self Gen																
114	Makushin	-	-	-	(6,971)	(7,041)	(7,111)	(7,182)	(7,254)	(7,327)	(7,400)	(7,474)	(7,549)	(7,624)	(7,700)	(7,777)	(7,855)
115	Other	-	-	-	(153)	(153)	(153)	(153)	(153)	(306)	(306)	(306)	(306)	(612)	(617)	(621)	(626)
116	Total City	15,022	15,440	15,709	19,336	19,656	19,982	20,064	20,141	20,060	20,394	20,734	21,081	21,128	21,483	21,845	22,214
117	Self Gen Costs																
118	Fuel	4,339	4,565	4,623	140	142	144	146	148	150	153	155	157	160	162	165	167
119	Variable O&M	825	837	854	-	-	-	-	-	-	-	-	-	-	-	-	-
120	Payments to City																
121	Makushin	-	-	-	6,971	7,041	7,111	7,182	7,254	7,327	7,400	7,474	7,549	7,624	7,700	7,777	7,855
122	Other	-	-	-	153	153	153	153	153	306	306	306	306	612	617	621	626
123	Total Self Gen	5,164	5,403	5,477	7,264	7,335	7,408	7,481	7,555	7,783	7,858	7,935	8,012	8,396	8,479	8,563	8,648
124	Total Costs	20,186	20,843	21,187	26,600	26,992	27,390	27,545	27,696	27,843	28,252	28,669	29,093	29,524	29,962	30,408	30,862
125	City Costs @ Production Level ($/kWh)																
126	Production																
127	Fuel	$ 0.125	$ 0.132	$ 0.133	$ 0.005	$ 0.005	$ 0.005	$ 0.006	$ 0.006	$ 0.006	$ 0.006	$ 0.006	$ 0.006	$ 0.006	$ 0.006	$ 0.006	$ 0.006
128	Makushin	-	-	-	0.224	0.227	0.229	0.231	0.233	0.236	0.238	0.241	0.243	0.245	0.248	0.250	0.253
129	Other Production	0.054	0.054	0.056	0.046	0.048	0.049	0.044	0.039	0.033	0.034	0.035	0.035	0.036	0.037	0.038	0.039
130	Other	0.182	0.185	0.189	0.193	0.197	0.201	0.206	0.210	0.215	0.220	0.225	0.230	0.235	0.241	0.246	0.252
131	Revenues from Self Gen Base Rate	-	-	-	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.007)	(0.007)	(0.007)	(0.007)	(0.015)	(0.015)	(0.015)	(0.015)
132	Total																
133	At Production Level	0.361	0.371	0.378	0.465	0.473	0.481	0.483	0.484	0.482	0.490	0.499	0.507	0.508	0.517	0.525	0.534
134	At Sales Level	0.376	0.386	0.393	0.483	0.491	0.500	0.502	0.504	0.502	0.510	0.518	0.527	0.528	0.537	0.546	0.555
135	Self Gen Costs ($/kWh)	0.172	0.180	0.183	0.242	0.245	0.247	0.249	0.252	0.259	0.262	0.264	0.267	0.280	0.283	0.285	0.288

10	**SCENARIO 2**																	
11	Breakeven Year																	
12	City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Self Generators	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Combined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15		Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo
16		2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
88	**With Makushin (Dollars in Thousands)**																	
89	Loads (million kWh)																	
90	City																	
91	Sales																	
92	City Core	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
93	City Heat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
94	City Sales to Self Gen	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00
95	Total City Sales	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00
96	Losses																	
97	Core/Heat	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58
98	Self Gen	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
99	Total Generation	71.58	71.58	71.58	71.58	71.58	71.58	71.58	71.58	71.58	71.58	71.58	71.58	71.58	71.58	71.58	71.58	71.58
100	Self Generators	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
101	City Costs																	
102	Admin/Depr/Int	$ 8,496	$ 8,687	$ 8,882	$ 9,082	$ 9,287	$ 9,496	$ 9,709	$ 9,928	$ 10,151	$ 10,379	$ 10,613	$ 10,852	$ 11,096	$ 11,346	$ 11,601	$ 11,862	$ 12,129
103	Line Repair	1,902	1,944	1,988	2,033	2,079	2,125	2,173	2,222	2,272	2,323	2,376	2,429	2,484	2,540	2,597	2,655	2,715
104	Vehicles	91	93	95	97	99	101	104	106	109	111	113	116	119	121	124	127	130
105	Facilities	205	209	214	219	224	229	234	239	245	250	256	262	268	274	280	286	293
106	Production																	
107	Personnel	1,064	1,088	1,113	1,138	1,163	1,189	1,216	1,243	1,271	1,300	1,329	1,359	1,390	1,421	1,453	1,486	1,519
108	Ops	579	592	605	619	633	647	662	677	692	707	723	740	756	773	791	808	827
109	Fuel	267	272	276	280	285	290	294	299	304	309	314	320	325	331	336	342	348
110	Spinning Reserve Fuel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
111	Makushin																	
112	To OCCP	18,551	18,736	18,924	19,113	19,304	19,497	19,692	19,889	20,088	20,289	20,492	20,697	20,904	21,113	21,324	21,537	21,752
113	Payments from Self Gen																	
114	Makushin	(7,934)	(8,013)	(8,093)	(8,174)	(8,256)	(8,338)	(8,422)	(8,506)	(8,591)	(8,677)	(8,764)	(8,851)	(8,940)	(9,029)	(9,119)	(9,211)	(9,303)
115	Other	(631)	(636)	(640)	(645)	(650)	(655)	(660)	(665)	(670)	(675)	(680)	(685)	(690)	(695)	(700)	(706)	(711)
116	Total City	22,590	22,973	23,364	23,762	24,168	24,582	25,003	25,433	25,871	26,318	26,773	27,238	27,711	28,193	28,685	29,187	29,698
117	Self Gen Costs																	
118	Fuel	170	173	175	178	181	184	187	190	193	197	200	203	207	210	214	217	221
119	Variable O&M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
120	Payments to City																	
121	Makushin	7,934	8,013	8,093	8,174	8,256	8,338	8,422	8,506	8,591	8,677	8,764	8,851	8,940	9,029	9,119	9,211	9,303
122	Other	631	636	640	645	650	655	660	665	670	675	680	685	690	695	700	706	711
123	Total Self Gen	8,734	8,821	8,909	8,997	9,087	9,177	9,268	9,361	9,454	9,548	9,643	9,739	9,836	9,934	10,034	10,134	10,235
124	Total Costs	31,324	31,794	32,273	32,759	33,255	33,759	34,272	34,794	35,325	35,866	36,417	36,977	37,547	38,128	38,719	39,321	39,933
125	City Costs @ Production Level ($/kWh)																	
126	Production																	
127	Fuel	$ 0.006	$ 0.007	$ 0.007	$ 0.007	$ 0.007	$ 0.007	$ 0.007	$ 0.007	$ 0.007	$ 0.007	$ 0.008	$ 0.008	$ 0.008	$ 0.008	$ 0.008	$ 0.008	$ 0.008
128	Makushin	0.255	0.258	0.260	0.263	0.266	0.268	0.271	0.274	0.277	0.279	0.282	0.285	0.288	0.291	0.294	0.296	0.299
129	Other Production	0.040	0.040	0.041	0.042	0.043	0.044	0.045	0.046	0.047	0.048	0.049	0.050	0.052	0.053	0.054	0.055	0.056
130	Other	0.257	0.263	0.269	0.275	0.281	0.287	0.294	0.301	0.307	0.314	0.321	0.328	0.336	0.343	0.351	0.359	0.367
131	Revenues from Self Gen Base Rate	(0.015)	(0.015)	(0.015)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
132	Total																	
133	At Production Level	0.543	0.553	0.562	0.571	0.581	0.591	0.601	0.612	0.622	0.633	0.644	0.655	0.666	0.678	0.690	0.702	0.714
134	At Sales Level	0.565	0.574	0.584	0.594	0.604	0.615	0.625	0.636	0.647	0.658	0.669	0.681	0.693	0.705	0.717	0.730	0.742
135	Self Gen Costs ($/kWh)	0.291	0.294	0.297	0.300	0.303	0.306	0.309	0.312	0.315	0.318	0.321	0.325	0.328	0.331	0.334	0.338	0.341

10	**SCENARIO 2**																
11	Breakeven Year																
12	City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Self Generators	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Combined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15					Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo
16		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
136	**Savings (Losses)**																
137	Dollars (000)																
138	City	-	-	-	(3,344)	(3,349)	(3,354)	(3,107)	(2,847)	(2,422)	(2,404)	(2,385)	(2,364)	(2,035)	(2,005)	(1,974)	(1,941)
139	Self Generators	-	-	-	(1,703)	(1,687)	(1,670)	(1,652)	(1,632)	(1,764)	(1,742)	(1,718)	(1,693)	(1,972)	(1,949)	(1,924)	(1,897)
140	Combined	-	-	-	(5,047)	(5,036)	(5,024)	(4,758)	(4,479)	(4,186)	(4,146)	(4,103)	(4,057)	(4,007)	(3,954)	(3,898)	(3,838)
141	$/kWh																
142	City	-	-	-	(0.084)	(0.084)	(0.084)	(0.078)	(0.071)	(0.061)	(0.060)	(0.060)	(0.059)	(0.051)	(0.050)	(0.049)	(0.049)
143	Self Generators	-	-	-	(0.057)	(0.056)	(0.056)	(0.055)	(0.054)	(0.059)	(0.058)	(0.057)	(0.056)	(0.066)	(0.065)	(0.064)	(0.063)
144	Combined	-	-	-	(0.072)	(0.072)	(0.072)	(0.068)	(0.064)	(0.060)	(0.059)	(0.059)	(0.058)	(0.057)	(0.056)	(0.056)	(0.055)
	Breakeven Price																
	City	1.97	2.07	2.09	3.44	3.47	3.50	3.44	3.37	3.24	3.26	3.29	3.32	3.23	3.25	3.28	3.31
	SelfGen	1.97	2.07	2.09	2.92	2.94	2.97	2.99	3.01	3.11	3.13	3.16	3.18	3.35	3.38	3.40	3.43
	Combined	1.97	2.07	2.09	3.20	3.23	3.26	3.23	3.21	3.18	3.20	3.23	3.26	3.28	3.31	3.34	3.36

10	**SCENARIO 2**																	
11	Breakeven Year																	
12	City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Self Generators	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Combined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15		Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo
16		2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
136	**Savings (Losses)**																	
137	Dollars (000)																	
138	City	(1,906)	(1,869)	(1,830)	(1,789)	(1,745)	(1,700)	(1,652)	(1,601)	(1,548)	(1,493)	(1,435)	(1,374)	(1,310)	(1,244)	(1,175)	(1,102)	(1,027)
139	Self Generators	(1,868)	(1,838)	(1,806)	(1,773)	(1,737)	(1,700)	(1,661)	(1,619)	(1,576)	(1,530)	(1,483)	(1,433)	(1,381)	(1,326)	(1,269)	(1,210)	(1,148)
140	Combined	(3,775)	(3,708)	(3,637)	(3,562)	(3,483)	(3,400)	(3,312)	(3,220)	(3,124)	(3,023)	(2,917)	(2,807)	(2,691)	(2,570)	(2,444)	(2,312)	(2,174)
141	$/kWh																	
142	City	(0.048)	(0.047)	(0.046)	(0.045)	(0.044)	(0.042)	(0.041)	(0.040)	(0.039)	(0.037)	(0.036)	(0.034)	(0.033)	(0.031)	(0.029)	(0.028)	(0.026)
143	Self Generators	(0.062)	(0.061)	(0.060)	(0.059)	(0.058)	(0.057)	(0.055)	(0.054)	(0.053)	(0.051)	(0.049)	(0.048)	(0.046)	(0.044)	(0.042)	(0.040)	(0.038)
144	Combined	(0.054)	(0.053)	(0.052)	(0.051)	(0.050)	(0.049)	(0.047)	(0.046)	(0.045)	(0.043)	(0.042)	(0.040)	(0.038)	(0.037)	(0.035)	(0.033)	(0.031)
	Breakeven Price																	
	City	3.33	3.36	3.39	3.41	3.44	3.47	3.49	3.52	3.55	3.58	3.60	3.63	3.66	3.69	3.71	3.74	3.77
	SelfGen	3.46	3.48	3.51	3.54	3.56	3.59	3.62	3.65	3.68	3.70	3.73	3.76	3.79	3.82	3.84	3.87	3.90
	Combined	3.39	3.42	3.44	3.47	3.50	3.52	3.55	3.58	3.61	3.63	3.66	3.69	3.72	3.74	3.77	3.80	3.83

Attachment 3

Scenario 1: No Sales to Self-Generators

1																		
2	Makushin Size	30																
3	Fuel Forecast	EIA - Regression																
4	Fuel Price: Self Generator (Pct > City)	3.0%																
5	Sales to Self Generators	-																
6	Rate Esc	0.75%																
7	Gen Efficiency: City	15.7																
8	Gen Efficiency: Self Generator	14.0																
9	Self Gen VOM ($/kWh - 2021)	0.0275																
10	**SCENARIO 3**																	
11	Breakeven Year																	
12	City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Self Generators	0	0	0	2024	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Combined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15					Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo
16		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	
17	Inflation		1.50%	2.00%	2.00%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%
18	Price Level	1.000	1.015	1.035	1.056	1.080	1.104	1.129	1.154	1.180	1.207	1.234	1.262	1.290	1.319	1.349	1.379	
19	Cost of Fuel ($/gallon)			.														
20	City	1.97	2.07	2.09	2.12	2.16	2.19	2.22	2.25	2.29	2.32	2.36	2.39	2.43	2.47	2.50	2.54	
21	Self Generators	2.03	2.13	2.16	2.19	2.22	2.25	2.29	2.32	2.35	2.39	2.43	2.46	2.50	2.54	2.58	2.62	
22	Self Generator VOM ($/kWh)	0.028	0.028	0.028	0.029	0.030	0.030	0.031	0.032	0.032	0.033	0.034	0.035	0.035	0.036	0.037	0.038	
23	Fuel Efficiency (kWh/gal)																	
24	City	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	
25	Self Generator	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	
26	Fuel Usage With Makushin for Maint/etc. (000 gallons)																	
27	City																	
28	Hours/Unit/Month	-	-	-	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	
29	Gallons/Hour	-	-	-	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	
30	Number of Units	-	-	-	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
31	Self Generators																	
32	Hours/Unit/Month	-	-	-	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	
33	Gallons/Hour	-	-	-	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	
34	Number of Units	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
35	Makushin Rate																	
36	Fixed Payment - 30 MW (000)	-	-	-	16,300	16,463	16,628	16,794	16,962	17,131	17,303	17,476	17,651	17,827	18,005	18,185	18,367	
37	Wheeling Rate ($/kWh)	-	-	-	0.005	0.005	0.005	0.005	0.005	0.010	0.010	0.010	0.010	0.020	0.020	0.020	0.020	

1																		
2	Makushin Size																	
3	Fuel Forecast																	
4	Fuel Price: Self Generator (Pct > City)																	
5	Sales to Self Generators																	
6	Rate Esc																	
7	Gen Efficiency: City																	
8	Gen Efficiency: Self Generator																	
9	Self Gen VOM ($/kWh - 2021)																	
10	**SCENARIO 3**																	
11	Breakeven Year																	
12	City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Self Generators	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Combined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15		Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo
16		2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
17	Inflation	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%
18	Price Level	1.410	1.442	1.474	1.508	1.541	1.576	1.612	1.648	1.685	1.723	1.762	1.801	1.842	1.883	1.926	1.969	2.013
19	Cost of Fuel ($/gallon)																	
20	City	2.58	2.62	2.67	2.71	2.75	2.80	2.84	2.89	2.94	2.99	3.04	3.09	3.14	3.20	3.25	3.31	3.36
21	Self Generators	2.66	2.70	2.75	2.79	2.84	2.88	2.93	2.98	3.03	3.08	3.13	3.18	3.24	3.29	3.35	3.41	3.47
22	Self Generator VOM ($/kWh)	0.039	0.040	0.041	0.041	0.042	0.043	0.044	0.045	0.046	0.047	0.048	0.050	0.051	0.052	0.053	0.054	0.055
23	Fuel Efficiency (kWh/gal)																	
24	City	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7
25	Self Generator	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
26	Fuel Usage With Makushin for Maint/etc. (000																	
27	City																	
28	Hours/Unit/Month	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
29	Gallons/Hour	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6	215.6
30	Number of Units	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
31	Self Generators																	
32	Hours/Unit/Month	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
33	Gallons/Hour	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0	95.0
34	Number of Units	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35	Makushin Rate																	
36	Fixed Payment - 30 MW (000)	18,551	18,736	18,924	19,113	19,304	19,497	19,692	19,889	20,088	20,289	20,492	20,697	20,904	21,113	21,324	21,537	21,752
37	Wheeling Rate ($/kWh)	0.021	0.021	0.021	0.021	0.021	0.021	0.022	0.022	0.022	0.022	0.022	0.022	0.023	0.023	0.023	0.023	0.023

10	**SCENARIO 3**																
11	Breakeven Year																
12	City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Self Generators	0	0	0	2024	0	0	0	0	0	0	0	0	0	0	0	0
14	Combined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15					Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo
16		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
38	**Without Makushin (Dollars in Thousands)**																
39	Loads (million kWh)																
40	City																
41	Sales																
42	City Core	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
43	City Heat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44	City Sales to Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45	Total City Sales	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
46	Losses																
47	Core/Heat	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58
48	Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
49	Total Generation	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58
50	Self Generators	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
51	Costs																
52	City																
53	Admin/Depr/Int	$ 6,024	$ 6,115	$ 6,237	$ 6,362	$ 6,505	$ 6,651	$ 6,801	$ 6,954	$ 7,110	$ 7,270	$ 7,434	$ 7,601	$ 7,772	$ 7,947	$ 8,126	$ 8,309
54	Line Repair	1,349	1,369	1,396	1,424	1,456	1,489	1,522	1,557	1,592	1,627	1,664	1,701	1,740	1,779	1,819	1,860
55	Vehicles	64	65	67	68	70	71	73	74	76	78	79	81	83	85	87	89
56	Facilities	145	147	150	153	157	160	164	168	171	175	179	183	187	192	196	200
57	Production																
58	Personnel	1,444	1,465	1,494	1,524	1,559	1,594	1,630	1,666	1,704	1,742	1,781	1,821	1,862	1,904	1,947	1,991
59	Ops	789	801	817	833	852	871	891	911	931	952	974	995	1,018	1,041	1,064	1,088
60	Fuel	5,207	5,478	5,548	5,627	5,709	5,792	5,877	5,965	6,054	6,145	6,238	6,333	6,431	6,530	6,632	6,736
61	Spinning Reserve Fuel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
62	Makushin																
63	To OCCP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
64	Payments from Self Gen																
65	Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
66	Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
67	Total City	15,022	15,440	15,709	15,992	16,307	16,629	16,958	17,294	17,638	17,990	18,349	18,717	19,093	19,478	19,871	20,273
68	Self Gen Costs																
69	Fuel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
70	Variable O&M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
71	Payments to City																
72	Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
73	Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
74	Total Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75	Total Costs	15,022	15,440	15,709	15,992	16,307	16,629	16,958	17,294	17,638	17,990	18,349	18,717	19,093	19,478	19,871	20,273
76	City Costs @ Production Level ($/kWh)																
77	Production																
78	Fuel	$ 0.125	$ 0.132	$ 0.133	$ 0.135	$ 0.137	$ 0.139	$ 0.141	$ 0.143	$ 0.146	$ 0.148	$ 0.150	$ 0.152	$ 0.155	$ 0.157	$ 0.159	$ 0.162
79	Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
80	Other Production	0.054	0.054	0.056	0.057	0.058	0.059	0.061	0.062	0.063	0.065	0.066	0.068	0.069	0.071	0.072	0.074
81	Other	0.182	0.185	0.189	0.193	0.197	0.201	0.206	0.210	0.215	0.220	0.225	0.230	0.235	0.241	0.246	0.252
82	Revenues from Self Gen Base Rate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
83	Total																
84	At Production Level	$ 0.361	$ 0.371	$ 0.378	$ 0.385	$ 0.392	$ 0.400	$ 0.408	$ 0.416	$ 0.424	$ 0.433	$ 0.441	$ 0.450	$ 0.459	$ 0.468	$ 0.478	$ 0.488
85	At Sales Level	$ 0.376	$ 0.386	$ 0.393	$ 0.400	$ 0.408	$ 0.416	$ 0.424	$ 0.432	$ 0.441	$ 0.450	$ 0.459	$ 0.468	$ 0.477	$ 0.487	$ 0.497	$ 0.507
86	Self Gen Costs ($/kWh)	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
87																	

SCENARIO 3																		
Breakeven Year																		
City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Self Generators	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Combined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo
	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	
Without Makushin (Dollars in Thousands)																		
Loads (million kWh)																		
City																		
Sales																		
City Core	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	
City Heat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
City Sales to Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total City Sales	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	
Losses																		
Core/Heat	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	
Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total Generation	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	
Self Generators	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Costs																		
City																		
Admin/Depr/Int	$ 8,496	$ 8,687	$ 8,882	$ 9,082	$ 9,287	$ 9,496	$ 9,709	$ 9,928	$ 10,151	$ 10,379	$ 10,613	$ 10,852	$ 11,096	$ 11,346	$ 11,601	$ 11,862	$ 12,129	
Line Repair	1,902	1,944	1,988	2,033	2,079	2,125	2,173	2,222	2,272	2,323	2,376	2,429	2,484	2,540	2,597	2,655	2,715	
Vehicles	91	93	95	97	99	101	104	106	109	111	113	116	119	121	124	127	130	
Facilities	205	209	214	219	224	229	234	239	245	250	256	262	268	274	280	286	293	
Production																		
Personnel	2,036	2,081	2,128	2,176	2,225	2,275	2,326	2,379	2,432	2,487	2,543	2,600	2,659	2,719	2,780	2,842	2,906	
Ops	1,113	1,138	1,163	1,189	1,216	1,243	1,271	1,300	1,329	1,359	1,390	1,421	1,453	1,486	1,519	1,553	1,588	
Fuel	6,843	6,951	7,063	7,176	7,293	7,412	7,533	7,658	7,785	7,915	8,048	8,184	8,323	8,465	8,611	8,759	8,911	
Spinning Reserve Fuel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Makushin																		
To OCCP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Payments from Self Gen																		
Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total City	20,684	21,104	21,534	21,973	22,423	22,882	23,352	23,832	24,323	24,825	25,339	25,864	26,401	26,950	27,511	28,085	28,671	
Self Gen Costs																		
Fuel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Variable O&M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Payments to City																		
Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total Costs	20,684	21,104	21,534	21,973	22,423	22,882	23,352	23,832	24,323	24,825	25,339	25,864	26,401	26,950	27,511	28,085	28,671	
City Costs @ Production Level ($/kWh)																		
Production																		
Fuel	$ 0.165	$ 0.167	$ 0.170	$ 0.173	$ 0.175	$ 0.178	$ 0.181	$ 0.184	$ 0.187	$ 0.190	$ 0.194	$ 0.197	$ 0.200	$ 0.204	$ 0.207	$ 0.211	$ 0.214	
Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Other Production	0.076	0.077	0.079	0.081	0.083	0.085	0.087	0.088	0.090	0.093	0.095	0.097	0.099	0.101	0.103	0.106	0.108	
Other	0.257	0.263	0.269	0.275	0.281	0.287	0.294	0.301	0.307	0.314	0.321	0.328	0.336	0.343	0.351	0.359	0.367	
Revenues from Self Gen Base Rate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total																		
At Production Level	$ 0.497	$ 0.508	$ 0.518	$ 0.528	$ 0.539	$ 0.550	$ 0.562	$ 0.573	$ 0.585	$ 0.597	$ 0.609	$ 0.622	$ 0.635	$ 0.648	$ 0.662	$ 0.675	$ 0.690	
At Sales Level	$ 0.517	$ 0.528	$ 0.538	$ 0.549	$ 0.561	$ 0.572	$ 0.584	$ 0.596	$ 0.608	$ 0.621	$ 0.633	$ 0.647	$ 0.660	$ 0.674	$ 0.688	$ 0.702	$ 0.717	
Self Gen Costs ($/kWh)	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	

10	**SCENARIO 3**																
11	Breakeven Year																
12	City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Self Generators	0	0	0	2024	0	0	0	0	0	0	0	0	0	0	0	0
14	Combined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15					Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo
16		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
88	**With Makushin (Dollars in Thousands)**																
89	Loads (million kWh)																
90	City																
91	Sales																
92	City Core	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
93	City Heat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
94	City Sales to Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
95	Total City Sales	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
96	Losses																
97	Core/Heat	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58
98	Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
99	Total Generation	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58
100	Self Generators	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
101	City Costs																
102	Admin/Depr/Int	$ 6,024	$ 6,115	$ 6,237	$ 6,362	$ 6,505	$ 6,651	$ 6,801	$ 6,954	$ 7,110	$ 7,270	$ 7,434	$ 7,601	$ 7,772	$ 7,947	$ 8,126	$ 8,309
103	Line Repair	1,349	1,369	1,396	1,424	1,456	1,489	1,522	1,557	1,592	1,627	1,664	1,701	1,740	1,779	1,819	1,860
104	Vehicles	64	65	67	68	70	71	73	74	76	78	79	81	83	85	87	89
105	Facilities	145	147	150	153	157	160	164	168	171	175	179	183	187	192	196	200
106	Production																
107	Personnel	1,444	1,465	1,494	1,499	1,533	1,568	1,353	1,127	891	911	931	952	974	995	1,018	1,041
108	Ops	789	801	817	434	443	453	463	474	485	495	507	518	530	542	554	566
109	Fuel	5,207	5,478	5,548	220	223	226	230	233	237	240	244	247	251	255	259	263
110	Spinning Reserve Fuel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
111	Makushin																
112	To OCCP	-	-	-	16,300	16,463	16,628	16,794	16,962	17,131	17,303	17,476	17,651	17,827	18,005	18,185	18,367
113	Payments from Self Gen																
114	Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
115	Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
116	Total City	15,022	15,440	15,709	26,460	26,850	27,246	27,400	27,548	27,693	28,100	28,514	28,935	29,364	29,800	30,244	30,695
117	Self Gen Costs																
118	Fuel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
119	Variable O&M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
120	Payments to City																
121	Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
122	Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
123	Total Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
124	Total Costs	15,022	15,440	15,709	26,460	26,850	27,246	27,400	27,548	27,693	28,100	28,514	28,935	29,364	29,800	30,244	30,695
125	City Costs @ Production Level ($/kWh)																
126	Production																
127	Fuel	$ 0.125	$ 0.132	$ 0.133	$ 0.005	$ 0.005	$ 0.005	$ 0.006	$ 0.006	$ 0.006	$ 0.006	$ 0.006	$ 0.006	$ 0.006	$ 0.006	$ 0.006	$ 0.006
128	Makushin	-	-	-	0.392	0.396	0.400	0.404	0.408	0.412	0.416	0.420	0.424	0.429	0.433	0.437	0.442
129	Other Production	0.054	0.054	0.056	0.046	0.048	0.049	0.044	0.039	0.033	0.034	0.035	0.035	0.036	0.037	0.038	0.039
130	Other	0.182	0.185	0.189	0.193	0.197	0.201	0.206	0.210	0.215	0.220	0.225	0.230	0.235	0.241	0.246	0.252
131	Revenues from Self Gen Base Rate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
132	Total																
133	At Production Level	0.361	0.371	0.378	0.636	0.646	0.655	0.659	0.663	0.666	0.676	0.686	0.696	0.706	0.717	0.727	0.738
134	At Sales Level	0.376	0.386	0.393	0.662	0.671	0.681	0.685	0.689	0.692	0.702	0.713	0.723	0.734	0.745	0.756	0.767
135	Self Gen Costs ($/kWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

10	**SCENARIO 3**																	
11	Breakeven Year																	
12	City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Self Generators	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Combined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15		Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo
16		2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
88	**With Makushin (Dollars in Thousands)**																	
89	Loads (million kWh)																	
90	City																	
91	Sales																	
92	City Core	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
93	City Heat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
94	City Sales to Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
95	Total City Sales	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
96	Losses																	
97	Core/Heat	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58
98	Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
99	Total Generation	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58	41.58
100	Self Generators	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
101	City Costs																	
102	Admin/Depr/Int	$ 8,496	$ 8,687	$ 8,882	$ 9,082	$ 9,287	$ 9,496	$ 9,709	$ 9,928	$ 10,151	$ 10,379	$ 10,613	$ 10,852	$ 11,096	$ 11,346	$ 11,601	$ 11,862	$ 12,129
103	Line Repair	1,902	1,944	1,988	2,033	2,079	2,125	2,173	2,222	2,272	2,323	2,376	2,429	2,484	2,540	2,597	2,655	2,715
104	Vehicles	91	93	95	97	99	101	104	106	109	111	113	116	119	121	124	127	130
105	Facilities	205	209	214	219	224	229	234	239	245	250	256	262	268	274	280	286	293
106	Production																	
107	Personnel	1,064	1,088	1,113	1,138	1,163	1,189	1,216	1,243	1,271	1,300	1,329	1,359	1,390	1,421	1,453	1,486	1,519
108	Ops	579	592	605	619	633	647	662	677	692	707	723	740	756	773	791	808	827
109	Fuel	267	272	276	280	285	290	294	299	304	309	314	320	325	331	336	342	348
110	Spinning Reserve Fuel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
111	Makushin																	
112	To OCCP	18,551	18,736	18,924	19,113	19,304	19,497	19,692	19,889	20,088	20,289	20,492	20,697	20,904	21,113	21,324	21,537	21,752
113	Payments from Self Gen																	
114	Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
115	Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
116	Total City	31,155	31,622	32,097	32,581	33,074	33,575	34,085	34,604	35,132	35,670	36,217	36,774	37,341	37,918	38,505	39,103	39,712
117	Self Gen Costs																	
118	Fuel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
119	Variable O&M	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
120	Payments to City																	
121	Makushin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
122	Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
123	Total Self Gen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
124	Total Costs	31,155	31,622	32,097	32,581	33,074	33,575	34,085	34,604	35,132	35,670	36,217	36,774	37,341	37,918	38,505	39,103	39,712
125	City Costs @ Production Level ($/kWh)																	
126	Production																	
127	Fuel	$ 0.006	$ 0.007	$ 0.007	$ 0.007	$ 0.007	$ 0.007	$ 0.007	$ 0.007	$ 0.007	$ 0.007	$ 0.008	$ 0.008	$ 0.008	$ 0.008	$ 0.008	$ 0.008	$ 0.008
128	Makushin	0.446	0.451	0.455	0.460	0.464	0.469	0.474	0.478	0.483	0.488	0.493	0.498	0.503	0.508	0.513	0.518	0.523
129	Other Production	0.040	0.040	0.041	0.042	0.043	0.044	0.045	0.046	0.047	0.048	0.049	0.050	0.052	0.053	0.054	0.055	0.056
130	Other	0.257	0.263	0.269	0.275	0.281	0.287	0.294	0.301	0.307	0.314	0.321	0.328	0.336	0.343	0.351	0.359	0.367
131	Revenues from Self Gen Base Rate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
132	Total																	
133	At Production Level	0.749	0.761	0.772	0.784	0.795	0.807	0.820	0.832	0.845	0.858	0.871	0.884	0.898	0.912	0.926	0.940	0.955
134	At Sales Level	0.779	0.791	0.802	0.815	0.827	0.839	0.852	0.865	0.878	0.892	0.905	0.919	0.934	0.948	0.963	0.978	0.993
135	Self Gen Costs ($/kWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

10	**SCENARIO 3**																
11	Breakeven Year																
12	City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Self Generators	0	0	0	2024	0	0	0	0	0	0	0	0	0	0	0	0
14	Combined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15					Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo
16		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
136	**Savings (Losses)**																
137	Dollars (000)																
138	City	-	-	-	(10,468)	(10,543)	(10,618)	(10,442)	(10,254)	(10,055)	(10,110)	(10,165)	(10,218)	(10,271)	(10,322)	(10,373)	(10,422)
139	Self Generators	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
140	Combined	-	-	-	(10,468)	(10,543)	(10,618)	(10,442)	(10,254)	(10,055)	(10,110)	(10,165)	(10,218)	(10,271)	(10,322)	(10,373)	(10,422)
141	$/kWh																
142	City	-	-	-	(0.262)	(0.264)	(0.265)	(0.261)	(0.256)	(0.251)	(0.253)	(0.254)	(0.255)	(0.257)	(0.258)	(0.259)	(0.261)
143	Self Generators	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
144	Combined	-	-	-	(0.262)	(0.264)	(0.265)	(0.261)	(0.256)	(0.251)	(0.253)	(0.254)	(0.255)	(0.257)	(0.258)	(0.259)	(0.261)
	Breakeven Price																
	City	1.97	2.07	2.09	6.24	6.30	6.36	6.32	6.28	6.24	6.29	6.35	6.41	6.46	6.52	6.58	6.64
	SelfGen																
	Combined	1.97	2.07	2.09	6.24	6.30	6.36	6.32	6.28	6.24	6.29	6.35	6.41	6.46	6.52	6.58	6.64

10	**SCENARIO 3**																	
11	Breakeven Year																	
12	City	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	Self Generators	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	Combined	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15		Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo	Geo
16		2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
136	**Savings (Losses)**																	
137	Dollars (000)																	
138	City	(10,471)	(10,518)	(10,563)	(10,608)	(10,651)	(10,693)	(10,733)	(10,772)	(10,809)	(10,844)	(10,878)	(10,910)	(10,940)	(10,968)	(10,994)	(11,019)	(11,041)
139	Self Generators	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
140	Combined	(10,471)	(10,518)	(10,563)	(10,608)	(10,651)	(10,693)	(10,733)	(10,772)	(10,809)	(10,844)	(10,878)	(10,910)	(10,940)	(10,968)	(10,994)	(11,019)	(11,041)
141	$/kWh																	
142	City	(0.262)	(0.263)	(0.264)	(0.265)	(0.266)	(0.267)	(0.268)	(0.269)	(0.270)	(0.271)	(0.272)	(0.273)	(0.273)	(0.274)	(0.275)	(0.275)	(0.276)
143	Self Generators	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
144	Combined	(0.262)	(0.263)	(0.264)	(0.265)	(0.266)	(0.267)	(0.268)	(0.269)	(0.270)	(0.271)	(0.272)	(0.273)	(0.273)	(0.274)	(0.275)	(0.275)	(0.276)
	Breakeven Price																	
	City	6.70	6.76	6.82	6.88	6.94	7.00	7.06	7.12	7.19	7.25	7.31	7.38	7.44	7.51	7.57	7.64	7.70
	SelfGen																	
	Combined	6.70	6.76	6.82	6.88	6.94	7.00	7.06	7.12	7.19	7.25	7.31	7.38	7.44	7.51	7.57	7.64	7.70