



OBERLIN MUNICIPAL LIGHT AND POWER SYSTEM ♦ 289 SOUTH PROFESSOR STREET ♦ OBERLIN, OHIO 44074

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MEMORANDUM

To: David Sonner, City Council President
City Council Members

Through: Eric Norenberg, City Manager

Re: Retail Electric Cost Comparisons - AMPGS vs. Market

From: Steve Dupee, Electric Director

Date: February 8, 2008

A handwritten signature in black ink, appearing to be "S. Dupee", is written over the "From:" line.

At the request of Councilman Ashenhurst, I have prepared several retail electric comparisons for City Council's consideration related to the City's participation in the AMPGS project. These retail electric cost comparisons compare the retail cost of electricity for our three (3) customer classifications for the years' 2014, 2017, 2020 and 2023. These retail electric cost comparisons consider the City's participation in the AMPGS project at 12 megawatts, 9 megawatts and 0 megawatts (market-based option).

The following assumptions were made to developed these retail cost comparisons:

- The AMPGS project serves as a direct replacement to the Gorsuch Station and market power purchases.
- All remaining power supplies in the City's current portfolio would remain unchanged between 2014 and 2023.
- A carbon tax of \$5.00 rising to \$15.00 per ton between 2014 and 2023.
- Distribution and customer charges remain flat through 2023.
- Total power supply requirements remain flat through 2023.

Please refer to the first spreadsheet titled "Retail Electric Charge Comparison" for the year 2014. Column A shows our three (3) customer classifications. Column B is a description of the customers. For the residential comparison, I did not use actual residential customers, but rather identified a residential customer as a low, average or high electric user based on our local experience. For the small commercial and large commercial comparison, I selected actual customers with different load requirements. Column C is the average monthly kilowatt-hour consumption. Residential consumption numbers are estimates while small commercial and large commercial consumption numbers are actual annual kilowatt-hours consumed in 2006 divided by 12. Column D is the demand consumed by the large commercial customers. Column F and Column G are distribution and administrative-related charges and as I stated above are assumed to be flat throughout the analysis and therefore have no financial impact regardless of which portfolio is chosen. For your information, the City is required to charge a kilowatt-hour tax on each kilowatt-hour delivered. I have not included this charge in the analysis because it has a neutral financial impact on both a Market-based and AMPGS-based portfolio. Column E is the generation charge. The generation charge was derived by the following method:

Using our projected 2008 total power supply requirements data, I backed out the kilowatt-hours and associated costs from the Richard H. Gorsuch Station and market power purchases in amount equal to our participation in the AMPGS project. Using the power cost estimates from the R.W Beck updated feasibility study dated February 1, 2008, I then replaced these sources with AMPGS and/or Market-based kilowatt-hours and costs depending on the City's participation level of 12 megawatts, 9 megawatts or 0 megawatts (market-based portfolio).

Column H is the average monthly electric bill for each customer classification and Column I simply takes the average monthly electric bill and multiplies it by 12 to get the annual electric charges. Finally, Column J is the projected savings on annual electric charges for each customer type utilizing an AMPGS-based portfolio versus a market-based portfolio.

Referring to the spreadsheet titled "Retail Electric Charge Comparison Year 2014", below is a description of the projected savings for the large commercial customer "printing company".

The printing company would spend \$1,280,402.64 (Column I) on an annual basis for electricity with an AMPGS-based portfolio in 2014 at 12 megawatts. The printing company would spend \$1,295,470.44 (Column I) on an annual basis for electricity with an AMPGS-based portfolio at 9 megawatts. The printing company would spend \$1,340,673.84 (column I) for a market-based portfolio. Column J represents the projected savings on the annual charges for retail electric service utilizing an AMPGS-based portfolio vs a market-based portfolio. As you can see, based on the expected generation charge, the projected savings to the printing company is \$60,271.20 in 2014 with an AMPGS-based portfolio at 12 megawatts vs. a market-based portfolio. The projected savings with an AMPGS-based portfolio at 9 megawatts is \$45,203.40 vs. a market-based portfolio. Using this information as a basis for reviewing the 2017, 2020, 2023 retail electric charge comparisons, you can see the impacts on retail electric rates and the projected savings.

Gross Generation Charges by Customer Classification

I have prepared two (2) spreadsheets titled "Gross Generation Charges Allocated by Customer Class". These spreadsheets show a comparison of the generation charge costs associated with an AMPGS-based portfolio vs. a Market-based portfolio for each customer classification for the years' 2014, 2017, 2020 and 2023. The first sheet (Sheet 1) assumes that the City participates in AMPGS at 9 megawatts and second sheet (Sheet 2) assumes that the City participates in AMPGS at 12 megawatts. The projected savings is shown at the bottom of each sheet.

As an example, if you refer to Sheet 1 with AMPGS at 9 megawatts in 2014 the total generation costs is expected to be \$9,888,493. The total generation costs for a market-based portfolio in 2014 is expected to be \$10,348,748. The projected savings of an AMPGS portfolio vs. a market based portfolio is \$460,254.30. This means that our electric customers would save \$460,254 if we participate in AMPGS at 9 megawatts rather than a market-based portfolio for 2014. Using this description, you can see the projected savings for the years 2017, 2020, and 2023.

Retail Electric Charge Comparison 2008 Portfolio vs. 2014 Portfolio

I have prepared a retail electric charge comparison (Sheet A) showing retail electric costs for customer classifications comparing our 2008 power portfolio vs. a 2014 power portfolio with AMPGS at 12

megawatts, 9 megawatts and 0 megawatts. The generation charges are derived using the same method I described previously except without CO2 costs. The rationale for this comparison without CO2 costs is that the our 2008 portfolio does not have CO2 costs. This will provide an apples to apples comparison of the increase costs of our current portfolio to a new portfolio with AMPGS or market-based power. Column J of this sheet represents the additional costs for each customer type between our current portfolio and AMPGS at 12 megawatts, 9 megawatts or 0 megawatts (market portfolio). Again using the printing company as an example, the printing company's annual retail electric costs in 2008 would be \$1,173,558. In 2014, the printing company's annual retail electric costs with AMPGS at 12 megawatts is \$1,224,240.84. With 9 megawatts of AMPGS it is \$1,240,678. With a market-based portfolio it is \$1,291,361. Using Column J you can see how much more the printing company would pay over the 2008 portfolio.

County Tax and Retail Electric Rate Spreadsheet

For some customers, particularly commercial and industrial customers, the lower cost of Oberlin's electricity is seen as an offset to our higher property and income taxes. The attached spreadsheet reviews and compares various tax rates and electric rates in Lorain County.

I am available to answer any questions you have on the documents attached.

Thank you.

/sd

c: Council Appointees

Retail Electric Charge Comparison Year 2014

AMPGS-Based Portfolio @ 12 MW

A	B	C	D	E	F	G	H	I	J
Customer Type	User Description	Avg Monthly Consumption	Avg Monthly Demand	Generation Charge	Distribution Charge	Customer Charge	Average Monthly Bill	Annual Charges	Projected Savings AMPGS vs Market
Residential	Low	400	n/a	\$0.0698	\$0.0321	\$2.50	\$43.26	\$519.12	\$21.12
Residential	Average	750	n/a	\$0.0698	\$0.0321	\$2.50	\$78.93	\$947.10	\$39.60
Residential	High	1,200	n/a	\$0.0698	\$0.0321	\$2.50	\$124.78	\$1,497.36	\$63.36
Small Commercial	Bank	4,233	n/a	\$0.0698	\$0.0321	\$7.50	\$438.84	\$5,266.11	\$223.50
Small Commercial	Restaurant	10,247	n/a	\$0.0698	\$0.0321	\$7.50	\$1,051.67	\$12,620.03	\$541.04
Small Commercial	Drug Store	13,340	n/a	\$0.0698	\$0.0321	\$7.50	\$1,366.85	\$16,402.15	\$704.35
Large Commercial	Retirement Community	397,383	953	\$0.0698	\$8.6900	\$15.00	\$36,033.90	\$432,406.84	\$20,981.82
Large Commercial	School	476,400	1,348	\$0.0698	\$8.6900	\$15.00	\$44,981.84	\$539,782.08	\$25,153.92
Large Commercial	Printing Company	1,141,500	3,108	\$0.0698	\$8.6900	\$15.00	\$106,700.22	\$1,280,402.64	\$60,271.20

AMPGS-Based Portfolio @ 9 MW

A	B	C	D	E	F	G	H	I	J
Customer Type	User Description	Avg Monthly Consumption	Avg Monthly Demand	Generation Charge	Distribution Charge	Customer Charge	Average Monthly Bill	Annual Charges	Projected Savings AMPGS vs Market
Residential	Low	400	n/a	\$0.0709	\$0.0321	\$2.50	\$43.70	\$524.40	\$15.84
Residential	Average	750	n/a	\$0.0709	\$0.0321	\$2.50	\$79.75	\$957.00	\$29.70
Residential	High	1,200	n/a	\$0.0709	\$0.0321	\$2.50	\$126.10	\$1,513.20	\$47.52
Small Commercial	Bank	4,233	n/a	\$0.0709	\$0.0321	\$7.50	\$443.50	\$5,321.99	\$167.63
Small Commercial	Restaurant	10,247	n/a	\$0.0709	\$0.0321	\$7.50	\$1,062.94	\$12,755.29	\$405.78
Small Commercial	Drug Store	13,340	n/a	\$0.0709	\$0.0321	\$7.50	\$1,381.52	\$16,578.24	\$528.26
Large Commercial	Retirement Community	397,383	953	\$0.0709	\$8.6900	\$15.00	\$36,471.02	\$437,652.30	\$15,736.37
Large Commercial	School	476,400	1,348	\$0.0709	\$8.6900	\$15.00	\$45,505.88	\$546,070.56	\$18,865.44
Large Commercial	Printing Company	1,141,500	3,108	\$0.0709	\$8.6900	\$15.00	\$107,955.87	\$1,295,470.44	\$45,203.40

Market-Based Portfolio

A	B	C	D	E	F	G	H	I
Customer Type	User Description	Avg Monthly Consumption	Avg Monthly Demand	Generation Charge	Distribution Charge	Customer Charge	Average Monthly Bill	Annual Charges
Residential	Low	400	n/a	\$0.0742	\$0.0321	\$2.50	\$45.02	\$540.24
Residential	Average	750	n/a	\$0.0742	\$0.0321	\$2.50	\$82.23	\$986.70
Residential	High	1,200	n/a	\$0.0742	\$0.0321	\$2.50	\$130.06	\$1,560.72
Small Commercial	Bank	4,233	n/a	\$0.0742	\$0.0321	\$7.50	\$457.47	\$5,489.61
Small Commercial	Restaurant	10,247	n/a	\$0.0742	\$0.0321	\$7.50	\$1,096.76	\$13,161.07
Small Commercial	Drug Store	13,340	n/a	\$0.0742	\$0.0321	\$7.50	\$1,425.54	\$17,106.50
Large Commercial	Retirement Community	397,383	953	\$0.0742	\$8.6900	\$15.00	\$37,782.39	\$463,388.66
Large Commercial	School	476,400	1,348	\$0.0742	\$8.6900	\$15.00	\$47,078.00	\$564,936.00
Large Commercial	Printing Company	1,141,500	3,108	\$0.0742	\$8.6900	\$15.00	\$111,722.82	\$1,340,673.84

Retail Electric Charge Comparison Year 2017

AMPGS-Based Portfolio @ 12 MW

A	B	C	D	E	F	G	H	I	J
Customer Type	User Description	Avg Monthly Consumption	Avg Monthly Demand	Generation Charge	Distribution Charge	Customer Charge	Average Monthly Bill	Annual Charges	Projected Savings AMPGS vs. Market
Residential	Low	400	n/a	\$0.0757	\$0.0321	\$2.50	\$45.62	\$547.44	\$28.32
Residential	Average	750	n/a	\$0.0757	\$0.0321	\$2.50	\$83.35	\$1,000.20	\$53.10
Residential	High	1,200	n/a	\$0.0757	\$0.0321	\$2.50	\$131.86	\$1,582.32	\$84.96
Small Commercial	Bank	4,233	n/a	\$0.0757	\$0.0321	\$7.50	\$463.82	\$5,565.81	\$299.70
Small Commercial	Restaurant	10,247	n/a	\$0.0757	\$0.0321	\$7.50	\$1,112.13	\$13,345.52	\$725.49
Small Commercial	Drug Store	13,340	n/a	\$0.0757	\$0.0321	\$7.50	\$1,445.55	\$17,346.62	\$944.47
Large Commercial	Retirement Community	397,383	953	\$0.0757	\$8.6900	\$15.00	\$38,378.46	\$460,541.56	\$28,134.72
Large Commercial	School	476,400	1,348	\$0.0757	\$8.6900	\$15.00	\$47,792.60	\$573,511.20	\$33,729.12
Large Commercial	Printing Company	1,141,500	3,108	\$0.0757	\$8.6900	\$15.00	\$113,435.07	\$1,361,220.84	\$80,818.20

AMPGS-Based Portfolio @ 9 MW

A	B	C	D	E	F	G	H	I	J
Customer Type	User Description	Avg Monthly Consumption	Avg Monthly Demand	Generation Charge	Distribution Charge	Customer Charge	Average Monthly Bill	Annual Charges	Projected Savings AMPGS vs. Market
Residential	Low	400	n/a	\$0.0772	\$0.0321	\$2.50	\$46.22	\$554.64	\$21.12
Residential	Average	750	n/a	\$0.0772	\$0.0321	\$2.50	\$84.48	\$1,013.70	\$39.60
Residential	High	1,200	n/a	\$0.0772	\$0.0321	\$2.50	\$133.66	\$1,603.92	\$63.36
Small Commercial	Bank	4,233	n/a	\$0.0772	\$0.0321	\$7.50	\$470.17	\$5,642.00	\$223.50
Small Commercial	Restaurant	10,247	n/a	\$0.0772	\$0.0321	\$7.50	\$1,127.50	\$13,529.97	\$541.04
Small Commercial	Drug Store	13,340	n/a	\$0.0772	\$0.0321	\$7.50	\$1,465.56	\$17,586.74	\$704.35
Large Commercial	Retirement Community	397,383	953	\$0.0772	\$8.6900	\$15.00	\$38,974.54	\$467,694.45	\$20,981.82
Large Commercial	School	476,400	1,348	\$0.0772	\$8.6900	\$15.00	\$48,507.20	\$582,086.40	\$25,153.92
Large Commercial	Printing Company	1,141,500	3,108	\$0.0772	\$8.6900	\$15.00	\$115,147.32	\$1,381,767.84	\$60,271.20

Market-Based Portfolio

A	B	C	D	E	F	G	H	I
Customer Type	User Description	Avg Monthly Consumption	Avg Monthly Demand	Generation Charge	Distribution Charge	Customer Charge	Average Monthly Bill	Annual Charges
Residential	Low	400	n/a	\$0.0816	\$0.0321	\$2.50	\$47.98	\$575.76
Residential	Average	750	n/a	\$0.0816	\$0.0321	\$2.50	\$87.78	\$1,053.30
Residential	High	1,200	n/a	\$0.0816	\$0.0321	\$2.50	\$138.94	\$1,667.28
Small Commercial	Bank	4,233	n/a	\$0.0816	\$0.0321	\$7.50	\$488.79	\$5,865.51
Small Commercial	Restaurant	10,247	n/a	\$0.0816	\$0.0321	\$7.50	\$1,172.58	\$14,071.01
Small Commercial	Drug Store	13,340	n/a	\$0.0816	\$0.0321	\$7.50	\$1,524.26	\$18,291.10
Large Commercial	Retirement Community	397,383	953	\$0.0816	\$8.6900	\$15.00	\$40,723.02	\$488,676.27
Large Commercial	School	476,400	1,348	\$0.0816	\$8.6900	\$15.00	\$50,603.36	\$607,240.32
Large Commercial	Printing Company	1,141,500	3,108	\$0.0816	\$8.6900	\$15.00	\$120,169.92	\$1,442,039.04

Retail Electric Charge Comparison Year 2020

AMPGS-Based Portfolio @ 12 MW

A	B	C	D	E	F	G	H	I	J
Customer Type	User Description	Avg Monthly Consumption	Avg Monthly Demand	Generation Charge	Distribution Charge	Customer Charge	Average Monthly Bill	Annual Charges	Projected Savings AMPGS vs Market
Residential	Low	400	n/a	\$0.0801	\$0.0321	\$2.50	\$47.38	\$568.56	\$35.52
Residential	Average	750	n/a	\$0.0801	\$0.0321	\$2.50	\$86.65	\$1,039.80	\$66.60
Residential	High	1,200	n/a	\$0.0801	\$0.0321	\$2.50	\$137.14	\$1,645.68	\$106.56
Small Commercial	Bank	4,233	n/a	\$0.0801	\$0.0321	\$7.50	\$482.44	\$5,789.31	\$375.89
Small Commercial	Restaurant	10,247	n/a	\$0.0801	\$0.0321	\$7.50	\$1,157.21	\$13,886.56	\$909.93
Small Commercial	Drug Store	13,340	n/a	\$0.0801	\$0.0321	\$7.50	\$1,504.25	\$18,050.98	\$1,184.59
Large Commercial	Retirement Community	397,383	953	\$0.0801	\$8.6900	\$15.00	\$40,126.95	\$481,523.38	\$35,287.61
Large Commercial	School	476,400	1,348	\$0.0801	\$8.6900	\$15.00	\$49,688.76	\$598,665.12	\$42,304.32
Large Commercial	Printing Company	1,141,500	3,108	\$0.0801	\$8.6900	\$15.00	\$118,457.67	\$1,421,492.04	\$101,365.20

AMPGS-Based Portfolio @ 9 MW

A	B	C	D	E	F	G	H	I	J
Customer Type	User Description	Avg Monthly Consumption	Avg Monthly Demand	Generation Charge	Distribution Charge	Customer Charge	Average Monthly Bill	Annual Charges	Projected Savings AMPGS vs Market
Residential	Low	400	n/a	\$0.0820	\$0.0321	\$2.50	\$48.14	\$577.68	\$26.40
Residential	Average	750	n/a	\$0.0820	\$0.0321	\$2.50	\$88.08	\$1,056.90	\$49.50
Residential	High	1,200	n/a	\$0.0820	\$0.0321	\$2.50	\$139.42	\$1,673.04	\$79.20
Small Commercial	Bank	4,233	n/a	\$0.0820	\$0.0321	\$7.50	\$490.49	\$5,885.82	\$279.38
Small Commercial	Restaurant	10,247	n/a	\$0.0820	\$0.0321	\$7.50	\$1,176.68	\$14,120.19	\$676.30
Small Commercial	Drug Store	13,340	n/a	\$0.0820	\$0.0321	\$7.50	\$1,529.59	\$18,355.13	\$880.44
Large Commercial	Retirement Community	397,383	953	\$0.0820	\$8.6900	\$15.00	\$40,881.98	\$490,583.71	\$26,227.28
Large Commercial	School	476,400	1,348	\$0.0820	\$8.6900	\$15.00	\$50,793.92	\$609,527.04	\$31,442.40
Large Commercial	Printing Company	1,141,500	3,108	\$0.0820	\$8.6900	\$15.00	\$120,626.52	\$1,447,518.24	\$75,339.00

Market-Based Portfolio

A	B	C	D	E	F	G	H	I
Customer Type	User Description	Avg Monthly Consumption	Avg Monthly Demand	Generation Charge	Distribution Charge	Customer Charge	Average Monthly Bill	Annual Charges
Residential	Low	400	n/a	\$0.0875	\$0.0321	\$2.50	\$50.34	\$604.08
Residential	Average	750	n/a	\$0.0875	\$0.0321	\$2.50	\$92.20	\$1,106.40
Residential	High	1,200	n/a	\$0.0875	\$0.0321	\$2.50	\$146.02	\$1,752.24
Small Commercial	Bank	4,233	n/a	\$0.0875	\$0.0321	\$7.50	\$513.77	\$6,165.20
Small Commercial	Restaurant	10,247	n/a	\$0.0875	\$0.0321	\$7.50	\$1,233.04	\$14,796.49
Small Commercial	Drug Store	13,340	n/a	\$0.0875	\$0.0321	\$7.50	\$1,602.96	\$19,235.57
Large Commercial	Retirement Community	397,383	953	\$0.0875	\$8.6900	\$15.00	\$43,067.58	\$516,810.99
Large Commercial	School	476,400	1,348	\$0.0875	\$8.6900	\$15.00	\$53,414.12	\$640,969.44
Large Commercial	Printing Company	1,141,500	3,108	\$0.0875	\$8.6900	\$15.00	\$126,904.77	\$1,522,857.24

Retail Electric Charge Comparison Year 2023

AMPGS-Based Portfolio @ 12 MW

A	B	C	D	E	F	G	H	I	J
Customer Type	User Description	Avg Monthly Consumption	Avg Monthly Demand	Generation Charge	Distribution Charge	Customer Charge	Average Monthly Bill	Annual Charges	Projected Savings AMPGS vs Market
Residential	Low	400	n/a	\$0.0838	\$0.0321	\$2.50	\$48.86	\$586.32	\$42.72
Residential	Average	750	n/a	\$0.0838	\$0.0321	\$2.50	\$89.43	\$1,073.10	\$80.10
Residential	High	1,200	n/a	\$0.0838	\$0.0321	\$2.50	\$141.58	\$1,698.96	\$128.16
Small Commercial	Bank	4,233	n/a	\$0.0838	\$0.0321	\$7.50	\$498.10	\$5,977.26	\$452.08
Small Commercial	Restaurant	10,247	n/a	\$0.0838	\$0.0321	\$7.50	\$1,195.13	\$14,341.53	\$1,094.38
Small Commercial	Drug Store	13,340	n/a	\$0.0838	\$0.0321	\$7.50	\$1,553.61	\$18,643.27	\$1,424.71
Large Commercial	Retirement Community	397,383	953	\$0.0838	\$8.6900	\$15.00	\$41,597.27	\$499,167.18	\$42,440.50
Large Commercial	School	476,400	1,348	\$0.0838	\$8.6900	\$15.00	\$51,651.44	\$619,817.28	\$50,879.52
Large Commercial	Printing Company	1,141,500	3,108	\$0.0838	\$8.6900	\$15.00	\$122,681.22	\$1,472,174.64	\$121,912.20

AMPGS-Based Portfolio @ 9 MW

A	B	C	D	E	F	G	H	I	J
Customer Type	User Description	Avg Monthly Consumption	Avg Monthly Demand	Generation Charge	Distribution Charge	Customer Charge	Average Monthly Bill	Annual Charges	Projected Savings AMPGS vs Market
Residential	Low	400	n/a	\$0.0861	\$0.0321	\$2.50	\$49.78	\$597.36	\$31.68
Residential	Average	750	n/a	\$0.0861	\$0.0321	\$2.50	\$91.15	\$1,093.80	\$59.40
Residential	High	1,200	n/a	\$0.0861	\$0.0321	\$2.50	\$144.34	\$1,732.08	\$95.04
Small Commercial	Bank	4,233	n/a	\$0.0861	\$0.0321	\$7.50	\$507.84	\$6,094.09	\$335.25
Small Commercial	Restaurant	10,247	n/a	\$0.0861	\$0.0321	\$7.50	\$1,218.70	\$14,624.34	\$811.56
Small Commercial	Drug Store	13,340	n/a	\$0.0861	\$0.0321	\$7.50	\$1,584.29	\$19,011.46	\$1,056.53
Large Commercial	Retirement Community	397,383	953	\$0.0861	\$8.6900	\$15.00	\$42,511.25	\$510,134.96	\$31,472.73
Large Commercial	School	476,400	1,348	\$0.0861	\$8.6900	\$15.00	\$52,747.16	\$632,965.92	\$37,730.88
Large Commercial	Printing Company	1,141,500	3,108	\$0.0861	\$8.6900	\$15.00	\$125,306.67	\$1,503,680.04	\$90,406.80

Market-Based Portfolio

A	B	C	D	E	F	G	H	I
Customer Type	User Description	Avg Monthly Consumption	Avg Monthly Demand	Generation Charge	Distribution Charge	Customer Charge	Average Monthly Bill	Annual Charges
Residential	Low	400	n/a	\$0.0927	\$0.0321	\$2.50	\$52.42	\$629.04
Residential	Average	750	n/a	\$0.0927	\$0.0321	\$2.50	\$96.10	\$1,153.20
Residential	High	1,200	n/a	\$0.0927	\$0.0321	\$2.50	\$152.26	\$1,827.12
Small Commercial	Bank	4,233	n/a	\$0.0927	\$0.0321	\$7.50	\$535.78	\$6,429.34
Small Commercial	Restaurant	10,247	n/a	\$0.0927	\$0.0321	\$7.50	\$1,286.33	\$15,435.91
Small Commercial	Drug Store	13,340	n/a	\$0.0927	\$0.0321	\$7.50	\$1,672.33	\$20,067.98
Large Commercial	Retirement Community	397,383	953	\$0.0927	\$8.6900	\$15.00	\$45,133.97	\$541,607.69
Large Commercial	School	476,400	1,348	\$0.0927	\$8.6900	\$15.00	\$55,891.40	\$670,696.80
Large Commercial	Printing Company	1,141,500	3,108	\$0.0927	\$8.6900	\$15.00	\$132,840.57	\$1,594,086.84

Gross Generation Costs Allocated by Customer Class

AMPGS vs. Market Power Portfolio - Years 2014/2017/2020/2023

AMPGS Based Portfolio @ 9 MW

Customer Type	Year	Customer Kwh Requirements	Generation Charge	Total Generation Costs
Residential	2014	27,894,200	\$0.0709	\$1,977,698.78
Small Commercial	2014	9,762,970	\$0.0709	\$692,194.57
Large Commercial	2014	101,813,830	\$0.0709	\$7,218,600.55
Total		139,471,000		\$9,888,493.90
Residential	2017	29,446,800	\$0.0772	\$2,273,292.96
Small Commercial	2017	10,306,380	\$0.0772	\$795,652.54
Large Commercial	2017	107,480,820	\$0.0772	\$8,297,519.30
Total		147,234,000		\$11,366,464.80
Residential	2020	31,068,000	\$0.0820	\$2,547,576.00
Small Commercial	2020	10,873,800	\$0.0820	\$891,651.60
Large Commercial	2020	113,398,200	\$0.0820	\$9,298,652.40
Total		155,340,000		\$12,737,880.00
Residential	2023	32,763,200	\$0.0861	\$2,820,911.52
Small Commercial	2023	11,467,120	\$0.0861	\$987,319.03
Large Commercial	2023	119,585,680	\$0.0861	\$10,296,327.05
Total		163,816,000		\$14,104,557.60

Market Based Portfolio

Customer Type	Year	Customer Kwh Requirements	Generation Charge	Total Generation Costs
Residential	2014	27,894,200	\$0.0742	\$2,069,749.64
Small Commercial	2014	9,762,970	\$0.0742	\$724,412.37
Large Commercial	2014	101,813,830	\$0.0742	\$7,554,586.19
Total		139,471,000		\$10,348,748.20
Residential	2017	29,446,800	\$0.0816	\$2,402,858.88
Small Commercial	2017	10,306,380	\$0.0816	\$841,000.61
Large Commercial	2017	107,480,820	\$0.0816	\$8,770,434.91
Total		147,234,000		\$12,014,294.40
Residential	2020	31,068,000	\$0.0875	\$2,718,450.00
Small Commercial	2020	10,873,800	\$0.0875	\$951,457.50
Large Commercial	2020	113,398,200	\$0.0875	\$9,922,342.50
Total		155,340,000		\$13,592,250.00
Residential	2023	32,763,200	\$0.0927	\$3,037,148.64
Small Commercial	2023	11,467,120	\$0.0927	\$1,063,002.02
Large Commercial	2023	119,585,680	\$0.0927	\$11,085,592.54
Total		163,816,000		\$15,185,743.20

Projected Savings with AMPGS Portfolio at 9 MW

Customer Type	Year	Market Portfolio	AMPGS Portfolio	Projected Savings
Residential	2014	\$2,069,749.64	\$1,977,698.78	\$92,050.86
Small Commercial	2014	\$724,412.37	\$692,194.57	\$32,217.80
Large Commercial	2014	\$7,554,586.19	\$7,218,600.55	\$335,985.64
Total				\$460,254.30
Residential	2017	\$2,402,858.88	\$2,273,292.96	\$129,565.92
Small Commercial	2017	\$841,000.61	\$795,652.54	\$45,348.07
Large Commercial	2017	\$8,770,434.91	\$8,297,519.30	\$472,915.61
Total				\$647,829.60
Residential	2020	\$2,718,450.00	\$2,547,576.00	\$170,874.00
Small Commercial	2020	\$951,457.50	\$891,651.60	\$59,805.90
Large Commercial	2020	\$9,922,342.50	\$9,298,652.40	\$623,690.10
Total				\$854,370.00
Residential	2023	\$3,037,148.64	\$2,820,911.52	\$216,237.12
Small Commercial	2023	\$1,063,002.02	\$987,319.03	\$75,682.99
Large Commercial	2023	\$11,085,592.54	\$10,296,327.05	\$789,265.49
Total				\$1,081,185.60

Gross Generation Costs Allocated by Customer Class

AMPGS vs. Market Power Portfolio - Years 2014/2017/2020/2023

AMPGS Based Portfolio @ 12 MW

Customer Type	Year	Customer Kwh Requirements	Generation Charge	Total Generation Costs
Residential	2014	27,894,200	\$0.0698	\$1,947,015.16
Small Commercial	2014	9,762,970	\$0.0698	\$681,455.31
Large Commercial	2014	101,813,830	\$0.0698	\$7,106,605.33
Total		139,471,000		\$9,735,075.80
Residential	2017	29,446,800	\$0.0757	\$2,229,122.76
Small Commercial	2017	10,306,380	\$0.0757	\$780,192.97
Large Commercial	2017	107,480,820	\$0.0757	\$8,136,298.07
Total		147,234,000		\$11,145,613.80
Residential	2020	31,068,000	\$0.0801	\$2,488,546.80
Small Commercial	2020	10,873,800	\$0.0801	\$870,991.38
Large Commercial	2020	113,398,200	\$0.0801	\$9,083,195.82
Total		155,340,000		\$12,442,734.00
Residential	2023	32,763,200	\$0.0838	\$2,745,556.16
Small Commercial	2023	11,467,120	\$0.0838	\$960,944.66
Large Commercial	2023	119,585,680	\$0.0838	\$10,021,279.98
Total		163,816,000		\$13,727,780.80

Market Based Portfolio

Customer Type	Year	Customer Kwh Requirements	Generation Charge	Total Generation Costs
Residential	2014	27,894,200	\$0.0742	\$2,069,749.64
Small Commercial	2014	9,762,970	\$0.0742	\$724,412.37
Large Commercial	2014	101,813,830	\$0.0742	\$7,554,586.19
Total		139,471,000		\$10,348,748.20
Residential	2017	29,446,800	\$0.0816	\$2,402,858.88
Small Commercial	2017	10,306,380	\$0.0816	\$841,000.61
Large Commercial	2017	107,480,820	\$0.0816	\$8,770,434.91
Total		147,234,000		\$12,014,294.40
Residential	2020	31,068,000	\$0.0875	\$2,718,450.00
Small Commercial	2020	10,873,800	\$0.0875	\$951,457.50
Large Commercial	2020	113,398,200	\$0.0875	\$9,922,342.50
Total		155,340,000		\$13,592,250.00
Residential	2023	32,763,200	\$0.0927	\$3,037,148.64
Small Commercial	2023	11,467,120	\$0.0927	\$1,063,002.02
Large Commercial	2023	119,585,680	\$0.0927	\$11,085,592.54
Total		163,816,000		\$15,185,743.20

Projected Savings with AMPGS Portfolio at 12 MW

Customer Type	Year	Market Portfolio	AMPGS Portfolio	Projected Savings
Residential	2014	\$2,069,749.64	\$1,947,015.16	\$122,734.48
Small Commercial	2014	\$724,412.37	\$681,455.31	\$42,957.06
Large Commercial	2014	\$7,554,586.19	\$7,106,605.33	\$447,980.86
Total				\$613,672.40
Residential	2017	\$2,402,858.88	\$2,229,122.76	\$173,736.12
Small Commercial	2017	\$841,000.61	\$780,192.97	\$60,807.64
Large Commercial	2017	\$8,770,434.91	\$8,136,298.07	\$634,136.84
Total				\$868,680.60
Residential	2020	\$2,718,450.00	\$2,488,546.80	\$229,903.20
Small Commercial	2020	\$951,457.50	\$870,991.38	\$80,466.12
Large Commercial	2020	\$9,922,342.50	\$9,038,195.82	\$884,146.68
Total				\$1,194,516.00
Residential	2023	\$3,037,148.64	\$2,745,556.16	\$291,592.48
Small Commercial	2023	\$1,063,002.02	\$960,944.66	\$102,057.36
Large Commercial	2023	\$11,085,592.54	\$10,021,279.98	\$1,064,312.56
Total				\$1,457,962.40

Retail Electric Charge Comparison
2008 Portfolio vs. 2014 Portfolio
w/o CO2 costs

2008 Portfolio

A	B	C	D	E	F	G	H	I
Customer Type	User Description	Avg Monthly Consumption	Avg Monthly Demand	Generation Charge	Distribution Charge	Customer Charge	Average Monthly Bill	Annual Charges
Residential	Low	400 n/a	n/a	\$0.0620	\$0.0321	\$2.50	\$40.14	\$481.68
Residential	Average	750 n/a	n/a	\$0.0620	\$0.0321	\$2.50	\$73.08	\$876.90
Residential	High	1,200 n/a	n/a	\$0.0620	\$0.0321	\$2.50	\$115.42	\$1,385.04
Small Commercial	Bank	4,233 n/a	n/a	\$0.0620	\$0.0321	\$7.50	\$405.83	\$4,869.90
Small Commercial	Restaurant	10,247 n/a	n/a	\$0.0620	\$0.0321	\$7.50	\$971.74	\$11,680.91
Small Commercial	Drug Store	13,340 n/a	n/a	\$0.0620	\$0.0321	\$7.50	\$1,282.79	\$15,153.53
Large Commercial	Retirement Community	397,383	953	\$0.0620	\$8.6900	\$15.00	\$32,894.32	\$395,211.79
Large Commercial	School	478,400	1,348	\$0.0620	\$8.6900	\$15.00	\$41,285.92	\$495,181.04
Large Commercial	Printing Company	1,141,500	3,108	\$0.0620	\$8.6900	\$15.00	\$97,796.62	\$1,173,556.24

AMPGS-Based Portfolio @ 12 MW

A	B	C	D	E	F	G	H	I
Customer Type	User Description	Avg Monthly Consumption	Avg Monthly Demand	Generation Charge	Distribution Charge	Customer Charge	Average Monthly Bill	Annual Charges
Residential	Low	400 n/a	n/a	\$0.0657	\$0.0321	\$2.50	\$41.62	\$499.44
Residential	Average	750 n/a	n/a	\$0.0657	\$0.0321	\$2.50	\$75.85	\$910.20
Residential	High	1,200 n/a	n/a	\$0.0657	\$0.0321	\$2.50	\$119.86	\$1,438.32
Small Commercial	Bank	4,233 n/a	n/a	\$0.0657	\$0.0321	\$7.50	\$421.49	\$5,057.85
Small Commercial	Restaurant	10,247 n/a	n/a	\$0.0657	\$0.0321	\$7.50	\$1,009.86	\$12,115.89
Small Commercial	Drug Store	13,340 n/a	n/a	\$0.0657	\$0.0321	\$7.50	\$1,312.15	\$15,745.82
Large Commercial	Retirement Community	397,383	953	\$0.0657	\$8.6900	\$15.00	\$34,404.63	\$412,855.60
Large Commercial	School	478,400	1,348	\$0.0657	\$8.6900	\$15.00	\$43,026.80	\$516,343.20
Large Commercial	Printing Company	1,141,500	3,108	\$0.0657	\$8.6900	\$15.00	\$102,020.07	\$1,224,240.84

J
Projected Costs AMPGS vs Current
\$17.78
\$53.30
\$53.28
\$187.95
\$454.97
\$692.30
\$17,643.81
\$21,152.16
\$50,692.60

AMPGS-Based Portfolio @ 9 MW

A	B	C	D	E	F	G	H	I
Customer Type	User Description	Avg Monthly Consumption	Avg Monthly Demand	Generation Charge	Distribution Charge	Customer Charge	Average Monthly Bill	Annual Charges
Residential	Low	400 n/a	n/a	\$0.0669	\$0.0321	\$2.50	\$42.10	\$505.20
Residential	Average	750 n/a	n/a	\$0.0669	\$0.0321	\$2.50	\$76.75	\$921.00
Residential	High	1,200 n/a	n/a	\$0.0669	\$0.0321	\$2.50	\$121.30	\$1,455.60
Small Commercial	Bank	4,233 n/a	n/a	\$0.0669	\$0.0321	\$7.50	\$428.57	\$5,148.80
Small Commercial	Restaurant	10,247 n/a	n/a	\$0.0669	\$0.0321	\$7.50	\$1,071.95	\$12,863.44
Small Commercial	Drug Store	13,340 n/a	n/a	\$0.0669	\$0.0321	\$7.50	\$1,324.19	\$15,937.92
Large Commercial	Retirement Community	397,383	953	\$0.0669	\$8.6900	\$15.00	\$34,881.49	\$418,577.91
Large Commercial	School	478,400	1,348	\$0.0669	\$8.6900	\$15.00	\$43,600.28	\$523,253.56
Large Commercial	Printing Company	1,141,500	3,108	\$0.0669	\$8.6900	\$15.00	\$103,368.87	\$1,240,878.44

J
Projected Costs AMPGS vs Current
\$24.52
\$44.10
\$70.56
\$245.90
\$609.62
\$784.39
\$23,365.12
\$28,073.32
\$67,120.20

Market-Based Portfolio

A	B	C	D	E	F	G	H	I
Customer Type	User Description	Avg Monthly Consumption	Avg Monthly Demand	Generation Charge	Distribution Charge	Customer Charge	Average Monthly Bill	Annual Charges
Residential	Low	400 n/a	n/a	\$0.0708	\$0.0321	\$2.50	\$43.58	\$522.96
Residential	Average	750 n/a	n/a	\$0.0708	\$0.0321	\$2.50	\$79.53	\$954.30
Residential	High	1,200 n/a	n/a	\$0.0708	\$0.0321	\$2.50	\$125.74	\$1,508.88
Small Commercial	Bank	4,233 n/a	n/a	\$0.0708	\$0.0321	\$7.50	\$442.23	\$5,306.75
Small Commercial	Restaurant	10,247 n/a	n/a	\$0.0708	\$0.0321	\$7.50	\$1,056.87	\$12,683.46
Small Commercial	Drug Store	13,340 n/a	n/a	\$0.0708	\$0.0321	\$7.50	\$1,377.52	\$16,530.22
Large Commercial	Retirement Community	397,383	953	\$0.0708	\$8.6900	\$15.00	\$36,351.81	\$436,221.72
Large Commercial	School	478,400	1,348	\$0.0708	\$8.6900	\$15.00	\$45,352.98	\$544,395.52
Large Commercial	Printing Company	1,141,500	3,108	\$0.0708	\$8.6900	\$15.00	\$107,813.42	\$1,291,361.04

J
Projected Costs Market vs. Current
\$41.28
\$77.40
\$123.84
\$436.85
\$1,057.49
\$1,370.69
\$41,039.93
\$49,164.46
\$117,802.80

City	Income Tax	Property Tax	Property Tax: Res. & Agri	Property Tax: Ind. & Comm.	Res. Utility Rates 2006	Comm. Utility Rates 2006	Per Kwh	Per Kwh	Per Kwh
					Utility Rates 2006	Utility Rates 2006	Indust. Utility Rates 2006	Utility Rates 2006	Utility Rates 2006
Amherst	1.50%	68.65	42,213,390	43,246,227	8.5	9.8	7.8	9.8	7.8
Avon	1.75%	77.00	52,773,500	53,961,339	10.5	10.1	6.0	10.1	6.0
Avon Lake	1.50%	89.06	54,906,083	68,886,311	10.5	10.1	6.0	10.1	6.0
Elyria	1.75%	80.54	45,568,512	53,033,868	10.5	10.1	6.0	10.1	6.0
Grafton	1.50%	68.16	45,284,331	46,319,557	10.4	11.1	8.0	11.1	8.0
Lagrange	1.50%	73.13	45,444,681	46,858,823	10.5	10.1	6.0	10.1	6.0
Lorain	2.00%	68.65	42,713,516	43,674,059	10.5	10.1	6.0	10.1	6.0
North Ridgeville	1.00%	71.62	52,369,026	54,097,284	10.5	10.1	6.0	10.1	6.0
Oberlin	1.90%	101.31	53,979,162	62,752,265	10.0	8.7	n/a	8.7	n/a
Sheffield Lake	1.50%	91.73	56,800,231	60,935,230	10.5	10.1	6.0	10.1	6.0
Vermillion	1.00%	91.17	47,746,327	69,611,246	10.5	10.1	6.0	10.1	6.0
Wellington	1.00%	59.88	47,166,593	48,299,495	10.2	7.3	8.1	7.3	8.1