

**GRAND RAPIDS  
PUBLIC UTILITIES**  
*Service is Our Nature*

**ELECTRIC COST OF SERVICE AND  
RATE DESIGN STUDY**

*Final Report*

*December 14, 2022*



# **REPORT OUTLINE**

**Cover Letter**

**Section 1 - Introduction**

**Section 2 – Projected Operating Results – Existing Rates**

**Section 3 – Cost of Service**

**Section 4 – Proposed Rates**



December 14, 2022

**Grand Rapids Public Utilities Commission**

500 SE 4<sup>th</sup> Street  
Grand Rapids, MN 55744

**Subject: Electric Rate Study**

Commission Members:

Dave Berg Consulting, LLC has undertaken a study of the retail rates GRPUC charges its customers for electric service. This report summarizes the analyses undertaken and the resulting recommendations for changes to the existing rates.

The new wholesale contract with MP which became effective 1/1/22 has a significant impact on the overall results. An overall increase in published base electric rates in 2023 of 1% is recommended. A redesign of the purchased power adjustment will also impact overall customer bills. Based on the new PPAC calculation, which was altered to better reflect the new wholesale contract, overall average bills for customers in 2023 will be reduced by approximately 5.4% from 2022. There are some additional small changes recommended for certain rates as detailed in Section 4 of the report, these are also made to reflect the new wholesale contract.

Thank you for the opportunity to be of service to GRPUC through the conduct of this study. I wish to express my appreciation for the valuable assistance I received from GRPUC staff relative to the execution of this study.

Sincerely,

**Dave Berg Consulting, LLC**

A handwritten signature in black ink that reads 'David A. Berg'.

**David A. Berg, PE**  
**Principal**

***Dedicated to providing personal service to consumer-owned utilities***

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# **Section 1**

## **Introduction**

The City of Grand Rapids, MN owns and operates a municipal electric utility providing service to approximately 7400 residential, commercial, industrial and lighting customers. The electric utility operates under the direction of the Grand Rapids Public Utilities Commission (GRPUC). This report has been prepared by Dave Berg Consulting, LLC to examine the rates and charges for electric service in Grand Rapids. The study includes an examination of the allocated cost of service based on a 2021 'Test Year.' It also includes projected operating results for 2022-2027 (Study Period). As a result of the analyses undertaken and reported on herein, new proposed electric rates have been recommended for implementation by Grand Rapids.

## **Section 2**

# **Projected Operating Results Existing Rates**

The rates charged for electric services by GRPUC, combined with other operating and non-operating revenues, must be sufficient to meet the cost of providing services to GRPUC's retail customers. This is necessary to ensure the long-term financial health of GRPUC. The cost of providing services consists of normal operating expenses such as wholesale power purchases, local distribution, customer and administrative functions, capital improvements and contributions to the City of Grand Rapids and other non-operating expenses.

An analysis of the operating results for GRPUC during the 2022-2027 Study Period has been performed assuming the current retail rates and charges remain in effect through the Study Period. This analysis has been done to determine the overall need, if any, for additional revenue through rates to meet projected revenue requirements. The analyses and assumptions utilized in these projections are explained below.

### **Estimated Revenues – Existing Rates**

#### ***Retail Sales***

GRPUC sells retail power and energy to residential, commercial, and industrial customers. The majority of these customers are located within the City of Grand Rapids, however GRPUC does serve certain residential and commercial customers in rural areas outside the City limits. GRPUC also has special rates for sales to heating and cooling, load management and security lighting classes of customers. GRPUC has been experiencing moderate growth in total retail sales to its customers. For the Study Period, 1% annual growth in total sales has been assumed after 2022. Also, the addition of an 800-kW demand billed customer has been assumed in 2023.

## **Section 2**

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GRPUC offsets certain wholesale costs through its Purchased Power Adjustment Clause (PPAC) which automatically adjusts retail electric bills based on certain adjustments on the monthly wholesale bills from Minnesota Power. These adjustments are outside GRPUC's control and difficult to predict. The PPAC ensures that the results of these variable wholesale cost adjustments are properly passed through to retail electric customers.

Exhibit 2-A is a detailed listing of GRPUC's historical and projected operating results at existing rates. The historical and projected revenues from retail sales of power and energy plus the PPAC pass-through are included at the beginning of the exhibit under Utility Revenues.

### ***Other Operating Revenues***

GRPUC also receives revenue from other normal operating procedures. These other operating revenues include certain charges made for services not based on power and energy sales. These revenues are shown in Exhibit 2-A as Other Operating Revenues. Utility Revenues combined with Other Operating Revenues result in GRPUC's Total Operating Revenues.

## **Revenue Requirements**

### ***Purchased Power***

GRPUC purchases all of its wholesale power and energy requirements from Minnesota Power under the terms of a wholesale power contract. Purchased power is the largest single operating expense for GRPUC. In 2021 a new agreement was negotiated and signed with Minnesota Power. That contract went into effect January 1, 2022. As explained above, GRPUC makes an adjustment to its retail bills through use of a PPAC for certain wholesale power costs. The new contract impacts that calculation. In the first year of the new contract, GRPUC set the PPAC adjustment at \$0.01583/kWh. For future years in the Study Period, the PPAC was calculated utilizing the existing PPAC

## Projected Operating Results – Existing Rates

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formula. Table 2-1 lists the PPAC rates for each year as included in the projections. The new contract with Minnesota Power necessitates revisiting the PPAC formula, that is addressed in Section 4 of this report.

**Table 2-1**  
**Retail PPAC**

<b>Year</b>	<b>Rate (\$/kWh)</b>
2022	0.01583
2023	0.00865
2024	0.01072
2025	0.01279
2026	0.01486
2027	0.01693

Total wholesale power cost projections are based on the rates contained in the new Minnesota Power contract.

### *Other Operating Expenses*

GRPUC incurs other operating expenses associated with local electric system operations. Distribution operating and maintenance expenses are related to the substations, overhead and underground lines and customer facilities located in Grand Rapids. Customer accounting expenses are required for reading meters, sending and processing bills and dealing with customer inquiries. To meet state mandated requirements, GRPUC must make conservation improvement program investments with a goal of reducing electric consumption. Administrative and general expenses cover utility management, employee benefits, training and other administrative costs. Other operating expenses for the Study Period have been based on Study Period budgets provided by GRPUC.

## **Section 2**

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### ***Depreciation***

GRPUC has annual depreciation and amortization costs based on its system investments. Depreciation during the Study Period is based on existing plant in service plus an amount for new capital improvements. Depreciation is a funded non-cash expense that generates monies available for annual capital improvements, debt principal payments and reserves.

### ***Non-operating Income (Expenses)***

GRPUC's non-operating income and expenses are associated with investment income, penalties, interest expenses, and costs and revenues associated with the combined service center.

### ***Payment in Lieu of Taxes***

GRPUC makes an annual payment in lieu of taxes ('PILOT') to the City of Grand Rapids. The payment is calculated as the maximum of \$.005 per kWh sold the previous year or \$871,701. Based on this formula, the PILOT has been assumed to be a flat payment of \$871,701 per year through the Study Period.

### ***Capital Improvements***

GRPUC makes annual capital investments in its electric system. The electric utility also pays a share of improvements to the combined service center. The combined capital improvements for the electric utility are shown in Table 2-2 below.



## Projected Operating Results – Existing Rates

**Table 2-2**  
**Capital Improvements**

Capital Item	2022	2023	2024	2025	2026	2027
Electric Capital	\$804,968	\$873,290	\$864,440	\$870,440	\$871,440	\$873,440
Service Center Capital	<u>\$145,639</u>	<u>\$303,550</u>	<u>\$65,000</u>	<u>\$13,000</u>	<u>\$13,000</u>	<u>\$13,000</u>
Total	\$950,607	\$1,176,840	\$929,440	\$883,440	\$884,440	\$886,440

### ***Debt Service***

GRPUC has annual debt principal payments. The last payment on this debt is scheduled for 2025.

### ***Loss of Revenue Payment to Lake Country Power***

GRPUC acquired electric service territory from Lake Country Power (LCP). As part of that acquisition, the annual loss of revenue payment is made to LCP for sales to customers in those areas. The loss of revenue payment has been assumed to be approximately \$78,000 per year.

## **Projected Operating Results – Existing Rates**

Based on the assumptions outlined above, the resulting projected operating results assuming continued application of the existing retail rates is summarized in Table 2-3. A detailed presentation of the operating results is shown in Exhibit 2-A.

## Section 2

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**Table 2-3**  
**Projected Operating Results**  
**Existing Rates**

Year	2022	2023	2024	2025	2026	2027
Operating Revenues	\$19,061,765	\$18,448,198	\$18,977,138	\$19,515,558	\$20,064,303	\$20,624,106
Less Operating Expenses	(15,133,717)	(16,471,822)	(17,535,707)	(18,642,543)	(19,600,947)	(20,298,209)
Less Non -Operating Expenses	<u>(1,075,942)</u>	<u>(1,045,042)</u>	<u>(1,044,661)</u>	<u>(1,047,838)</u>	<u>(1,047,100)</u>	<u>(1,065,454)</u>
Net Income	2,852,105	931,335	396,769	(174,823)	(583,744)	(739,557)
Net Income as Percent of Revenues	15.0%	5.0%	2.1%	-0.9%	-2.9%	-3.6%

### Cash Reserves

A summary of the impact of the projected operating results on GRPUC's cash reserves is shown at the end of Exhibit 2-A and in Table 2-4 below. A projected strong net income in 2022 is projected to increase the cash balance from \$1.5 million to \$4.0 million (21.2% of operating revenues) at the end of 2022. For 2023 through 2027 the cash balance is projected to decrease annually to \$3.4 million or 16.3 percent of operating revenues.

## Projected Operating Results – Existing Rates

**Table 2-4**  
**Projected Cash Reserves**  
**Existing Rates**

<b>Year</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>
Beginning Balance	\$1,520,146	\$4,118,902	\$4,521,158	\$4,755,960	\$4,495,451	\$3,990,969
Plus Net Income	2,852,105	931,335	396,769	(174,823)	(583,744)	(739,557)
Less Capital Improvements	(950,607)	(1,176,840)	(929,440)	(883,440)	(884,440)	(886,440)
Less ERP Proj Costs	-	(80,833)	-	-	-	-
Plus Deprec/Amort	910,382	942,069	981,297	1,012,278	1,041,726	1,071,208
Less Debt Principal	(135,100)	(135,450)	(135,800)	(136,500)	-	-
Less LCP Payment	<u>(78,024)</u>	<u>(78,024)</u>	<u>(78,024)</u>	<u>(78,024)</u>	<u>(78,024)</u>	<u>(78,024)</u>
Ending Balance	\$4,118,902	\$4,521,158	\$4,755,960	\$4,495,451	\$3,990,969	\$3,358,155
As a percent of revenue	21.6%	24.5%	25.1%	23.0%	19.9%	16.3%

Grand Rapids Public Utilities Commission  
Electric Operating Results at Existing Rates

	Historical					Projected					
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
<b>OPERATING REVENUES</b>											
Utility Revenues											
City residential	\$ 3,496,976	\$ 3,848,068	\$ 3,821,527	\$ 4,142,608	\$ 4,311,259	\$ 4,485,931	\$ 4,571,803	\$ 4,631,250	\$ 4,691,535	\$ 4,752,623	\$ 4,814,576
City commercial and demand & energy	9,790,884	9,051,114	9,189,588	8,874,782	9,411,411	9,880,460	10,394,294	10,510,369	10,628,022	10,747,276	10,868,611
Rural residential	1,023,159	1,136,791	1,125,900	1,182,228	1,213,463	1,251,841	1,261,106	1,261,114	1,261,114	1,261,114	1,261,114
Rural commercial and demand & energy	544,806	569,994	583,743	563,487	626,763	639,013	643,016	643,097	643,097	643,097	643,097
Security lighting	57,566	55,300	56,412	60,075	61,567	61,371	60,994	60,994	60,994	60,994	60,994
Total Retail Sales	\$ 14,913,391	\$ 14,661,267	\$ 14,777,170	\$ 14,823,180	\$ 15,624,463	\$ 16,318,615	\$ 16,931,212	\$ 17,106,824	\$ 17,284,762	\$ 17,465,103	\$ 17,648,392
Purchased power adjustment passthrough	693,130	612,842	436,847	400,954	2,401,457	2,631,811	1,405,647	1,758,975	2,119,457	2,487,860	2,864,374
Total Utility Revenues	\$ 15,606,521	\$ 15,274,109	\$ 15,214,017	\$ 15,224,134	\$ 18,025,920	\$ 18,950,426	\$ 18,336,859	\$ 18,865,799	\$ 19,404,219	\$ 19,952,964	\$ 20,512,767
Other Operating Revenues											
Pole rentals	\$ 16,715	\$ -	\$ 38,624	\$ 21,416	\$ 23,577	\$ 21,000	\$ 21,000	\$ 21,000	\$ 21,000	\$ 21,000	\$ 21,000
Other	176,275	95,315	119,168	75,804	148,569	90,339	90,339	90,339	90,339	90,339	90,339
Penalties	49,752	49,954	46,823	9,869	14,294	-	-	-	-	-	-
Total Operating Revenues	\$ 15,849,263	\$ 15,419,378	\$ 15,418,632	\$ 15,331,223	\$ 18,212,360	\$ 19,061,765	\$ 18,448,198	\$ 18,977,138	\$ 19,515,558	\$ 20,064,303	\$ 20,624,106
<b>OPERATING EXPENSES</b>											
Purchased Power											
Purchased Power	\$ 10,991,941	\$ 11,169,489	\$ 11,336,920	\$ 11,069,792	\$ 13,611,143	\$ 11,807,430	\$ 12,931,589	\$ 13,831,851	\$ 14,777,844	\$ 15,568,697	\$ 16,178,333
Distribution Operations											
Supervision and engineering	\$ 75,537	\$ 83,435	\$ 88,122	\$ 89,308	\$ 88,820	\$ 90,495	\$ 93,210	\$ 97,870	\$ 102,764	\$ 107,902	\$ 113,297
Crew Personnel						230,683	237,603	249,483	261,958	275,055	288,808
Substations	14,410	6,480	6,373	5,580	6,334	6,614	6,944	7,153	7,367	7,588	7,816
Overhead and underground lines	122,256	57,556	147,490	91,108	366,055	9,000	9,450	9,734	10,026	10,326	10,636
Locating Expense						48,000	50,400	51,912	53,469	55,073	56,726
Meters	103,488	21,751	74,041	79,910	75,208	-	-	-	-	-	-
Customer installations	43,143	21,941	14,714	13,129	22,802	-	-	-	-	-	-
Mapping	81,756	67,602	57,115	34,139	47,363	-	-	-	-	-	-
Small tools	31,520	22,379	15,027	17,833	30,801	28,000	29,400	30,282	31,190	32,126	33,090
Safety	21,887	18,731	12,098	29,396	30,613	17,000	17,850	18,386	18,937	19,505	20,090
Seminar/training	41,493	12,554	12,617	11,590	11,401	12,000	12,600	12,978	13,367	13,768	14,181
Uniforms Expense						11,000	11,550	11,897	12,253	12,621	13,000
Rentals						3,164	3,322	3,422	3,525	3,620	3,739
Stores	81,237	97,862	126,094	95,509	155,224	55,849	57,524	60,401	63,421	66,592	69,921
Distribution Maintenance											
Supervision and engineering	75,537	83,326	88,121	89,128	88,780	90,309	93,018	97,669	102,552	107,680	113,064
Crew Personnel						158,000	162,740	170,877	179,421	188,392	197,811
Locating expense	-	-	11,871	15,769	37,924	-	-	-	-	-	-
Substations	24,965	58,720	73,803	55,319	52,509	60,335	63,352	65,252	67,210	69,226	71,303
Overhead lines	139,379	122,630	177,900	174,777	236,987	22,000	23,100	23,793	24,507	25,242	25,999
Overhead Lines - Tree Trimming						80,000	150,000	154,500	159,135	163,909	80,000
Underground lines	93,839	56,368	43,292	98,188	22,259	16,000	16,800	17,304	17,823	18,358	18,909
Underground Lines - Locating						-	-	-	-	-	-
Line transformers	3,506	-	6,914	778	-	2,500	2,625	2,704	2,785	2,869	2,955
Security Lighting	284	4,375	-	1,173	5,047	-	-	-	-	-	-
Street lighting	-	-	-	2,158	-	-	-	-	-	-	-
Meters	1,320	11,890	2,316	4,168	42,513	500	525	541	557	574	591
Other	43,995	12,127	57,645	7,031	5,922	-	-	-	-	-	-
Total Distribution Expenses	\$ 999,552	\$ 759,727	\$ 1,015,553	\$ 915,991	\$ 1,326,562	\$ 941,448	\$ 1,042,014	\$ 1,086,156	\$ 1,132,267	\$ 1,180,437	\$ 1,141,937

Grand Rapids Public Utilities Commission  
Electric Operating Results at Existing Rates

	Historical					Projected					
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Other Operating Expenses											
Customer accounts expense	\$ 327,351	\$ 357,952	\$ 347,475	\$ 297,957	\$ 436,018	\$ 340,422	\$ 356,860	\$ 368,167	\$ 379,842	\$ 391,900	\$ 404,352
Conservation Improvement						119,701	119,701	119,701	119,701	119,701	119,701
Administrative and general	1,084,608	1,153,457	1,066,753	1,145,209	1,125,105	1,014,334	1,079,589	1,148,535	1,220,610	1,298,485	1,382,678
Depreciation - electric	909,967	881,083	879,575	1,123,497	933,748	908,137	939,824	979,052	1,010,033	1,039,481	1,068,962
Depreciation - other	98,367	99,113	95,904	103,727	106,360	-	-	-	-	-	-
Amortization - intangibles	50,025	49,995	47,935	43,533	45,181	2,245	2,245	2,245	2,245	2,245	2,245
Amortization - other	13,696	13,696	34,338	34,337	34,337	-	-	-	-	-	-
Service center	132,588	106,494	127,550	108,160	123,085	-	-	-	-	-	-
Total Other Operating Expenses	\$ 2,616,602	\$ 2,661,790	\$ 2,599,530	\$ 2,856,420	\$ 2,803,834	\$ 2,384,839	\$ 2,498,219	\$ 2,617,700	\$ 2,732,432	\$ 2,851,812	\$ 2,977,939
Total Operating Expenses	\$ 14,608,095	\$ 14,591,006	\$ 14,952,003	\$ 14,842,203	\$ 17,741,539	\$ 15,133,717	\$ 16,471,822	\$ 17,535,707	\$ 18,642,543	\$ 19,600,947	\$ 20,298,209
NET OPERATING INCOME	\$ 1,241,168	\$ 828,372	\$ 466,629	\$ 489,020	\$ 470,821	\$ 3,928,047	\$ 1,976,376	\$ 1,441,431	\$ 873,015	\$ 463,356	\$ 325,897
NON-OPERATING INCOME (EXPENSES)											
Investment income	\$ 38,310	\$ 26,473	\$ 50,825	\$ 30,745	\$ 15,667	\$ 30,225	\$ 81,897	\$ 89,895	\$ 94,564	\$ 89,384	\$ 79,354
Penalties	-	-	-	-	-	28,622	27,000	27,000	27,000	27,000	27,000
Gain (loss) on property disposition	(407,122)	4,474	11,650	(21,351)	(29,861)	-	-	-	-	-	-
Interest expense	(27,648)	(24,199)	(21,223)	-	(2,996)	(2,700)	(2,700)	(2,700)	(2,700)	(2,700)	(2,700)
Lease revenues combined service center	125,563	17,900	35,071	28,763	19,593	23,858	16,800	16,800	16,800	16,800	16,800
CSC Building/Grounds expenses	-	-	-	-	-	(284,247)	(296,339)	(303,956)	(311,802)	(305,883)	(314,207)
Grant revenue	-	-	-	145,672	84,329	-	-	-	-	-	-
City land improvements	-	-	-	-	(393,640)	-	-	-	-	-	-
Payment in lieu of taxes	(872,898)	(876,832)	(871,916)	(873,537)	(882,288)	(871,701)	(871,701)	(871,701)	(871,701)	(871,701)	(871,701)
Total Non-Operating Revenues (Expenses)	\$ (1,143,795)	\$ (852,184)	\$ (795,593)	\$ (689,708)	\$ (1,189,196)	\$ (1,075,942)	\$ (1,045,042)	\$ (1,044,661)	\$ (1,047,838)	\$ (1,047,100)	\$ (1,065,454)
NET INCOME	\$ 97,373	\$ (23,812)	\$ (328,964)	\$ (200,688)	\$ (718,375)	\$ 2,852,105	\$ 931,335	\$ 396,769	\$ (174,823)	\$ (583,744)	\$ (739,557)
as a percent of Operating Revenues	0.6%	-0.2%	-2.1%	-1.3%	-3.9%	15.0%	5.0%	2.1%	-0.9%	-2.9%	-3.6%
CASH RESERVES											
Beginning of Year						\$ 1,520,146	\$ 4,118,902	\$ 4,521,158	\$ 4,755,960	\$ 4,495,451	\$ 3,990,969
Plus Net Income						2,852,105	931,335	396,769	(174,823)	(583,744)	(739,557)
Less Capital Improvements						(950,607)	(1,176,840)	(929,440)	(883,440)	(884,440)	(886,440)
Less ERP Project Costs						-	(80,833)	-	-	-	-
Plus Depreciation/Amortization						910,382	942,069	981,297	1,012,278	1,041,726	1,071,208
Less Debt Service Principal						(135,100)	(135,450)	(135,800)	(136,500)	-	-
Less Loss of Revenue Payment to LCP						(78,024)	(78,024)	(78,024)	(78,024)	(78,024)	(78,024)
End of Year					\$ 1,520,146	\$ 4,118,902	\$ 4,521,158	\$ 4,755,960	\$ 4,495,451	\$ 3,990,969	\$ 3,358,155
As a percent of revenue					8.3%	21.6%	24.5%	25.1%	23.0%	19.9%	16.3%

## **Section 3**

### **Cost-of-Service**

A cost-of-service analysis was performed to determine the allocated cost to serve each of GRPUC's customer classes. Customer classes exist, in part, because the cost to serve various kinds of customers varies. The cost-of-service analysis has been performed on a 2021 'Test Year' based on actual 2021 financials, sales and purchases. The results of the cost-of-service study give an indication of the degree of revenue recovery warranted for each class of customers. A comparison of the allocated cost to serve a class of customers and the actual revenues received from that class is taken into consideration during rate design. The resulting unbundled cost analysis for each class is also useful as a basis for considering specific rate component levels in each class.

#### **Functionalization of Costs**

GRPUC's Test Year electric revenue requirements have been divided into four functional categories. These categories are described below.

**Power Supply** – the power supply function is related to the cost of GRPUC purchases from Minnesota Power and transmission expenses through MISO.

**Distribution** – distribution expenses are related to the GRPUC system for delivering power and energy to GRPUC customers. They include substation and distribution system costs.

**Customer** – these costs are fixed costs associated with the service facilities utilized to deliver electric power and energy directly to customers. They also include items such as meter reading, billing, collections and customer service.

**Revenue** – revenue related costs include certain non-operating revenues and utility margin.

### Section 3

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Table 3-1 below summarizes the functional electric costs for the adjusted 2021 Test Year. The detailed cost functions are shown in Exhibit 3-A.

**Test Year Adjustments** – GRPUC entered a new power purchase agreement with Minnesota Power effective 1/1/22. The power supply revenue requirement has been adjusted to represent 2021 wholesale billing units assuming the new 2022 wholesale rate structure.

**Table 3-1**  
**Functional Electric Costs**  
**2021 Test Year**

<b>Component</b>	<b>Revenue Requirement</b>
Power Supply (Modified)	\$11,444,987
Distribution	2,701,144
Customer	781,695
Revenue	<u>2,758,886</u>
Total	<u>\$17,686,712</u>

### Classification of Costs

Within each function, the revenue requirements have been divided into distinct cost classifications. These cost classifications are described below.

**Demand Related** – demand related costs are fixed costs that do not vary with hourly energy consumption. Demand related costs are required to meet the overall demand of the system as expressed in kW.

**Energy Related** – energy related costs vary based on hourly consumption in kWh.

**Customer Related** – costs related to serving, metering and billing of individual customers.

**Revenue Related** – revenue related costs vary by the amount of revenue received by the utility.

Exhibits 3-B through 3-D show the detailed classification of revenue requirements within the power supply, distribution and customer functions.

### **Allocation of Costs**

Based on an analysis of customer class service characteristics derived from GRPUC AMI metering data, the classified costs summarized above were allocated to the major GRPUC customer classes. Allocation of costs was performed on a fully-distributed, embedded cost allocation basis. Specific allocation factors were utilized in each of the cost classification categories as described below. Exhibit 3-E contains a summary of the development of the various allocation factors.

### ***Demand Allocations***

Customer class demands on a system can be reflected in various ways. Two primary demand allocation types were utilized in this analysis. Coincident peaks represent a class' share of the overall system peak. GRPUC is billed monthly by MP based on the overall system peak. A 12 CP method, reflecting each class' contribution to each month's system peak, was employed for allocating the demand portion of the MP wholesale bill and MISO transmission charges. Non-coincident peaks reflect a class maximum demand regardless of when it occurs. The non-coincident peak is an indication of the amount of fixed local system required to serve individual groups of customers. A 1 NCP method, an estimate of each class' maximum annual demand on the system, was utilized for allocating local system demand related costs.



## **Section 3**

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### ***Energy Allocations***

Each class' share of energy requirements was used to allocate energy related costs. The predominant energy related cost is the energy portion of the MP wholesale power bill.

### ***Customer Allocations***

Two separate customer allocators were utilized. A sum of maximum demands allocator was used to allocate costs associated with the physical facilities required to serve individual customers such as service transformers, service drops and meters. The sum of maximum demands represents each individual customers' individual peak, regardless of when it occurs. The customer service allocator is for allocation of costs associated with customer service – meter reading, billing, collections and customer inquiries. For the customer service allocator, a weighted customer allocation factor is developed. Weighting factors are developed to represent the difference in service configurations between customer classifications. For instance, a single industrial customer requires more customer service than a single residential customer.

### ***Revenue Allocations***

Revenue related costs were allocated based on each class' share of total demand, energy, customer facility and customer service costs.

### **Cost of Service Results**

Based on the classifications and allocations described above, the estimated cost to serve each major class of customers for the 2021 Test Year was determined. Exhibit 3-F presents this analysis in detail. Table 3-2 below summarizes the total allocated costs for each class compared to the total revenues received from the class during 2021.

**Table 3-2  
Cost of Service Results  
Comparison of Cost and Revenues  
2021 Test Year**

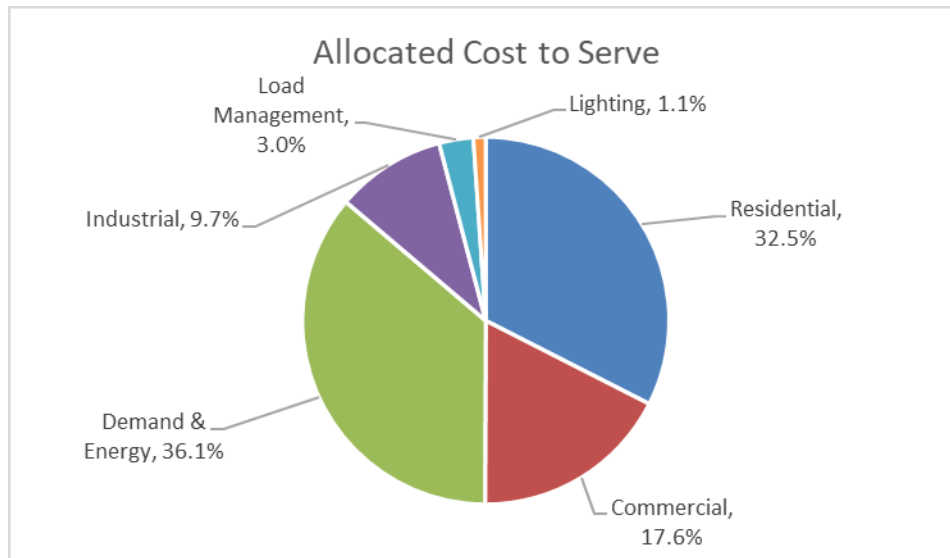
<b>Customer Classification</b>	<b>Allocated Cost to Serve</b>	<b>Adjusted Revenues</b>
Residential	\$5,745,628	\$6,032,191
Commercial	\$3,109,198	\$3,178,573
Demand & Energy	\$6,391,298	\$6,267,250
Industrial	\$1,716,082	\$1,653,087
Load Management	\$532,613	\$347,399
Lighting	<u>\$191,893</u>	<u>\$208,213</u>
Total	\$17,686,712	\$17,686,712

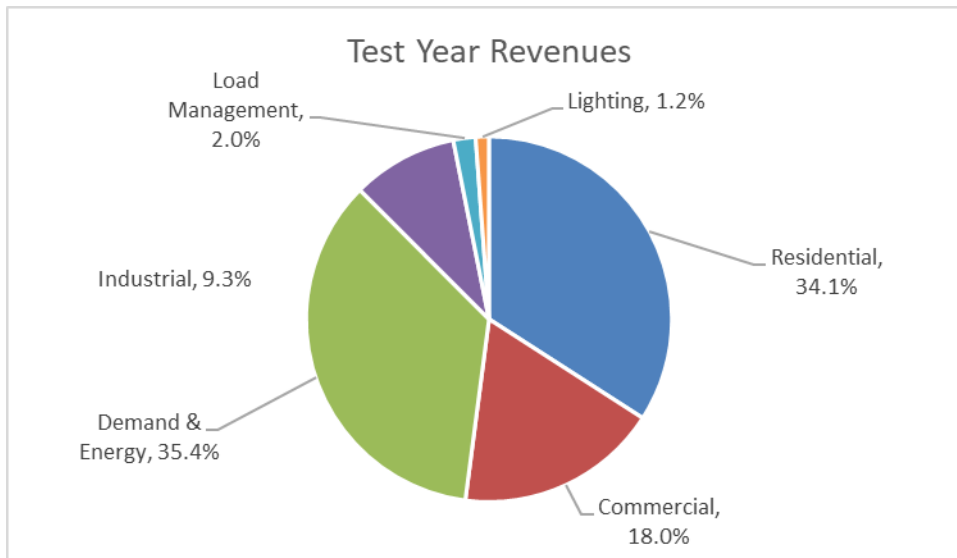
The revenue requirement as allocated to each class and summarized above is shown on a total dollars basis. Table 3-3 below makes the comparison based on percentages of total cost to serve and total revenues. The charts following Table 3-3 show a graphical comparison between allocated cost to serve and revenues as a percentage of the totals. The percentage increase/(decrease) in each class' revenue shown below is the adjustment necessary to produce revenues from each class in accordance with the allocated cost to serve. The percentage adjustments do not represent the recommended change in each class' rates. The cost-of-service results are one item for consideration in rate design. It is important to note also that the adjustments shown in the table below would not change the total revenue received by the utility and are not indicative of overall revenue needs of the utility going forward. Recommendations regarding rate design are included in Section 4 of this report. Very small classes at times do not lend themselves to the full cost-of-service analysis and the results shown, particularly for the security lights class, are often better considered separately.

**Section 3**

**Table 3-3  
Cost of Service Results  
Comparison of % Cost and Revenues  
2021 Test Year**

<b>Customer Classification</b>	<b>Allocated Cost to Serve</b>	<b>Revenues</b>	<b>Increase/ (Decrease)</b>
Residential	32.5%	34.1%	-4.8%
Commercial	17.6%	18.0%	-2.2%
Demand & Energy	36.1%	35.4%	2.0%
Industrial	9.7%	9.3%	3.8%
Load Management	3.0%	2.0%	53.3%
Lighting	<u>1.1%</u>	<u>1.2%</u>	<u>-7.8%</u>
Total	100.0%	100.0%	0.0%





As indicated above, GRPUC's existing class revenues do not exactly match the allocated cost to serve each class. However, for most classes the results are reasonably close (within 5%) and within an acceptable range. Cost based rates are one of several goals in establishing rates. The relationship between allocated costs and revenues for each class should be considered, in addition to other rate related goals, in developing recommended rates.

Grand Rapids Public Utilities Commission  
Functionalization of 2021 Test Year Revenue Requirements

REVENUE REQUIREMENT	2021 Test Year	Power Supply	Distribution	Customer	Revenue	Classification Basis
Purchased Power						
MP Purchased Power (Modified)	11,258,673	11,258,673	-	-	-	100% power supply
Operation Expenses						
Supervision and Engineering	88,820	-	88,820	-	-	100% distribution
Substations	6,334	-	6,334	-	-	100% distribution
Overhead Lines	131,601	-	131,601	-	-	100% distribution
Underground Lines	231,225	-	231,225	-	-	100% distribution
Locating Expense	37,924	-	37,924	-	-	100% distribution
Street Lighting	3,176	-	3,176	-	-	100% distribution
Security Lighting	53	-	53	-	-	100% distribution
Meters	75,208	-	75,208	-	-	100% distribution
Customer Installations	22,802	-	22,802	-	-	100% distribution
Mapping Expense	47,363	-	47,363	-	-	100% distribution
Small Tools Expense	30,801	-	30,801	-	-	100% distribution
Safety Expense	30,613	-	30,613	-	-	100% distribution
Seminar/Training Expense	11,401	-	11,401	-	-	100% distribution
Uniforms Expense	12,681	-	12,681	-	-	100% distribution
Miscellaneous Meetings	40,838	-	40,838	-	-	100% distribution
Rentals	3,118	-	3,118	-	-	100% distribution
Stores Expense	98,587	-	98,587	-	-	100% distribution
Total Operation	872,545	-	872,545	-	-	
Maintenance Expenses						
Supervision and Engineering	88,780	-	88,780	-	-	100% distribution
Substation Structures	-	-	-	-	-	NA
Substations	52,509	-	52,509	-	-	100% distribution
Overhead Lines	118,101	-	118,101	-	-	100% distribution
Overhead Lines-Tree Trimming	64,555	-	64,555	-	-	100% distribution
Underground Lines	22,120	-	22,120	-	-	100% distribution
Underground Locates	139	-	139	-	-	100% distribution
Line Transformers	-	-	-	-	-	NA
Street Lighting	-	-	-	-	-	NA
Security Lighting	5,047	-	5,047	-	-	100% distribution
Meters	42,513	-	42,513	-	-	100% distribution
Other	-	-	-	-	-	NA
Total Maintenance	393,764	-	393,764	-	-	
Other Expenses						
Truck Expense - Operation	4,485	-	4,485	-	-	100% distribution
Total Other Expenses	4,485	-	4,485	-	-	
Customer Accounting Expenses						
Supervision	85,912	-	-	85,912	-	100% customer
Meter Reading	9,872	-	-	9,872	-	100% customer
Customer Billing and Accounting	311,734	-	-	311,734	-	100% customer
Collecting Expense	50	-	-	50	-	100% customer
Uncollectible Accounts	28,450	-	-	28,450	-	100% customer
Miscellaneous Expense	-	-	-	-	-	NA
Customer Service & Information Expense	-	-	-	-	-	NA
Miscellaneous Customer Information	-	-	-	-	-	NA
Total Customer Accounting	436,018	-	-	436,018	-	
Conservation Improvement Programs						
Planning & Evaluation	14,554	14,554	-	-	-	100% power supply
Energy Star Appliance	14,797	14,797	-	-	-	100% power supply
Fluorescent LT Recycling	-	-	-	-	-	NA
Resident/Low Income Conservation	3,821	3,821	-	-	-	100% power supply
Commercial Energy Audits	36,258	36,258	-	-	-	100% power supply
Commercial Industrial Power Grade	104,880	104,880	-	-	-	100% power supply
Load Mgmt Efficiency	-	-	-	-	-	NA

Grand Rapids Public Utilities Commission  
Functionalization of 2021 Test Year Revenue Requirements

REVENUE REQUIREMENT	2021	Power Supply	Distribution	Customer	Revenue	Classification Basis
	Test Year					
Windsense - Admin Exp	-	-	-	-	-	NA
Education	12,004	12,004	-	-	-	100% power supply
Total Conservation Improvement	186,315	186,315	-	-	-	
Administrative and General Expenses						
Administrative & General Salaries	185,594	-	108,259	77,335	-	labor
Commissioner Salaries	8,712	-	5,082	3,630	-	labor
City Treasurer Salary	462	-	269	193	-	labor
General Office Supplies	14,520	-	8,470	6,050	-	labor
Telephone Expense	14,853	-	8,664	6,189	-	labor
Accounting Outside Service	18,463	-	10,770	7,693	-	labor
Data Processing Outside Service	61,628	-	35,949	25,680	-	labor
Legal Outside Service	11,517	-	6,718	4,799	-	labor
Engineering Outside Service	-	-	-	-	-	NA
Other Outside Service	7,070	-	4,124	2,946	-	labor
Fiber Optic Outside Service	-	-	-	-	-	NA
Insurance - Fire	2,415	-	2,415	-	-	100% distribution
Insurance - Liability	26,984	-	26,984	-	-	100% distribution
Insurance - Worker's Compensation	26,125	-	15,239	10,886	-	labor
Insurance - Worker's Comp Deductible	-	-	-	-	-	NA
Insurance - Auto	3,244	-	3,244	-	-	100% distribution
Insurance - Miscellaneous	1,320	-	1,320	-	-	100% distribution
Insurance Claims - Injuries & Damages	-	-	-	-	-	NA
Insurance - Group Health	242,071	-	141,203	100,869	-	labor
Insurance - Group Health Co-insurance	-	-	-	-	-	NA
Insurance - Group Health HSA funding	66,220	-	38,627	27,593	-	labor
Insurance - Group Life	2,395	-	1,397	998	-	labor
Employee Assistance Programs	-	-	-	-	-	NA
Insurance - Group Dental	13,164	-	7,679	5,485	-	labor
Insurance - Third Party Admin Costs	864	-	504	360	-	labor
FICA	-	-	-	-	-	NA
PERA	(107,211)	-	(62,537)	(44,674)	-	labor
Deferred Compensation	-	-	-	-	-	NA
Paid Time Off	215,649	-	125,790	89,859	-	labor
Extended Illness Benefit	10,845	-	6,326	4,519	-	labor
Short-Term Disability Payments	-	-	-	-	-	NA
Insurance - Long Term Disability	10,413	-	6,074	4,339	-	labor
Unemployment Compensation	-	-	-	-	-	NA
Membership - APPA	9,606	-	-	-	9,606	100% revenue
Membership - NEMPA	4,000	-	-	-	4,000	100% revenue
Membership - MMUA	30,426	-	-	-	30,426	100% revenue
Membership - NMMEA	-	-	-	-	-	NA
Membership - Other	-	-	-	-	-	NA
Amortize Service Territory Costs	34,337	-	-	-	34,337	100% revenue
Miscellaneous General Expense	8,067	-	4,706	3,362	-	labor
Office Equip Rental & Maintenance	10,965	-	6,396	4,569	-	labor
Maintenance of General Plant	-	-	-	-	-	NA
Total Administrative and General	934,720	-	513,670	342,681	78,369	
Depreciation	1,040,108	-	1,040,108	-	-	100% distribution
Amortization	79,518	-	79,518	-	-	100% distribution
Total Operating Expenses	15,206,145	11,444,987	2,904,090	778,699	78,369	

Grand Rapids Public Utilities Commission  
Functionalization of 2021 Test Year Revenue Requirements

REVENUE REQUIREMENT	2021	Power Supply	Distribution	Customer	Revenue	Classification Basis
	Test Year					
<b>Non Operating Revenues (Expenses)</b>						
Investment income	15,667	-	-	-	15,667	100% revenue
Penalties	-	-	-	-	-	NA
Gain (loss) on property disposition	(29,861)	-	-	-	(29,861)	100% revenue
Interest expense	(2,996)	-	-	(2,996)	-	100% customer
Grant revenue	84,329	-	-	-	84,329	100% revenue
City land improvements	(393,640)	-	-	-	(393,640)	100% revenue
<b>Total Non-Operating Revenues (Expenses)</b>	<b>(326,501)</b>	<b>-</b>	<b>-</b>	<b>(2,996)</b>	<b>(323,505)</b>	
<b>Other Operating Revenues (Expenses)</b>						
Connection Fees	66,954	-	66,954	-	-	100% distribution
Reconnection Fees	4,980	-	4,980	-	-	100% distribution
Pole rentals	23,577	-	23,577	-	-	100% distribution
23 kV Capacity Lease	35,868	-	35,868	-	-	100% distribution
Merchandising and Jobbing	(226)	-	-	-	(226)	100% revenue
City of Grand Rapids Merch/Jobbing	360	-	-	-	360	100% revenue
Street Light Revenues	9,999	-	9,999	-	-	100% distribution
Equipment Rental	-	-	-	-	-	NA
AFUDC	-	-	-	-	-	NA
Miscellaneous	94,634	-	-	-	94,634	100% revenue
Security Lights	61,567	-	61,567	-	-	100% distribution
Service Center	(123,085)	-	-	-	(123,085)	100% revenue
Lease revenues combined service center	19,593	-	-	-	19,593	100% revenue
Unusual & Extraordinary Expense	54,331	-	-	-	54,331	100% revenue
<b>Total Other Operating Revenues</b>	<b>248,553</b>	<b>-</b>	<b>202,945</b>	<b>-</b>	<b>45,607</b>	
Payment in lieu of taxes	882,288	-	-	-	882,288	100% revenue
Margin	1,520,331	-	-	-	1,520,331	100% revenue
<b>Total Revenue Requirement</b>	<b>\$ 17,686,712</b>	<b>\$ 11,444,987</b>	<b>\$ 2,701,144</b>	<b>\$ 781,695</b>	<b>\$ 2,758,886</b>	

Grand Rapids Public Utilities Commission  
2021 Test Year Power Supply Classification

REVENUE REQUIREMENT	2021 <u>Test Year</u>	Power Supply <u>Demand</u>	Transmission <u>Demand</u>	<u>Energy</u>	<u>Classification Basis</u>
Purchased Power					
MP Purchased Power (Modified)	11,258,673	1,982,838	2,356,067	6,919,767	per power supply
Operation Expenses					
Supervision and Engineering	-	-	-	-	NA
Substations	-	-	-	-	NA
Overhead Lines	-	-	-	-	NA
Underground Lines	-	-	-	-	NA
Locating Expense	-	-	-	-	NA
Street Lighting	-	-	-	-	NA
Security Lighting	-	-	-	-	NA
Meters	-	-	-	-	NA
Customer Installations	-	-	-	-	NA
Mapping Expense	-	-	-	-	NA
Small Tools Expense	-	-	-	-	NA
Safety Expense	-	-	-	-	NA
Seminar/Training Expense	-	-	-	-	NA
Uniforms Expense	-	-	-	-	NA
Miscellaneous Meetings	-	-	-	-	NA
Rentals	-	-	-	-	NA
Stores Expense	-	-	-	-	NA
Total Operation	-	-	-	-	NA
Maintenance Expenses					
Supervision and Engineering	-	-	-	-	NA
Substation Structures	-	-	-	-	NA
Substations	-	-	-	-	NA
Overhead Lines	-	-	-	-	NA
Overhead Lines-Tree Trimming	-	-	-	-	NA
Underground Lines	-	-	-	-	NA
Underground Locates	-	-	-	-	NA
Line Transformers	-	-	-	-	NA
Street Lighting	-	-	-	-	NA
Security Lighting	-	-	-	-	NA
Meters	-	-	-	-	NA
Other	-	-	-	-	NA
Total Maintenance	-	-	-	-	NA
Other Expenses					
Truck Expense - Operation	-	-	-	-	NA
Total Other Expenses	-	-	-	-	NA
Customer Accounting Expenses					
Supervision	-	-	-	-	NA
Meter Reading	-	-	-	-	NA
Customer Billing and Accounting	-	-	-	-	NA
Collecting Expense	-	-	-	-	NA
Uncollectible Accounts	-	-	-	-	NA
Miscellaneous Expense	-	-	-	-	NA
Customer Service & Information Expense	-	-	-	-	NA
Miscellaneous Customer Information	-	-	-	-	NA
Total Customer Accounting	-	-	-	-	NA



Grand Rapids Public Utilities Commission  
2021 Test Year Power Supply Classification

REVENUE REQUIREMENT	2021 <u>Test Year</u>	Power Supply <u>Demand</u>	Transmission <u>Demand</u>	<u>Energy</u>	<u>Classification Basis</u>
Conservation Improvement Programs					
Planning & Evaluation	14,554	-	-	14,554	100% energy
Energy Star Appliance	14,797	-	-	14,797	100% energy
Fluorescent LT Recycling	-	-	-	-	NA
Resident/Low Income Conservation	3,821	-	-	3,821	100% energy
Commercial Energy Audits	36,258	-	-	36,258	100% energy
Commercial Industrial Power Grade	104,880	-	-	104,880	100% energy
Load Mgmt Efficiency	-	-	-	-	NA
Windsense - Admin Exp	-	-	-	-	NA
Education	12,004	-	-	12,004	100% energy
<b>Total Conservation Improvement</b>	<b>186,315</b>	<b>-</b>	<b>-</b>	<b>186,315</b>	
Administrative and General Expenses					
Administrative & General Salaries	-	-	-	-	NA
Commissioner Salaries	-	-	-	-	NA
City Treasurer Salary	-	-	-	-	NA
General Office Supplies	-	-	-	-	NA
Telephone Expense	-	-	-	-	NA
Accounting Outside Service	-	-	-	-	NA
Data Processing Outside Service	-	-	-	-	NA
Legal Outside Service	-	-	-	-	NA
Engineering Outside Service	-	-	-	-	NA
Other Outside Service	-	-	-	-	NA
Fiber Optic Outside Service	-	-	-	-	NA
Insurance - Fire	-	-	-	-	NA
Insurance - Liability	-	-	-	-	NA
Insurance - Worker's Compensation	-	-	-	-	NA
Insurance - Worker's Comp Deductible	-	-	-	-	NA
Insurance - Auto	-	-	-	-	NA
Insurance - Miscellaneous	-	-	-	-	NA
Insurance Claims - Injuries & Damages	-	-	-	-	NA
Insurance - Group Health	-	-	-	-	NA
Insurance - Group Health Co-insurance	-	-	-	-	NA
Insurance - Group Health HSA funding	-	-	-	-	NA
Insurance - Group Life	-	-	-	-	NA
Employee Assistance Programs	-	-	-	-	NA
Insurance - Group Dental	-	-	-	-	NA
Insurance - Third Party Admin Costs	-	-	-	-	NA
FICA	-	-	-	-	NA
PERA	-	-	-	-	NA
Deferred Compensation	-	-	-	-	NA
Paid Time Off	-	-	-	-	NA
Extended Illness Benefit	-	-	-	-	NA
Short-Term Disability Payments	-	-	-	-	NA
Insurance - Long Term Disability	-	-	-	-	NA
Unemployment Compensation	-	-	-	-	NA
Membership - APPA	-	-	-	-	NA
Membership - NEMPA	-	-	-	-	NA
Membership - MMUA	-	-	-	-	NA
Membership - NMMEA	-	-	-	-	NA
Membership - Other	-	-	-	-	NA
Amortize Service Territory Costs	-	-	-	-	NA
Miscellaneous General Expense	-	-	-	-	NA
Office Equip Rental & Maintenance	-	-	-	-	NA

Grand Rapids Public Utilities Commission  
2021 Test Year Power Supply Classification

REVENUE REQUIREMENT	2021 <u>Test Year</u>	Power Supply <u>Demand</u>	Transmission <u>Demand</u>	<u>Energy</u>	<u>Classification Basis</u>
Maintenance of General Plant	-	-	-	-	NA
Total Administrative and General	-	-	-	-	NA
Depreciation	-	-	-	-	NA
Amortization	-	-	-	-	NA
Total Operating Expenses	11,444,987	1,982,838	2,356,067	7,106,082	
Non Operating Revenues (Expenses)					
Investment income	-	-	-	-	NA
Penalties	-	-	-	-	NA
Gain (loss) on property disposition	-	-	-	-	NA
Interest expense	-	-	-	-	NA
Grant revenue	-	-	-	-	NA
City land improvements	-	-	-	-	NA
Total Non-Operating Revenues (Expenses)	-	-	-	-	NA
Other Operating Revenues (Expenses)					
Connection Fees	-	-	-	-	NA
Reconnection Fees	-	-	-	-	NA
Pole rentals	-	-	-	-	NA
23 kV Capacity Lease	-	-	-	-	NA
Merchandising and Jobbing	-	-	-	-	NA
City of Grand Rapids Merch/Jobbing	-	-	-	-	NA
Street Light Revenues	-	-	-	-	NA
Equipment Rental	-	-	-	-	NA
AFUDC	-	-	-	-	NA
Miscellaneous	-	-	-	-	NA
Security Lights	-	-	-	-	NA
Service Center	-	-	-	-	NA
Lease revenues combined service center	-	-	-	-	NA
Unusual & Extraordinary Expense	-	-	-	-	NA
Total Other Operating Revenues	-	-	-	-	
Payment in lieu of taxes	-	-	-	-	NA
Margin	-	-	-	-	NA
Total Revenue Requirement	\$ 11,444,987	\$ 1,982,838	\$ 2,356,067	\$ 7,106,082	

Grand Rapids Public Utilities Commission  
2021 Test Year Distribution Classification

REVENUE REQUIREMENT	2021 <u>Test Year</u>	<u>Demand</u>	Customer <u>Facilities</u>	<u>Classification Basis</u>
Purchased Power				
MP Purchased Power (Modified)	-	-	-	NA
Operation Expenses				
Supervision and Engineering	88,820	60,851	27,969	Dist/Cust split
Substations	6,334	6,334	-	100% Dist demand
Overhead Lines	131,601	90,161	41,440	Dist/Cust split
Underground Lines	231,225	158,414	72,811	Dist/Cust split
Locating Expense	37,924	-	37,924	100% Cust facilities
Street Lighting	3,176	-	3,176	100% Cust facilities
Security Lighting	53	-	53	100% Cust facilities
Meters	75,208	-	75,208	100% Cust facilities
Customer Installations	22,802	-	22,802	100% Cust facilities
Mapping Expense	47,363	-	47,363	100% Cust facilities
Small Tools Expense	30,801	21,102	9,699	Dist/Cust split
Safety Expense	30,613	20,973	9,640	Dist/Cust split
Seminar/Training Expense	11,401	7,811	3,590	Dist/Cust split
Uniforms Expense	12,681	8,688	3,993	Dist/Cust split
Miscellaneous Meetings	40,838	27,978	12,859	Dist/Cust split
Rentals	3,118	2,136	982	Dist/Cust split
Stores Expense	98,587	67,543	31,044	Dist/Cust split
Total Operation	872,545	471,992	400,553	
Maintenance Expenses				
Supervision and Engineering	88,780	88,780	-	100% Dist demand
Substation Structures	-	-	-	NA
Substations	52,509	52,509	-	100% Dist demand
Overhead Lines	118,101	80,912	37,189	Dist/Cust split
Overhead Lines-Tree Trimming	64,555	44,228	20,328	Dist/Cust split
Underground Lines	22,120	15,155	6,965	Dist/Cust split
Underground Locates	139	-	139	100% Cust facilities
Line Transformers	-	-	-	NA
Street Lighting	-	-	-	NA
Security Lighting	5,047	-	5,047	100% Cust facilities
Meters	42,513	-	42,513	100% Cust facilities
Other	-	-	-	NA
Total Maintenance	393,764	281,583	112,181	
Other Expenses				
Truck Expense - Operation	4,485	3,073	1,412	Dist/Cust split
Total Other Expenses	4,485	3,073	1,412	
Customer Accounting Expenses				
Supervision	-	-	-	NA
Meter Reading	-	-	-	NA
Customer Billing and Accounting	-	-	-	NA
Collecting Expense	-	-	-	NA
Uncollectible Accounts	-	-	-	NA
Miscellaneous Expense	-	-	-	NA
Customer Service & Information Expense	-	-	-	NA

Grand Rapids Public Utilities Commission  
2021 Test Year Distribution Classification

REVENUE REQUIREMENT	2021 <u>Test Year</u>	<u>Demand</u>	Customer <u>Facilities</u>	<u>Classification Basis</u>
Miscellaneous Customer Information	-	-	-	NA
Total Customer Accounting	-	-	-	
Conservation Improvement Programs				
Planning & Evaluation	-	-	-	NA
Energy Star Appliance	-	-	-	NA
Fluorescent LT Recycling	-	-	-	NA
Resident/Low Income Conservation	-	-	-	NA
Commercial Energy Audits	-	-	-	NA
Commercial Industrial Power Grade	-	-	-	NA
Load Mgmt Efficiency	-	-	-	NA
Windsense - Admin Exp	-	-	-	NA
Education	-	-	-	NA
Total Conservation Improvement	-	-	-	
Administrative and General Expenses				
Administrative & General Salaries	108,259	58,046	50,213	labor
Commissioner Salaries	5,082	2,725	2,357	labor
City Treasurer Salary	269	144	125	labor
General Office Supplies	8,470	4,541	3,928	labor
Telephone Expense	8,664	4,645	4,019	labor
Accounting Outside Service	10,770	7,378	3,391	Dist/Cust split
Data Processing Outside Service	35,949	24,629	11,320	Dist/Cust split
Legal Outside Service	6,718	4,603	2,115	Dist/Cust split
Engineering Outside Service	-	-	-	NA
Other Outside Service	4,124	2,825	1,299	Dist/Cust split
Fiber Optic Outside Service	-	-	-	NA
Insurance - Fire	2,415	1,654	760	Dist/Cust split
Insurance - Liability	26,984	18,487	8,497	Dist/Cust split
Insurance - Worker's Compensation	15,239	10,440	4,799	Dist/Cust split
Insurance - Worker's Comp Deductible	-	-	-	NA
Insurance - Auto	3,244	1,739	1,505	labor
Insurance - Miscellaneous	1,320	708	612	labor
Insurance Claims - Injuries & Damages	-	-	-	labor
Insurance - Group Health	141,203	75,709	65,493	labor
Insurance - Group Health Co-insurance	-	-	-	NA
Insurance - Group Health HSA funding	38,627	20,711	17,916	labor
Insurance - Group Life	1,397	749	648	labor
Employee Assistance Programs	-	-	-	NA
Insurance - Group Dental	7,679	4,117	3,562	labor
Insurance - Third Party Admin Costs	504	270	234	labor
FICA	-	-	-	labor
PERA	(62,537)	(33,531)	(29,006)	labor
Deferred Compensation	-	-	-	labor
Paid Time Off	125,790	67,446	58,345	labor
Extended Illness Benefit	6,326	3,392	2,934	labor
Short-Term Disability Payments	-	-	-	NA
Insurance - Long Term Disability	6,074	3,257	2,817	labor
Unemployment Compensation	-	-	-	NA
Membership - APPA	-	-	-	NA

Grand Rapids Public Utilities Commission  
2021 Test Year Distribution Classification

REVENUE REQUIREMENT	2021 <u>Test Year</u>	<u>Demand</u>	Customer <u>Facilities</u>	<u>Classification Basis</u>
Membership - NEMPA	-	-	-	NA
Membership - MMUA	-	-	-	NA
Membership - NMMEA	-	-	-	NA
Membership - Other	-	-	-	NA
Amortize Service Territory Costs	-	-	-	NA
Miscellaneous General Expense	4,706	3,224	1,482	Dist/Cust split
Office Equip Rental & Maintenance	6,396	4,382	2,014	Dist/Cust split
Maintenance of General Plant	-	-	-	NA
<b>Total Administrative and General</b>	<b>513,670</b>	<b>292,291</b>	<b>221,379</b>	
 Depreciation	 1,040,108	 712,588	 327,520	 Dist/Cust split
 Amortization	 79,518	 54,479	 25,039	 Dist/Cust split
 <b>Total Operating Expenses</b>	 <b>2,904,090</b>	 <b>1,816,005</b>	 <b>1,088,085</b>	
 Non Operating Revenues (Expenses)				
Investment income	-	-	-	NA
Penalties	-	-	-	NA
Gain (loss) on property disposition	-	-	-	NA
Interest expense	-	-	-	NA
Grant revenue	-	-	-	NA
City land improvements	-	-	-	NA
<b>Total Non-Operating Revenues (Expenses)</b>	<b>-</b>	<b>-</b>	<b>-</b>	
 Other Operating Revenues (Expenses)				
Connection Fees	66,954	-	66,954	100% Cust facilities
Reconnection Fees	4,980	-	4,980	100% Cust facilities
Pole rentals	23,577	23,577	-	100% Dist demand
23 kV Capacity Lease	35,868	35,868	-	100% Dist demand
Merchandising and Jobbing	-	-	-	NA
City of Grand Rapids Merch/Jobbing	-	-	-	NA
Street Light Revenues	9,999	-	9,999	100% Cust facilities
Equipment Rental	-	-	-	NA
AFUDC	-	-	-	NA
Miscellaneous	-	-	-	NA
Security Lights	61,567	-	61,567	100% Cust facilities
Service Center	-	-	-	NA
Lease revenues combined service center	-	-	-	NA
Unusual & Extraordinary Expense	-	-	-	NA
<b>Total Other Operating Revenues</b>	<b>202,945</b>	<b>59,445</b>	<b>143,500</b>	
 Payment in lieu of taxes	 -	 -	 -	 NA
 Margin	 -	 -	 -	 NA
 <b>Total Revenue Requirement</b>	 <b>\$ 2,701,144</b>	 <b>\$ 1,756,560</b>	 <b>\$ 944,585</b>	

Grand Rapids Public Utilities Commission  
2021 Test Year Customer Classification

REVENUE REQUIREMENT	2021 <u>Test Year</u>	<u>Customer</u>	<u>Classification Basis</u>
Purchased Power			
MP Purchased Power (Modified)	-	-	NA
Operation Expenses			
Supervision and Engineering	-	-	NA
Substations	-	-	NA
Overhead Lines	-	-	NA
Underground Lines	-	-	NA
Locating Expense	-	-	NA
Street Lighting	-	-	NA
Security Lighting	-	-	NA
Meters	-	-	NA
Customer Installations	-	-	NA
Mapping Expense	-	-	NA
Small Tools Expense	-	-	NA
Safety Expense	-	-	NA
Seminar/Training Expense	-	-	NA
Uniforms Expense	-	-	NA
Miscellaneous Meetings	-	-	NA
Rentals	-	-	NA
Stores Expense	-	-	NA
Total Operation	-	-	
Maintenance Expenses			
Supervision and Engineering	-	-	NA
Substation Structures	-	-	NA
Substations	-	-	NA
Overhead Lines	-	-	NA
Overhead Lines-Tree Trimming	-	-	NA
Underground Lines	-	-	NA
Underground Locates	-	-	NA
Line Transformers	-	-	NA
Street Lighting	-	-	NA
Security Lighting	-	-	NA
Meters	-	-	NA
Other	-	-	NA
Total Maintenance	-	-	
Other Expenses			
Truck Expense - Operation	-	-	NA
Total Other Expenses	-	-	
Customer Accounting Expenses			
Supervision	85,912	85,912	100% Customer
Meter Reading	9,872	9,872	100% Customer
Customer Billing and Accounting	311,734	311,734	100% Customer
Collecting Expense	50	50	100% Customer
Uncollectible Accounts	28,450	28,450	100% Customer
Miscellaneous Expense	-	-	NA

Grand Rapids Public Utilities Commission  
2021 Test Year Customer Classification

REVENUE REQUIREMENT	2021 <u>Test Year</u>	<u>Customer</u>	<u>Classification Basis</u>
Customer Service & Information Expense	-	-	NA
Miscellaneous Customer Information	-	-	NA
Total Customer Accounting	<u>436,018</u>	<u>436,018</u>	
Conservation Improvement Programs			
Planning & Evaluation	-	-	NA
Energy Star Appliance	-	-	NA
Fluorescent LT Recycling	-	-	NA
Resident/Low Income Conservation	-	-	NA
Commercial Energy Audits	-	-	NA
Commercial Industrial Power Grade	-	-	NA
Load Mgmt Efficiency	-	-	NA
Windsense - Admin Exp	-	-	NA
Education	-	-	NA
Total Conservation Improvement	<u>-</u>	<u>-</u>	
Administrative and General Expenses			
Administrative & General Salaries	77,335	77,335	100% Customer
Commissioner Salaries	3,630	3,630	100% Customer
City Treasurer Salary	193	193	100% Customer
General Office Supplies	6,050	6,050	100% Customer
Telephone Expense	6,189	6,189	100% Customer
Accounting Outside Service	7,693	7,693	100% Customer
Data Processing Outside Service	25,680	25,680	100% Customer
Legal Outside Service	4,799	4,799	100% Customer
Engineering Outside Service	-	-	NA
Other Outside Service	2,946	2,946	100% Customer
Fiber Optic Outside Service	-	-	NA
Insurance - Fire	-	-	NA
Insurance - Liability	-	-	NA
Insurance - Worker's Compensation	10,886	10,886	100% Customer
Insurance - Worker's Comp Deductible	-	-	NA
Insurance - Auto	-	-	NA
Insurance - Miscellaneous	-	-	NA
Insurance Claims - Injuries & Damages	-	-	NA
Insurance - Group Health	100,869	100,869	100% Customer
Insurance - Group Health Co-insurance	-	-	NA
Insurance - Group Health HSA funding	27,593	27,593	100% Customer
Insurance - Group Life	998	998	100% Customer
Employee Assistance Programs	-	-	NA
Insurance - Group Dental	5,485	5,485	100% Customer
Insurance - Third Party Admin Costs	360	360	100% Customer
FICA	-	-	NA
PERA	(44,674)	(44,674)	100% Customer
Deferred Compensation	-	-	NA
Paid Time Off	89,859	89,859	100% Customer
Extended Illness Benefit	4,519	4,519	100% Customer
Short-Term Disability Payments	-	-	NA
Insurance - Long Term Disability	4,339	4,339	100% Customer
Unemployment Compensation	-	-	NA

Grand Rapids Public Utilities Commission  
2021 Test Year Customer Classification

	2021 <u>Test Year</u>	<u>Customer</u>	<u>Classification Basis</u>
REVENUE REQUIREMENT			
Membership - APPA	-	-	NA
Membership - NEMPA	-	-	NA
Membership - MMUA	-	-	NA
Membership - NMMEA	-	-	NA
Membership - Other	-	-	NA
Amortize Service Territory Costs	-	-	NA
Miscellaneous General Expense	3,362	3,362	100% Customer
Office Equip Rental & Maintenance	4,569	4,569	100% Customer
Maintenance of General Plant	-	-	NA
Total Administrative and General	<u>342,681</u>	<u>342,681</u>	
Depreciation	-	-	NA
Amortization	-	-	NA
Total Operating Expenses	778,699	778,699	
Non Operating Revenues (Expenses)			
Investment income	-	-	NA
Penalties	-	-	NA
Gain (loss) on property disposition	-	-	NA
Interest expense	(2,996)	(2,996)	100% Customer
Grant revenue	-	-	NA
City land improvements	-	-	NA
Total Non-Operating Revenues (Expenses)	<u>(2,996)</u>	<u>(2,996)</u>	
Other Operating Revenues (Expenses)			
Connection Fees	-	-	NA
Reconnection Fees	-	-	NA
Pole rentals	-	-	NA
23 kV Capacity Lease	-	-	NA
Merchandising and Jobbing	-	-	NA
City of Grand Rapids Merch/Jobbing	-	-	NA
Street Light Revenues	-	-	NA
Equipment Rental	-	-	NA
AFUDC	-	-	NA
Miscellaneous	-	-	NA
Security Lights	-	-	NA
Service Center	-	-	NA
Lease revenues combined service center	-	-	NA
Unusual & Extraordinary Expense	-	-	NA
Total Other Operating Revenues	<u>-</u>	<u>-</u>	
Payment in lieu of taxes	-	-	NA
Margin	-	-	NA
Total Revenue Requirement	\$ 781,695	\$ 781,695	



Grand Rapids Public Utilities Commission  
2021 Test Year Allocation Factors

Demand Allocation Factors	<u>Total</u>	<u>Residential</u>	<u>Commercial</u>	<u>Demand &amp; Energy</u>	<u>Industrial</u>	<u>Load Management</u>	<u>Lighting</u>
12 Coincident Peak (kW)	266,679	73,071	49,794	111,743	26,055	4,618	1,397
12 CP	100.0%	27.4%	18.7%	41.9%	9.8%	1.7%	0.5%
1 Non-coincident Peak (kW)	31,028	8,877	5,466	10,753	2,927	1,736	1,268
1 NCP	100.0%	28.6%	17.6%	34.7%	9.4%	5.6%	4.1%
Sum of Max Demands (kW)	498,746	232,924	74,456	136,698	29,003	19,913	5,752
SMD	100.0%	46.7%	14.9%	27.4%	5.8%	4.0%	1.2%
Energy Allocation Factors							
Energy Requirements (kWh)	152,478,992	47,153,459	24,932,835	57,322,789	17,180,351	4,801,046	1,088,512
E	100.0%	30.9%	16.4%	37.6%	11.3%	3.1%	0.7%
Customers							
Number of Customers	7,410	5,736	1,114	103	7	323	128
Customer Facility Weight		1.0	1.5	25.0	100.0	1.5	1.0
Customer Service Weight		1.0	2.0	4.0	5.0	0.5	0.5
Customer Facilities Allocation Factor							
Weighted Number of Cust	11,283	5,736	1,670	2,565	700	485	128
CF	100.0%	50.8%	14.8%	22.7%	6.2%	4.3%	1.1%
Customer Service Allocation Factor							
Weighted Number of Cust	8,634	5,736	2,227	410	35	162	64
CS	100.0%	66.4%	25.8%	4.8%	0.4%	1.9%	0.7%
Revenue Allocator							
Sum of Other Rev Reqs	14,927,826	4,849,388	2,624,205	5,394,343	1,448,396	449,533	161,960
R	100.0%	32.5%	17.6%	36.1%	9.7%	3.0%	1.1%

Grand Rapids Public Utilities Commission  
2021 Test Year Allocation of Revenue Requirements

	<u>Total</u>	<u>Residential</u>	<u>Commercial</u>	<u>Demand &amp; Energy</u>	<u>Industrial</u>	<u>Load Management</u>	<u>Lighting</u>	<u>Allocation Factor</u>
<u>Power Supply</u>								
Power Supply Demand	1,982,838	543,306	370,235	830,840	193,728	34,340	10,389	12 CP
Transmission Demand	2,356,067	645,572	439,924	987,229	230,194	40,803	12,345	12 CP
Energy	7,106,082	2,197,525	1,161,962	2,671,453	800,668	223,746	50,729	E
Total Power Supply	11,444,987	3,386,402	1,972,121	4,489,522	1,224,590	298,889	73,462	
<u>Distribution</u>								
Demand	1,756,560	502,531	309,434	608,774	165,708	98,303	71,809	1 NCP
Customer Facilities	944,585	441,138	141,014	258,895	54,929	37,714	10,894	SMD
Total Distribution	2,701,144	943,670	450,448	867,669	220,637	136,017	82,703	
<u>Customer</u>								
Customer Service	781,695	519,316	201,636	37,152	3,169	14,626	5,795	CS
Total Customer Facility	781,695	519,316	201,636	37,152	3,169	14,626	5,795	
<u>Revenue</u>								
Operating Expenses	78,369	25,459	13,777	28,320	7,604	2,360	850	R
Non-Operating Revenue	323,505	105,092	56,870	116,902	31,389	9,742	3,510	R
Other Operating Revenue	(45,607)	(14,816)	(8,017)	(16,481)	(4,425)	(1,373)	(495)	R
Payment in lieu of taxes	882,288	286,616	155,100	318,825	85,605	26,569	9,572	R
Margin	1,520,331	493,888	267,263	549,389	147,513	45,783	16,495	R
Total Revenue	2,758,886	896,240	484,992	996,955	267,685	83,080	29,933	
Total Revenue Requirements	17,686,712	5,745,628	3,109,198	6,391,298	1,716,082	532,613	191,893	
Total Revenues	17,686,712	6,032,191	3,178,573	6,267,250	1,653,087	347,399	208,213	
Percent Revenue Requirements	100.0%	32.5%	17.6%	36.1%	9.7%	3.0%	1.1%	
Percent Revenues	100.0%	34.1%	18.0%	35.4%	9.3%	2.0%	1.2%	
Percent Change	0.0%	-4.8%	-2.2%	2.0%	3.8%	53.3%	-7.8%	
Revenue Req/kWh	0.116	0.122	0.125	0.111	0.100	0.111	0.176	
Revenue/kWh	0.116	0.128	0.127	0.109	0.096	0.072	0.191	

## **Section 4**

# **Proposed Rates**

Changes to rates are generally based on the overall need for revenues and results of the cost-of-service and unbundled cost analyses. The projected operating results at existing rates as presented in Section 2 of this report outlines the overall revenue needs of the electric utility. Section 3 summarizes the cost-of-service results. These factors have been considered in developing the rate proposals summarized in this section of the report.

### **Proposed Rates**

#### ***Revenue Needs***

Based on the current projections for the electric utility, an overall 1% increase in published base rate in 2023 is recommended. There are specific rate recommendations described below for the electric utility.

#### ***Purchased Power Adjustment Clause***

GRPUC's bills from MP currently include a monthly energy cost adjustment and certain pass-through charges from the Midwest Independent System Operator (MISO). These charges vary from month to month and are not generally predictable. GRPUC utilizes a Purchased Power Adjustment Clause (PPAC) as part of its retail rates to automatically adjust retail bills to account for these charges. In its current form, GRPUC does a straight pass through of the MP energy adjustment and only certain portions of the MISO charges. GRPUC's new wholesale power agreement with MP has a wholesale energy adjustment that is applicable to only a portion of the energy usage by GRPUC. It is not appropriate to pass this charge to all retail kWh sold on a per kWh basis. Additionally, all the MISO charges are outside GRPUC's control. It is recommended that a new PPAC formula be adopted for GRPUC retail rates beginning Jan. 1, 2023.

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This formula can be used to calculate a PPAC at the beginning of each year based on forecasted values provided by MP every fall.

Proposed formula:

$$\text{PPAC} = \left( \frac{EAC + MISO}{WE \times 0.959} - 0.0120 \right)$$

Where:

- PPAC is the power cost adjustment per kWh.
- EAC is the projected annual base energy adjustment cost in dollars.
- MISO is the projected annual transmission charges in dollars
- WE is the projected annual wholesale energy in kWh.
- 0.959 is a loss adjustment
- 0.0120 is the base dollars per kWh.

Table 4-1 shows the projected PPAC values for 2023-2027 as well as the current PPAC as set for 2022 at the beginning of the year. As shown in the table below, the proposed PPAC for 2023 is \$0.00752/kWh less than the current value. Combined with the 1% increase recommended above, total average bills for all customers will decrease approximately 5.4% from 2022 to 2023. Beyond 2023, the changes in customer bills, assuming published rates do not change further, will be dependent on changes in the wholesale base energy adjustment from MP and in the MISO transmission costs.

**Table 4-1**  
**PPAC Comparison**  
(\$/kWh)

Year	Present Formula	Proposed Formula
2022	0.01583	n/a
2023	n/a	0.00831
2024	n/a	0.01237
2025	n/a	0.01497
2026	n/a	0.01761
2027	n/a	0.02027

***Rate Adjustments***

The cost-of-service results for the four major groups of customers (residential, commercial, demand & energy and industrial), show that overall distribution of revenues as compared to allocated revenue requirements by class were within an acceptable range. These four groups of customers account for 97% of total GRPUC revenues from sales to customers. No overall change in the distribution of revenues among these four groups of customers is recommended at this time. Exhibit 4-A lists the existing and proposed rates through 2027. The proposed 2023 rates reflect the 1% increase recommended above. Certain rates as described below have additional recommended changes beyond the 1% increase.

***Load Management Rates***

In the cost-of-service results, it indicates that the load management rates are underpaying by slightly more than 50%. This is a relatively small group of customers,

## Section 4

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only 2% of total revenues are collected from these customers. In the last study these customers were underpaying by 16%. The dramatic change in results for these customers is due to the change in the MP wholesale structure under the new contract. Load management customers receive a lower energy charge because they allow for curtailment of their use during peak times which allows GRPUC to avoid wholesale demand charges from MP. Under the new MP contract, the incremental wholesale demand charge dropped by more than 80% which limits the savings to GRPUC of interruptible customer loads. Additionally, the energy charges under the new contract have increased by more than 100%, the load management customers are primarily served energy during off-peak times. GRPUC has 9 rate different groups of Residential and Commercial load management customers. It is recommended that the energy rates associated with load management rates be increased over a three-year period. Additionally, there are currently two groups of load management customers with two separate energy rates. The recommendation also includes equalizing these rates over the period of increases. Table 4-2 summarizes the load management rate recommendations.

**Table 4-2**  
**Load Management Energy Rates**

<b>Customer Groups</b>	<b>Current Rate</b>	<b>Proposed 2023</b>	<b>Proposed 2024</b>	<b>Proposed 2025</b>
<u>Off Peak Heat/Cool</u>				
Customer Charge (\$/mo)	8.25	8.40	8.40	8.40
Energy Charge (\$/kWh)	0.0648	0.0699	0.0750	0.0800
<u>Storage Heat</u>				
Customer Charge (\$/mo)	8.25	8.40	8.40	8.40
Energy Charge (\$/kWh)	0.0545	0.0630	0.0715	0.0800

### *Electric Vehicle Charging*

Utilities like GRPUC are beginning to see electric vehicles (EVs) enter their service territories. Customers who drive EVs are interested in special electric rate plans that help them control their costs by charging during periods of lower electricity pricing. GRPUC recently implemented TOU rates for EV charging. There are three scenarios examined for EV charging specific rates for GRPUC which are consistent with the existing rates. They are:

- (1) At home charging
- (2) Commercial charging at an existing customer location
- (3) Stand-alone commercial charging

For each of these options, a new proposed TOU rate has been developed for EV application. In each of these options, a new separate meter with TOU capabilities would be required to measure EV charging usage only. For options (1) and (2) shown above, an existing residential or commercial customer would add EV charging capabilities at their existing location. There would be a separate customer charge with TOU based energy charges as shown in Table 4-3 below. For these customers, they currently have an additional \$4.10 per month customer charge related to the EV usage meter. The proposed on-peak rate shown below matches the on-peak rate listed later in this section in the example residential TOU rate. The proposed off-peak rate for EV charging is less than the TOU rate discussed below and represents an incremental cost rate design as opposed to a shifted energy usage off-peak rate as shown in the residential TOU rate. The off-peak period for EV charging is set as 10 p.m. to 8 a.m. M-F and all day weekends. For a stand-alone commercial EV charger, option (3) above, the energy rates would be the same as for existing customers, but the customer charge is kept higher as established for the existing rate. Existing customers continue to have the option of adding charging facilities at their current location without a separate meter and pay for the EV charging consumption at their regular rate. The proposed energy

## Section 4

rates have been increased to reflect the higher energy rates in the new MP wholesale contract.

**Table 4-3**  
**EV Charging Rate**

Item	GRPUC Existing Rate	GRPUC Proposed Rate
Customer charge	\$4.10/mo. – existing cust \$26.00/mo – stand alone	\$4.15/mo. – existing cust \$26.25/mo – stand alone
On-peak Energy <sup>(1)</sup>	\$0.1515/kWh	\$0.1612/kWh
Off-peak Energy	\$0.0422/kWh	\$0.055/kWh

(1) On-peak – 8 a.m. to 10 p.m. Monday through Friday

### *Projected Operating Results – Proposed Rates*

Table 4-4 below summarizes the revised projected operating results with all rate adjustments explained above. Exhibit 4-B presents a more detailed version of the operating results at proposed rates.

**Table 4-4**  
**Projected Operating Results**  
**Proposed Rates**

Year	2022	2023	2024	2025	2026	2027
Operating Revenues	\$19,061,765	\$18,643,123	\$19,528,577	\$20,188,960	\$20,838,121	\$21,504,175
Less Operating Expenses	(15,133,717)	(16,471,822)	(17,535,707)	(18,642,543)	(19,600,947)	(20,298,209)
Less Non -Operating Expenses	<u>(1,075,942)</u>	<u>(1,045,042)</u>	<u>(1,040,785)</u>	<u>(1,032,921)</u>	<u>(1,018,496)</u>	<u>(1,020,896)</u>
Net Income	2,852,105	1,126,259	952,084	513,496	218,678	185,070
Net Income as Percent of Revenues	15.0%	6.0%	4.9%	2.5%	1.0%	0.9%



## Proposed Rates

### *Cash Reserves – Proposed Rates*

A summary of the impact of the proposed rates on GRPUC’s cash reserves for the Study Period is shown in Table 4-5 below, it is also shown at the bottom of Exhibit 4-B.

As shown below, under the proposed rate revisions, the Study Period cash reserve level increases from 22% of revenues at the end of 2022 to 30% of revenues by 2027.

**Table 4-5**  
**Projected Cash Reserves**  
**Proposed Rates**

Year	2022	2023	2024	2025	2026	2027
Beginning Balance	\$1,520,146	\$4,118,902	\$4,716,083	\$5,506,199	\$5,934,009	\$6,231,949
Plus Net Income	2,852,105	1,126,259	952,084	513,496	218,678	185,070
Less Capital Improvements	(950,607)	(1,176,840)	(929,440)	(883,440)	(884,440)	(886,440)
Less ERP Proj Costs	-	(80,833)	-	-	-	-
Plus Deprec/Amort	910,382	942,069	981,297	1,012,278	1,041,726	1,071,208
Less Debt Principal	(135,100)	(135,450)	(135,800)	(136,500)	-	-
Less LCP Payment	<u>(78,024)</u>	<u>(78,024)</u>	<u>(78,024)</u>	<u>(78,024)</u>	<u>(78,024)</u>	<u>(78,024)</u>
Ending Balance	\$4,118,902	\$4,716,083	\$5,506,199	\$5,934,009	\$6,231,949	\$6,523,763
As a percent of revenue	21.6%	25.3%	28.2%	29.4%	29.9%	30.3%

## Section 4

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### *Neighboring Utilities*

As part of its rate setting strategy, GRPUC compares its rates to other utilities to gauge its relative competitive position. GRPUC buys its wholesale power from MP, but MP also serves retail customers in numerous northern Minnesota cities. MP is rate regulated by the Minnesota State Public Utilities Commission ('MPUC'). Lake Country Power ('LCP') is the rural electric cooperative that serves rural areas around Grand Rapids. Also, a comparison has been prepared for the City of Brainerd, MN municipal utility as well. Tables 4-6, 4-7 and 4-8 below summarize the residential rates for MP, LCP and Brainerd. The rates shown for MP are the current rate and an estimated rate based on their recent approval by the MPUC for a 7.115% interim rate increase.

**Table 4-6**  
**Minnesota Power**  
**Residential Rates**

<b>Rate Component</b>	<b>Current Rate</b>	<b>Interim Rate</b>
Service Charge	\$8.00/mo	\$8.56/mo
Affordability Surcharge	\$1.03/mo	\$1.03/mo
Energy Charge (all kWh)	\$0.08384/kWh	\$0.08981/kWh
Resource Adjustment (all kWh)	\$0.03427/kWh	\$0.03427/kWh
Conservation Adjustment (all kWh)	\$0.002002/kWh	\$0.002002/kWh
Renewable Adjustment (all kWh)	\$0.00178/kWh	\$0.00178/kWh
Transmission Adjustment (all kWh)	\$0.00742/kWh	\$0.00742/kWh
Duluth Franchise Fee (% of bill)	3.0%	3.0%

**Table 4-7  
Lake Country Power  
Residential Rates**

<b>Rate Component</b>	<b>Rate</b>
Facilities Charge	\$42.00/mo
Summer Energy Charge (all kWh)	\$0.1503/kWh
Winter Energy Charge (all kWh)	\$0.1403/kWh
Fall/Spring Energy Charge (all kWh)	\$0.1303/kWh

**Table 4-8  
Brainerd, MN  
Residential Rates**

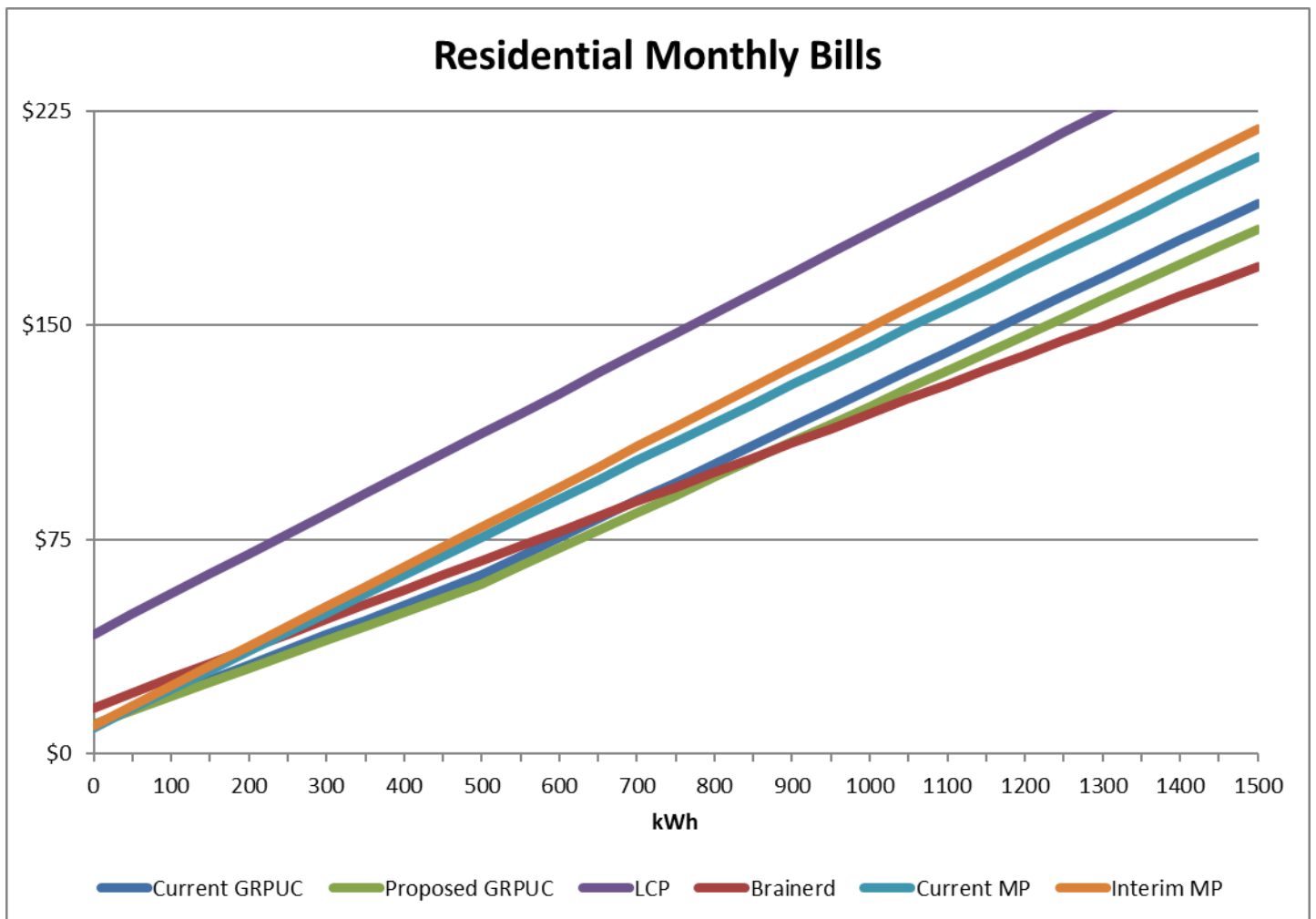
<b>Rate Component</b>	<b>Rate</b>
Facilities Charge	\$16.25/mo
Energy Charge (all kWh)	\$0.0858/kWh
Purchased Power Adjustment (all kWh)	\$0.017/kWh

As shown above, the MP residential rate has a monthly charge plus a monthly surcharge. MP now has a single residential energy rate. There are four separate energy adjustments applied to all energy. MP also pays various levels of franchise fees in the communities it serves. The 3.0% of total bill franchise fee for Duluth was used as a representative fee (these can range from 1%-4% of a typical residential bill). The LCP rates have a single monthly customer charge with energy charges that vary by season. For the comparisons made, a weighted average annual rate of \$0.1403/kWh was utilized for LCP. Brainerd's residential rate includes a monthly customer charge, a single energy charge and a purchased power adjustment.

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Figure 4-1 below is a graphical representation of estimated residential bills for GRPUC existing and proposed 2020 rate, plus MP existing and interim rate and existing rates for LCP and Brainerd. Table 4-9 following the graph shows estimated monthly bills at representative monthly residential energy usage levels.

**Figure 4-1  
Bill Comparison Graph**



**Table 4-9  
Monthly Bill Comparison  
Residential Rates**

<b>Monthly Consumption kWh</b>	<b>GRPUC existing</b>	<b>GRPUC 2023 Proposed</b>	<b>LCP Existing</b>	<b>Brainerd Existing</b>	<b>MP Existing</b>	<b>MP Interim</b>
300	\$41.64	\$39.89	\$84.09	\$44.69	\$49.26	\$51.68
700	88.61	84.39	140.21	82.61	102.53	107.42
1000	127.68	121.66	182.30	111.05	142.49	149.22
1250	160.24	152.71	217.38	134.75	175.79	184.05
1500	192.80	183.76	252.45	158.45	209.09	218.89

***Time of Use Considerations***

In order to give customers an incentive to move consumption of electricity away from more expensive on-peak periods to cheaper off-peak periods, some utilities have instituted time-of-use (TOU) or time-of-day (TOD) rates. Under a TOU structure, electric rates are higher during defined on-peak periods and lower during off-peak periods. For utilities that have a direct tie to hourly wholesale market prices, the market differentials during on-peak versus off-peak periods can provide guidance for design of TOU rates. For a utility like GRPUC that purchases wholesale based on an all-requirements contract with fixed demand and energy pricing, a different approach to TOU pricing can be adopted. Working with staff, we have developed a residential TOU rate to demonstrate an approach to TOU ratemaking. The on-peak period has been set at 8 a.m. to 8 p.m. Monday through Friday. Off-peak would be all other hours. Based on AMI data for the residential customers, on-peak usage accounts for 39% of total residential usage. The rate has been designed based on the current residential customer charge and a 2 to 1 ratio of on-peak pricing to off-peak pricing. The ratio between pricing period rates was assumed to be high enough to give customers incentive to move consumption to off-peak periods without too excessive of a penalty for

## Section 4

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those customers that need to use energy during on-peak times. The TOU example rate is shown in Table 4-10 below. The design of the rate, if implemented, would need to be reviewed and adjusted as necessary to reflect movement of energy consumption by customers based their reaction to the rate.

**Table 4-10**  
**Example TOU Rate**  
Residential

Item	Rate
Customer charge	\$10.40/mo.
On-peak Energy <sup>(1)</sup>	\$0.1612/kWh
Off-peak Energy	\$0.0806/kWh

(1) On-peak – 8 a.m. to 8 p.m. Monday through Friday

### *Large Residential Transformer Capacity*

GRPUC's standard residential distribution transformer capacity is 25 kVa with typically 4-5 customers connected to a single transformer. This results in a standard residential transformer capacity of 5-6 kVa per customer. This is very similar to other distribution systems in this area. With the popularity of larger homes and the addition of in-home EV charging for residential customers, there is a trend towards some customers requiring 10 or more kVa of transformation capacity. Distribution transformer capacity is a fixed cost to provide service. These types of costs are generally reflected in the fixed monthly customer charge portion of rates. For residential customers requiring larger than normal capacity, an increased monthly customer charge is the appropriate method for collection those increased fixed costs. Based on installed cost for a 25 kVa transformer provided by GRPUC staff, the calculation of a monthly additional fixed customer charge for increased transformation is summarized in Table 4-11 below. As shown in the table, an annual percentage carrying cost is estimated based on annual costs for depreciation, interest and O&M. The total 8% value multiplied times the

## Proposed Rates

installed cost results in an annual fixed cost for a 25 kVa transformer. Dividing this by 25 kVa and 12 months results in a monthly cost/kVa of \$2.87. Based on this calculation, a residential customer requiring 5 kVa of additional transformation capacity could be charged an additional monthly fee of \$14.35 (5 times \$2.87).

**Table 4-11**  
**Increased Transformation Charge**

Residential

Item	Value
Installed Cost (25 kVa)	\$10,756
Annual Fixed Costs as % of Cost	
Depreciation	3%
Interest	4%
O&M	<u>1%</u>
Total	8%
Annual Fixed Cost (25 kVa)	\$860
Annual Fixed Cost/kVa	\$34.42
Monthly Fixed Cost/kVa	\$2.87

Grand Rapids Public Utilities Commission  
Existing and Proposed Rates

Exhibit 4-A

Class		Current Rate	2023 Proposed Rate	2024 Proposed Rate	2025 Proposed Rate	2026 Proposed Rate	2027 Proposed Rate
Electric - City Residential	ECR-10						
	Customer Charge	10.25	10.40	10.40	10.40	10.40	10.40
	Energy 0-500 kWh	0.0888	0.0900	0.0900	0.0900	0.0900	0.0900
Electric - City Res Off Peak Heat/Cool	Energy over 500 kWh	0.1144	0.1159	0.1159	0.1159	0.1159	0.1159
	ECR-10-LM						
	Customer Charge	8.25	8.40	8.40	8.40	8.40	8.40
Electric - City Residential Annex 1&2	Energy	0.0648	0.0699	0.0750	0.0800	0.0800	0.0800
	ECR-13-ANX1						
	Customer Charge	10.25	10.40	10.40	10.40	10.40	10.40
Electric - City Res Annex 1 Off Peak	Energy 0-500 kWh	0.1043	0.1055	0.1055	0.1055	0.1055	0.1055
	Energy over 500 kWh	0.1299	0.1314	0.1314	0.1314	0.1314	0.1314
	ECR-13-ANX1-LM						
Electric - City Res Storage Heat	Customer Charge	8.25	8.40	8.40	8.40	8.40	8.40
	Energy	0.0648	0.0699	0.0750	0.0800	0.0800	0.0800
	ECR-14-STG						
Electric - City Res Annex 1&2 Storage Heat	Customer Charge	8.25	8.40	8.40	8.40	8.40	8.40
	Energy	0.0545	0.0630	0.0715	0.0800	0.0800	0.0800
	ECR-33-ANX1-STG						
Electric - Rural Residential	Customer Charge	8.25	8.40	8.40	8.40	8.40	8.40
	Energy	0.0545	0.0630	0.0715	0.0800	0.0800	0.0800
	ERR-20						
Electric - Rural Res Off Peak Heat/Cool	Customer Charge	11.25	11.40	11.40	11.40	11.40	11.40
	Energy 0-500 kWh	0.0924	0.0936	0.0936	0.0936	0.0936	0.0936
	Energy over 500 kWh	0.1180	0.1195	0.1195	0.1195	0.1195	0.1195
Electric - City Commercial	ERR-20-LM						
	Customer Charge	8.25	8.40	8.40	8.40	8.40	8.40
	Energy	0.0648	0.0699	0.0750	0.0800	0.0800	0.0800
Electric - City Comm Off Peak Heat/Cool	ECC-30						
	Customer Charge	19.25	19.55	19.55	19.55	19.55	19.55
	Energy	0.1058	0.1072	0.1072	0.1072	0.1072	0.1072
Electric - City Commercial Annex 1&2	ECC-30-LM						
	Customer Charge	8.25	8.40	8.40	8.40	8.40	8.40
	Energy	0.0648	0.0699	0.0750	0.0800	0.0800	0.0800
Electric - City Comm Annex Off Peak Heat/Cool	ECC-33-ANX1						
	Customer Charge	19.25	19.55	19.55	19.55	19.55	19.55
	Energy	0.1213	0.1227	0.1227	0.1227	0.1227	0.1227
Electric - City Comm Storage Heat	ECC-33-ANX1-LM						
	Customer Charge	8.25	8.40	8.40	8.40	8.40	8.40
	Energy	0.0648	0.0699	0.0750	0.0800	0.0800	0.0800
Electric - City Com Seas Eve Ent Lt ICF	ECC-34-STG						
	Customer Charge	8.25	8.40	8.40	8.40	8.40	8.40
	Energy	0.0545	0.0630	0.0715	0.0800	0.0800	0.0800
Electric - City Com Seas Eve Ent Lt	ECC-38-SEEL-ICF						
	Customer Charge	12.75	12.75	12.75	12.75	12.75	12.75
	Energy	0.1032	0.1032	0.1032	0.1032	0.1032	0.1032
Electric - City Commercial WWTP	ECC-39-SEEL						
	Customer Charge	12.75	12.75	12.75	12.75	12.75	12.75
	Energy	0.1032	0.1032	0.1032	0.1032	0.1032	0.1032
Electric - City Commercial Elec Substations	ECC-50-WWTP						
	Customer Charge	19.25	19.55	19.55	19.55	19.55	19.55
	Energy	0.1058	0.1072	0.1072	0.1072	0.1072	0.1072
Electric - City Commercial Street Light Book	ECC-55-SUB						
	Customer Charge	19.25	19.55	19.55	19.55	19.55	19.55
	Energy	0.1058	0.1072	0.1072	0.1072	0.1072	0.1072
Electric - City Commercial Water Trt Plt	ECC-56-STLT						
	Customer Charge	12.00	12.50	12.50	12.50	12.50	12.50
	Energy	0.1030	0.1043	0.1043	0.1043	0.1043	0.1043
Electric - City Commercial WW Coll Dept	ECC-57-WTR						
	Customer Charge	19.25	19.55	19.55	19.55	19.55	19.55
	Energy	0.1058	0.1072	0.1072	0.1072	0.1072	0.1072
Electric - City Demand>50 KW -KWH	ECC-59-WWCOLL						
	Customer Charge	19.25	19.55	19.55	19.55	19.55	19.55
	Energy	0.1058	0.1072	0.1072	0.1072	0.1072	0.1072
Electric - City Demand Annex1&2>50 KW-KWH	ECD-70-050KWH						
	Customer Charge	27.00	28.00	28.00	28.00	28.00	28.00
	Energy	0.0513	0.0520	0.0520	0.0520	0.0520	0.0520
Electric - City Demand WTP > 50KWH Chg	Demand Charge	17.41	17.64	17.64	17.64	17.64	17.64
	ECD-73-AX-050KH						
	Customer Charge	27.00	28.00	28.00	28.00	28.00	28.00
Electric -City Demand WTP > 50KWH Chg	Energy	0.0513	0.0520	0.0520	0.0520	0.0520	0.0520
	Demand Charge	17.41	17.64	17.64	17.64	17.64	17.64
	EDD-58-WT-050KH						
Electric-Elec Vehicle Off-Peak	Customer Charge	27.00	28.00	28.00	28.00	28.00	28.00
	Energy	0.0513	0.0520	0.0520	0.0520	0.0520	0.0520
	Demand Charge	17.41	17.64	17.64	17.64	17.64	17.64
Electric -City Demand WTP > 50KWH Chg	EVC-ELVOFFPEAK						
	Energy	0.0422	0.0550	0.0550	0.0550	0.0550	0.0550



Grand Rapids Public Utilities Commission  
Existing and Proposed Rates

Exhibit 4-A

Class		Current Rate	2023 Proposed Rate	2024 Proposed Rate	2025 Proposed Rate	2026 Proposed Rate	2027 Proposed Rate
Electric-Elec Vehicle On-Peak	EVC-ELVONPEAK Energy	0.1515	0.1612	0.1612	0.1612	0.1612	0.1612
Electric-Elec Veh Existing Serv Customer Chg	EVC-EX-CUSTCHG Customer Charge	4.10	4.15	4.15	4.15	4.15	4.15
Electric-Elec Veh Stand Alone Customer Chg	EVC-SA-CUSTCHG Customer Charge	26.00	26.25	26.25	26.25	26.25	26.25
Electric - Rural Commercial	ERC-40 Customer Charge	20.25	20.55	20.55	20.55	20.55	20.55
	Energy	0.1097	0.1111	0.1111	0.1111	0.1111	0.1111
Electric - Rural Comm Off Peak Heat/Cool	ERC-40-LM Customer Charge	19.25	19.55	19.55	19.55	19.55	19.55
	Energy	0.0648	0.0699	0.0750	0.0800	0.0800	0.0800
Electric - Rural Demand>50 KW - KWH	ERD-80-050KWH Customer Charge	27.00	28.00	28.00	28.00	28.00	28.00
	Energy	0.0550	0.0557	0.0557	0.0557	0.0557	0.0557
	Demand Charge	17.41	17.64	17.64	17.64	17.64	17.64
Electric - WWTP Comm (Ind)	ECC-51-WWTP Customer Charge	19.25	19.55	19.55	19.55	19.55	19.55
	Energy	0.1058	0.1072	0.1072	0.1072	0.1072	0.1072
Electric - City Demand WWTP>50KWH Chg	ECD-51-WWT-50KH Customer Charge	27.00	28.00	28.00	28.00	28.00	28.00
	Energy	0.0513	0.0520	0.0520	0.0520	0.0520	0.0520
	Demand Charge	17.41	17.64	17.64	17.64	17.64	17.64
<b>Security Lights</b>	<b>\$/month</b>						
Electric - City Res Sec Lt 100W HPS NP	ECR-1021-SL	9.13	9.22	9.22	9.22	9.22	9.22
Electric - City Res Sec Lt 100W HPS P	ECR-1022-SL	11.82	11.94	11.94	11.94	11.94	11.94
Electric - City Res Sec Lt 250W HPS NP	ECR-1023-SL	13.08	13.21	13.21	13.21	13.21	13.21
Electric - City Res Sec Lt 250W HPS P	ECR-1024-SL	15.77	15.93	15.93	15.93	15.93	15.93
Electric - Security Light 40W LED Existing Pole	E-LED40-EP-SL	4.83	4.88	4.88	4.88	4.88	4.88
Electric - Security Light 40W LED Separate Pole	E-LED40-SP-SL	9.14	9.23	9.23	9.23	9.23	9.23
Electric - Security Light 48W LED Existing Pole	E-LED48-EP-SL	5.28	5.33	5.33	5.33	5.33	5.33
Electric - Security Light 48W LED Separate Pole	E-LED48-SP-SL	8.18	8.26	8.26	8.26	8.26	8.26
Electric - Security Light 70W LED Existing Pole	E-LED70-EP-SL	5.64	5.70	5.70	5.70	5.70	5.70
Electric - Security Light 70W LED Separate Pole	E-LED70-SP-SL	9.96	10.06	10.06	10.06	10.06	10.06
Electric - Rural Com Sec St 100W HPS NP	ERC-4021-SL	9.13	9.22	9.22	9.22	9.22	9.22
Electric - Rural Com Sec Lt 100W HPS P	ERC-4022-SL	11.82	11.94	11.94	11.94	11.94	11.94
Electric - Rural Com Sec Lt 250W HPS NP	ERC-4023-SL	13.08	13.21	13.21	13.21	13.21	13.21
Electric - Rural Com Sec Lt 250W HPS P	ERC-4024-SL	15.77	15.93	15.93	15.93	15.93	15.93
Electric - Rural Res Sec Lt 100W HPS NP	ERR-2021-SL	9.13	9.22	9.22	9.22	9.22	9.22
Electric - Rural Res Sec Lt 100W HPS P	ERR-2022-SL	11.82	11.94	11.94	11.94	11.94	11.94
Electric - Rural Res Sec Lt 250W HPS NP	ERR-2023-SL	13.08	13.21	13.21	13.21	13.21	13.21
Electric - Rural Res Sec Lt 250W HPS P	ERR-2024-SL	15.77	15.93	15.93	15.93	15.93	15.93
Electric - City Com Sec Lt 100W HPS NP	ECC-3021-SL	9.13	9.22	9.22	9.22	9.22	9.22
Electric - City Com Sec Lt 100W HPS P	ECC-3022-SL	11.82	11.94	11.94	11.94	11.94	11.94
Electric - City Com Sec Lt 250W HPS NP	ECC-3023-SL	13.08	13.21	13.21	13.21	13.21	13.21
Electric - City Com Sec Lt 250W HPS P	ECC-3024-SL	15.77	15.93	15.93	15.93	15.93	15.93
Electric - City Com Sec Lt 150W HPS Twshp	ECC-3025-SL	9.13	9.22	9.22	9.22	9.22	9.22

Grand Rapids Public Utilities Commission  
Electric Operating Results at Proposed Rates

	Historical					Projected					
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
<b>OPERATING REVENUES</b>											
Utility Revenues											
City residential	\$ 3,496,976	\$ 3,848,068	\$ 3,821,527	\$ 4,142,608	\$ 4,311,259	\$ 4,485,931	\$ 4,641,656	\$ 4,711,675	\$ 4,782,354	\$ 4,844,265	\$ 4,907,054
City commercial and demand & energy	9,790,884	9,051,114	9,189,588	8,874,782	9,411,411	9,880,460	10,542,381	10,668,380	10,795,881	10,916,745	11,039,726
Rural residential	1,023,159	1,136,791	1,125,900	1,182,228	1,213,463	1,251,841	1,284,689	1,293,270	1,301,674	1,301,674	1,301,674
Rural commercial and demand & energy	544,806	569,994	583,743	563,487	626,763	639,013	652,124	653,078	653,932	653,932	653,932
Security lighting	57,566	55,300	56,412	60,075	61,567	61,371	61,604	61,604	61,604	61,604	61,604
Total Retail Sales	\$ 14,913,391	\$ 14,661,267	\$ 14,777,170	\$ 14,823,180	\$ 15,624,463	\$ 16,318,615	\$ 17,182,454	\$ 17,388,007	\$ 17,595,446	\$ 17,778,221	\$ 17,963,991
Purchased power adjustment passthrough	693,130	612,842	436,847	400,954	2,401,457	2,631,811	1,349,330	2,029,231	2,482,175	2,948,562	3,428,845
Total Utility Revenues	\$ 15,606,521	\$ 15,274,109	\$ 15,214,017	\$ 15,224,134	\$ 18,025,920	\$ 18,950,426	\$ 18,531,784	\$ 19,417,238	\$ 20,077,621	\$ 20,726,782	\$ 21,392,836
Other Operating Revenues											
Pole rentals	\$ 16,715	\$ -	\$ 38,624	\$ 21,416	\$ 23,577	\$ 21,000	\$ 21,000	\$ 21,000	\$ 21,000	\$ 21,000	\$ 21,000
Other	176,275	95,315	119,168	75,804	148,569	90,339	90,339	90,339	90,339	90,339	90,339
Penalties	49,752	49,954	46,823	9,869	14,294	-	-	-	-	-	-
Total Operating Revenues	\$ 15,849,263	\$ 15,419,378	\$ 15,418,632	\$ 15,331,223	\$ 18,212,360	\$ 19,061,765	\$ 18,643,123	\$ 19,528,577	\$ 20,188,960	\$ 20,838,121	\$ 21,504,175
<b>OPERATING EXPENSES</b>											
Purchased Power											
	\$ 10,991,941	\$ 11,169,489	\$ 11,336,920	\$ 11,069,792	\$ 13,611,143	\$ 11,807,430	\$ 12,931,589	\$ 13,831,851	\$ 14,777,844	\$ 15,568,697	\$ 16,178,333
Distribution Operations											
Supervision and engineering	\$ 75,537	\$ 83,435	\$ 88,122	\$ 89,308	\$ 88,820	\$ 90,495	\$ 93,210	\$ 97,870	\$ 102,764	\$ 107,902	\$ 113,297
Crew Personnel						230,683	237,603	249,483	261,958	275,055	288,808
Substations	14,410	6,480	6,373	5,580	6,334	6,614	6,944	7,153	7,367	7,588	7,816
Overhead and underground lines	122,256	57,556	147,490	91,108	366,055	9,000	9,450	9,734	10,026	10,326	10,636
Locating Expense						48,000	50,400	51,912	53,469	55,073	56,726
Meters	103,488	21,751	74,041	79,910	75,208	-	-	-	-	-	-
Customer installations	43,143	21,941	14,714	13,129	22,802	-	-	-	-	-	-
Mapping	81,756	67,602	57,115	34,139	47,363	-	-	-	-	-	-
Small tools	31,520	22,379	15,027	17,833	30,801	28,000	29,400	30,282	31,190	32,126	33,090
Safety	21,887	18,731	12,098	29,396	30,613	17,000	17,850	18,386	18,937	19,505	20,090
Seminar/training	41,493	12,554	12,617	11,590	11,401	12,000	12,600	12,978	13,367	13,768	14,181
Uniforms Expense						11,000	11,550	11,897	12,253	12,621	13,000
Rentals						3,164	3,322	3,422	3,525	3,630	3,739
Stores	81,237	97,862	126,094	95,509	155,224	55,849	57,524	60,401	63,421	66,592	69,921
Distribution Maintenance											
Supervision and engineering	75,537	83,326	88,121	89,128	88,780	90,309	93,018	97,669	102,552	107,680	113,064
Crew Personnel						158,000	162,740	170,877	179,421	188,392	197,811
Locating expense	-	-	11,871	15,769	37,924	-	-	-	-	-	-
Substations	24,965	58,720	73,803	55,319	52,509	60,335	63,352	65,252	67,210	69,226	71,303
Overhead lines	139,379	122,630	177,900	174,777	236,987	22,000	23,100	23,793	24,507	25,242	25,999
Overhead Lines - Tree Trimming						80,000	150,000	154,500	159,135	163,909	80,000
Underground lines	93,839	56,368	43,292	98,188	22,259	16,000	16,800	17,304	17,823	18,358	18,909
Underground Lines - Locating						-	-	-	-	-	-
Line transformers	3,506	-	6,914	778	-	2,500	2,625	2,704	2,785	2,869	2,955
Security Lighting	284	4,375	-	1,173	5,047	-	-	-	-	-	-
Street lighting	-	-	-	2,158	-	-	-	-	-	-	-
Meters	1,320	11,890	2,316	4,168	42,513	500	525	541	557	574	591
Other	43,995	12,127	57,645	7,031	5,922	-	-	-	-	-	-
Total Distribution Expenses	\$ 999,552	\$ 759,727	\$ 1,015,553	\$ 915,991	\$ 1,326,562	\$ 941,448	\$ 1,042,014	\$ 1,086,156	\$ 1,132,267	\$ 1,180,437	\$ 1,141,937

Grand Rapids Public Utilities Commission  
Electric Operating Results at Proposed Rates

	Historical					Projected					
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Other Operating Expenses											
Customer accounts expense	\$ 327,351	\$ 357,952	\$ 347,475	\$ 297,957	\$ 436,018	\$ 340,422	\$ 356,860	\$ 368,167	\$ 379,842	\$ 391,900	\$ 404,352
Conservation Improvement						119,701	119,701	119,701	119,701	119,701	119,701
Administrative and general	1,084,608	1,153,457	1,066,753	1,145,209	1,125,105	1,014,334	1,079,589	1,148,535	1,220,610	1,298,485	1,382,678
Depreciation - electric	909,967	881,083	879,575	1,123,497	933,748	908,137	939,824	979,052	1,010,033	1,039,481	1,068,962
Depreciation - other	98,367	99,113	95,904	103,727	106,360	-	-	-	-	-	-
Amortization - intangibles	50,025	49,995	47,935	43,533	45,181	2,245	2,245	2,245	2,245	2,245	2,245
Amortization - other	13,696	13,696	34,338	34,337	34,337	-	-	-	-	-	-
Service center	132,588	106,494	127,550	108,160	123,085	-	-	-	-	-	-
Total Other Operating Expenses	\$ 2,616,602	\$ 2,661,790	\$ 2,599,530	\$ 2,856,420	\$ 2,803,834	\$ 2,384,839	\$ 2,498,219	\$ 2,617,700	\$ 2,732,432	\$ 2,851,812	\$ 2,977,939
Total Operating Expenses	\$ 14,608,095	\$ 14,591,006	\$ 14,952,003	\$ 14,842,203	\$ 17,741,539	\$ 15,133,717	\$ 16,471,822	\$ 17,535,707	\$ 18,642,543	\$ 19,600,947	\$ 20,298,209
NET OPERATING INCOME	\$ 1,241,168	\$ 828,372	\$ 466,629	\$ 489,020	\$ 470,821	\$ 3,928,047	\$ 2,171,301	\$ 1,992,870	\$ 1,546,417	\$ 1,237,175	\$ 1,205,966
NON-OPERATING INCOME (EXPENSES)											
Investment income	\$ 38,310	\$ 26,473	\$ 50,825	\$ 30,745	\$ 15,667	\$ 30,225	\$ 81,897	\$ 93,771	\$ 109,481	\$ 117,988	\$ 123,912
Penalties	-	-	-	-	-	28,622	27,000	27,000	27,000	27,000	27,000
Gain (loss) on property disposition	(407,122)	4,474	11,650	(21,351)	(29,861)	-	-	-	-	-	-
Interest expense	(27,648)	(24,199)	(21,223)	-	(2,996)	(2,700)	(2,700)	(2,700)	(2,700)	(2,700)	(2,700)
Lease revenues combined service center	125,563	17,900	35,071	28,763	19,593	23,858	16,800	16,800	16,800	16,800	16,800
CSC Building/Grounds expenses	-	-	-	-	-	(284,247)	(296,339)	(303,956)	(311,802)	(305,883)	(314,207)
Grant revenue	-	-	-	145,672	84,329	-	-	-	-	-	-
City land improvements	-	-	-	-	(393,640)	-	-	-	-	-	-
Payment in lieu of taxes	(872,898)	(876,832)	(871,916)	(873,537)	(882,288)	(871,701)	(871,701)	(871,701)	(871,701)	(871,701)	(871,701)
Total Non-Operating Revenues (Expenses)	\$ (1,143,795)	\$ (852,184)	\$ (795,593)	\$ (689,708)	\$ (1,189,196)	\$ (1,075,942)	\$ (1,045,042)	\$ (1,040,785)	\$ (1,032,921)	\$ (1,018,496)	\$ (1,020,896)
NET INCOME	\$ 97,373	\$ (23,812)	\$ (328,964)	\$ (200,688)	\$ (718,375)	\$ 2,852,105	\$ 1,126,259	\$ 952,084	\$ 513,496	\$ 218,678	\$ 185,070
as a percent of Operating Revenues	0.6%	-0.2%	-2.1%	-1.3%	-3.9%	15.0%	6.0%	4.9%	2.5%	1.0%	0.9%
CASH RESERVES											
Beginning of Year						\$ 1,520,146	\$ 4,118,902	\$ 4,716,083	\$ 5,506,199	\$ 5,934,009	\$ 6,231,949
Plus Net Income						2,852,105	1,126,259	952,084	513,496	218,678	185,070
Less Capital Improvements						(950,607)	(1,176,840)	(929,440)	(883,440)	(884,440)	(886,440)
Less ERP Project Costs						-	(80,833)	-	-	-	-
Plus Depreciation/Amortization						910,382	942,069	981,297	1,012,278	1,041,726	1,071,208
Less Debt Service Principal						(135,100)	(135,450)	(135,800)	(136,500)	-	-
Less Loss of Revenue Payment to LCP						(78,024)	(78,024)	(78,024)	(78,024)	(78,024)	(78,024)
End of Year					\$ 1,520,146	\$ 4,118,902	\$ 4,716,083	\$ 5,506,199	\$ 5,934,009	\$ 6,231,949	\$ 6,523,763
As a percent of revenue					8.3%	21.6%	25.3%	28.2%	29.4%	29.9%	30.3%