Water Works and Lighting Commission
221 16th Street South P.O. Box 399 Wisconsin Rapids, WI 54495-0399 715/423-6300 FAX: 715/423-2831

AGENDA

There will be a Special Commission meeting of the Water Works and Lighting Commission in the conference room on Wednesday, August 9, 2023 at 10:30 AM.

Listed below is the agenda for this meeting.

1. Tour of WW&LC substations and properties
2. Discussion and possible action on 2023 Electric Capital Budget

Lunch will follow at approximately 12:00 noon.

The Commission will then convene for the regular monthly commission meeting at 1:00 PM. Below is the agenda for that meeting.

1. Call to order
2. Approval, additions, or corrections to the minutes of the following meeting
   2.1. Regular Commission Meeting held July 12, 2023
3. Action items
4. Department updates
   4.1. Safety Committee
   4.2. Line Superintendent
   4.3. Water Department Operations
   4.4. Customer Support Supervisor
   4.5. Director of Finance
   4.6. Information Systems Administrator
   4.7. Conservation Manager
   4.8. Electrical Engineer
   4.9. Director of Engineering & Electric Operations
   4.10. General Manager
5. Review of accounts payable
6. Adjourn

If given 72 hours' notice, efforts will be made by the General Manager's office to accommodate the needs of disabled individuals through sign language interpreters and other auxiliary aids.

Regular Meeting of the Water Works and Lighting Commission
Wednesday, July 12, 2023

There were present:
Commissioner Jay Bemke
Commissioner John Bergin
Commissioner John Harper
Commissioner Rick Merdan
Commissioner Jeff Penzkover

Also in attendance: Jem Brown, Roxanne Gronski, Matt Stormoen, Josh Elliott, Jeff Kuhn, Adam Breunig, Todd Weiler, Shawn Reimer, Tyler Sneen, and Sean Wall.

1. Call to Order

Chairman John Bergin called the meeting to order at 2:00 PM.

2. Approval, additions or corrections to the minutes of the following meeting

2.1 Regular Commission Meeting held June 14, 2023

There was a motion made by John Harper, seconded by Rick Merdan, and carried to approve the minutes of the Regular Commission Meeting held on June 14, 2023, and to place them on file. There were no nay votes recorded.

3. Action items

There were no action items.

4.0 Department updates

4.1 Safety Committee Report

The commissioners reviewed and discussed the safety coordinator's monthly report.

4.2 Line Superintendent's Report

This report was reviewed and discussed. Josh Elliott answered questions regarding June call-ins.

4.3 Water Department Operations Report

This report was reviewed and discussed. Adam Breunig answered questions regarding June maintenance water projects and calls.

4.4 Customer Support Supervisor's Report

This report was reviewed and discussed. Jeff Kuhn stated that staff from WW&LC attended the Landlord Association meeting in June. It was great to communicate updates on our disconnection progress and receive their feedback on tenant issues.

4.5 Director of Finance's Report

This report was reviewed and financial statements and investments were discussed.

4.6 Information System's Administrator's Report

This report was reviewed and discussed. Matt Stormoen stated that he has now received the last of the parts that he had been waiting for to complete the network hardware replacement project.

4.7 Conservation Manager's Report

This report was reviewed and discussed. Shawn Reimer explained TOD (Time of Day) rate versus RG1 regular electric rate.

4.8 Electrical Engineer's Report

This report was reviewed and discussed. Tyler Sneen answered questions regarding a recloser that failed to operate correctly and the troubleshooting steps that were taken to put it back in service.

4.9 Director of Engineering & Electric Operations

This report was reviewed and discussed. Todd Weiler stated that the supply and demand issues that we were facing in the utility industry had not gotten better. In fact, it is worse. Many suppliers are no longer submitting quotes since they cannot get answers from the factory on prices or availability.

4.10 General Manager's Report

This report was reviewed and discussed. Jem Brown stated that GLU held several meetings to ensure a smooth transition to ACES implementing all GLU related power supply initiatives and Marshfield conducting management services for GLU beginning July 1st.

5. Review of accounts payables

A listing of all invoices and checks covering June was provided to the commission for review.

6. Adjourn

There was a motion made by Rick Merdan, seconded by Jay Bemke, and carried to adjourn at 2:30 PM. There were no nay votes recorded.

Respectfully submitted,

Rick Merdan, Secretary

SAFETY COMMITTEE MEETING MINUTES FOR AUGUST 2nd, 2023

Discussion with: Adam Breunig, Sean Wall, Justin Armagost, Bob Nash, Josh Elliott, and Randy Rosicky.

OLD BUSINESS

There was no old business.

NEW BUSINESS

There were no new safety concerns brought forward at this time.

SAFETY TRAINING/DISCUSSION

The members reviewed and discussed the Hazardous Energy Control Lockout/Tagout Program and found no changes required at this time.

There was a discussion regarding the importance of being aware of your surroundings while walking through construction sites, as well as the importance of excavation safety related to proper trench benching.

UPCOMING TRAININGS

Annual Confined Space Training is tentatively scheduled for September 2023.

Safety Committee meeting ended at 7:25 AM.

Municipal Electric Utilities of Wisconsin
Service. Advocacy. Safety.
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Wisconsin Rapids Water Works & Lighting Commission
July 2023
Prepared By: Sean T. Wall, MEUW Senior Regional Safety Coordinator

SAFETY REPORT

ACCOMPLISHMENTS

1. **Training**
    a. No training planned for August
2. **Audits/Inspections**
    a. Went out with Josh Elliot to observe and review Electric crew work zones
3. **Compliance/Risk Management**
    a. Attended Safety Committee meeting
    b. Attended Commission meeting
    c. Completed Mutual Aid Resource Guide for Electric department
    d. Conducted facility Fire Drill on 7/28 (report attached)
    e. Annual review and sign off of written safety programs for:
        i. PPE
        ii. Excavation
        iii. HAZCOM
    f. Reviewed LOTO written safety program for next month's Safety Committee meeting

GOALS AND OBJECTIVES

1. **Training**
    a. No training planned
2. **Audits/Inspections**
    a. Summer work zone inspections planned
3. **Compliance/Risk Management**
    a. Attend Safety Committee meeting
    b. Attend Commission meeting
    c. Planning tornado drill

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LINE SUPERINTENDENT'S REPORT
July, 2023

Work Performed
During July, the Electric Department processed 14 work orders, 6 electric service orders, and 98 trouble slips.

Other Projects
- Continued pole replacements.
- Continued tree trimming.
- Completed re-location for Kellner Road roundabout.
- Worked on multiple customer projects.
- Began work on Loop 1 rebuild (capital budget project).

After Hours Calls
In July there were 20 after-hour call-ins.

The calls for "Failed Equipment" were for 2 bad service connections and a bad combination. The calls for "Other" were for a traffic signal and a fire.

Respectfully submitted,

Josh Elliott
Electric Line Superintendent

Water Works and Lighting Commission
221 16th Street South P.O. Box 399 Wisconsin Rapids, WI 54495-0399 715/423-6300 FAX: 715/423-2831

WATER DEPARTMENT OPERATIONS REPORT
July 2023

WATER PROJECTS

During July, the water department worked on the following projects.

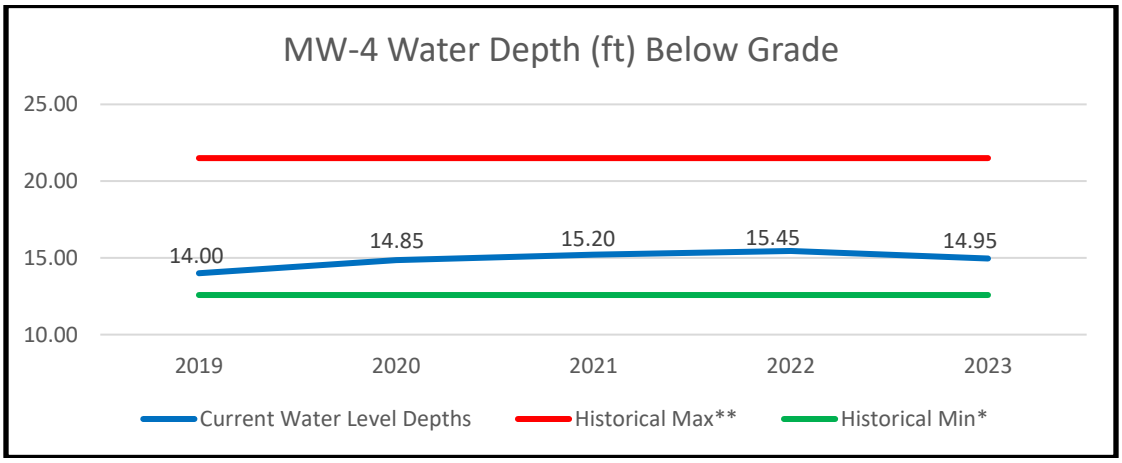
- Crews have completed underground utility reconstruction for the Oak St project from E Jackson St to 16th St S.
- Crews replaced a 3/4" Curb Valve located at 1743 Boles St.
- Crews repaired an 8" Water Main Break located at 10th St S and Pepper Ave.
- Crews repaired a 12" Water Main Break located between Commerce Dr and Kingston Rd.
- Crews replaced a 3/4" Curb Valve located at 2550 Plover Rd.

TROUBLE CALLS

The water meter crew responded to 27 trouble calls.

WATER DEPTHS AT MONITORING WELL (MW) 4 FOR THE LAST 5 YEARS

The readings given below were taken during the last week of July of the year.



* Historical minimum depth below grade for MW-4 was 12'-7" on July 2nd, 2004.
** Historical maximum depth below grade for MW-4 was 21'-6" on September 11th, 2009.

Sincerely,
Adam Breunig
Water Superintendent

Water Works and Lighting Commission
221 16th Street S, P.O. Box 399 Wisconsin Rapids, WI 54495-0399 (715) 423-6300

CUSTOMER SUPPORT SUPERVISOR'S REPORT
July 2023

COLLECTIONS

Below is the comparison of active and inactive accounts receivable in July.

ALL PROVIDERS – Active and Inactive Accounts			
	July, 2021	July, 2022	July, 2023
30 day	187,697	142,646	171,651
60 day	33,587	23,366	20,797
90 day	57,623	7,712	8,112
Current	2,808,766	2,694,792	2,652,454
Total Active	3,087,673	2,868,516	2,853,014
Total Inactive	131,731	58,051	35,075
Total AR	3,219,404	2,926,567	2,888,089

With the changes we made in the last few years regarding disconnections, our goal was to address each past due account monthly. These changes would help with our accounts receivable and encourage customers to keep their past due balance manageable or seek assistance. There are still some accounts that remain 90 days past due, however, these accounts may have one of the following: an active payment arrangement, a broken payment arrangement with disconnection pending, an energy assistant benefit pending, the property is currently disconnected for non-payment, or the monthly balance on the account is very low and their past due balance does not meet the minimum threshold.

In July, we placed 732 disconnection calls and sent 318 text messages. This resulted in 124 disconnections and 124 reconnections. In comparison, in July of 2022, we placed 571 disconnection calls and had 157 disconnections and 145 reconnections.

Forty commercial properties were notified of a pending disconnection in July. Two locations were disconnected and reconnected.

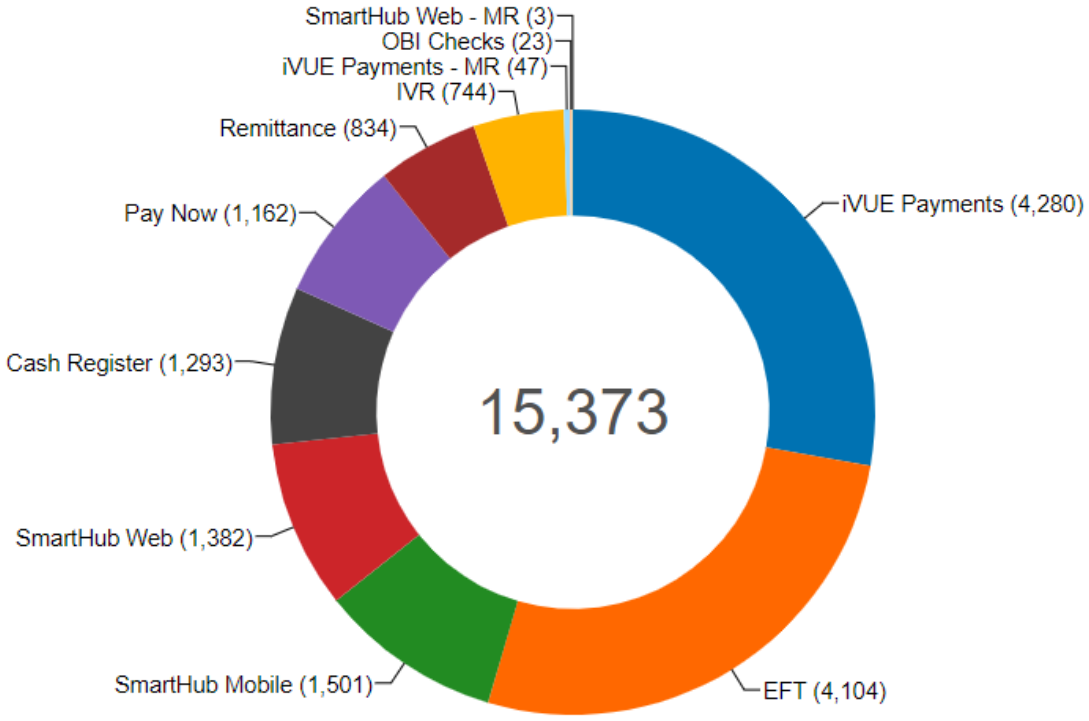
Tax Refund Interception Program (TRIP) and State Debt Collection (SDC)
We received $2,105 through SDC in July and $269 from TRIP for a total of $33,154 in 2023 thus far. We also sent 57 customers a letter in June who have a terminated account 60 days past due, indicating their unpaid balance would be sent to SDC if not paid in the next 30 days. Of the 45 letters sent last month, nine accounts were paid and the remainder were sent to SDC.

JULY OFFICE INFORMATION

- Office staff answered 2,030 customer phone calls.
- 985 customers entered the lobby to either pay their utility bill or seek customer assistance.
- Two new electric services were processed. In addition, 190 electric and 99 water move orders were processed. Thirty-nine of these orders were received electronically (highest monthly electronic orders to date).
- Fifty-three welcome letters were sent to new customers.

OFFICE PAYMENTS

The chart below represents the breakdown of our payments received for July. Just over 63 percent of the payments were received via one of our online payment options.



SOCIAL MEDIA AND WEBSITE ANALYTICS

Seven messages were posted on Facebook with 4,784 views. Six messages were also posted on Twitter and Instagram. Our website had 3,840 pageviews in July.

Respectfully submitted,
Lynn Schroer
Customer Support Supervisor

Water Works and Lighting Commission
221 16th Street S, P.O. Box 399 Wisconsin Rapids, WI 54495-0399 (715) 423-6300

Director of Finance Report

July 2023

Financial Reports

The preliminary June 2023 financial statements follow this report. The positive operating income first seen in May continued in June, with both electric and water having a higher operating income than in 2022. The electric utility had an operating income of $449,802 through June, compared to an operating loss of $251,045 in 2022. The main driver for the increase in the 2023 Customer Accounts Expense is increased licensing costs for our NISC software and increased postage in mailing out monthly utility bills to customers.

The water utility had an operating income of $207,623, nearly $50,000 higher from 2022's figure ($157,810). The dry summer increased irrigation sales billed through June by $27,000 compared to last year. Since billing is a month behind usage, July's irrigation sales will increase more with the hot and dry June.

We had a positive cash flow of $327,212 in July, pushing the annual cash flow positive for the year. With the updated water rates effective July 1 and the electric rate case pending with the PSC, I am optimistic the positive cash flow trend will continue for most of 2023.

Electric Rate Case

The hearing for the utility's electric rate case occurred on July 18th. There were no public comments at the hearing, and one written comment which was part of the record. After the hearing, the entire record is given to the Division Administrator for the final decision. The new electric rates will be effective on the first of the month following the decision. I am hopeful we receive the final decision in August, which will make the rates effective September 1 and billed in October.

Jeff Kuhn
Director of Finance

Wisconsin Rapids Water Works and Lighting Commission
Cash Flow Summary
for Month Ending July 31, 2023

	Current Month		Year to Date		Prior Year to Date	
Cash Receipts:						
Utility Receipts, Net of Returns	$ 3,639,912		$ 24,155,511		$ 22,992,478	
Interest and Dividends	$ 196		$ 1,764		$ 1,793	
Transfer from Investments	$ 600,412		$ 2,559,192		$ 2,502,297	
ATC Dividend Payment	$ 141,516		$ 424,422		$ 410,849	
Total Cash Receipts		**$ 4,382,036**		**$ 27,140,889**		**$ 25,907,418**
Disbursements						
AP Payments	$ (1,780,665)		$ (10,868,039)		$ (10,366,351)	
GLU Power Bill	$ (1,676,151)		$ (11,596,079)		$ (10,518,234)	
Transfer to Investments	$ (230,000)		$ (1,475,000)		$ (1,865,000)	
ATC - Voluntary Capital Call	$ (114,647)		$ (323,417)		$ (247,309)	
Sales Tax Payment	$ (82,866)		$ (299,409)		$ (284,350)	
Payroll	$ (312,039)		$ (2,432,252)		$ (2,389,357)	
Service Fees	$ (4,376)		$ (30,361)		$ (31,659)	
Total Disbursements		**$ (4,200,744)**		**$ (27,024,557)**		**$ (25,702,260)**
Net Cash Flow		**$ 181,292**		**$ 116,332**		**$ 205,157**

Wisconsin Rapids Water Works and Lighting Commission
Combined Utility Income Statement
Year to Date for Months Ending June 2023 and 2022

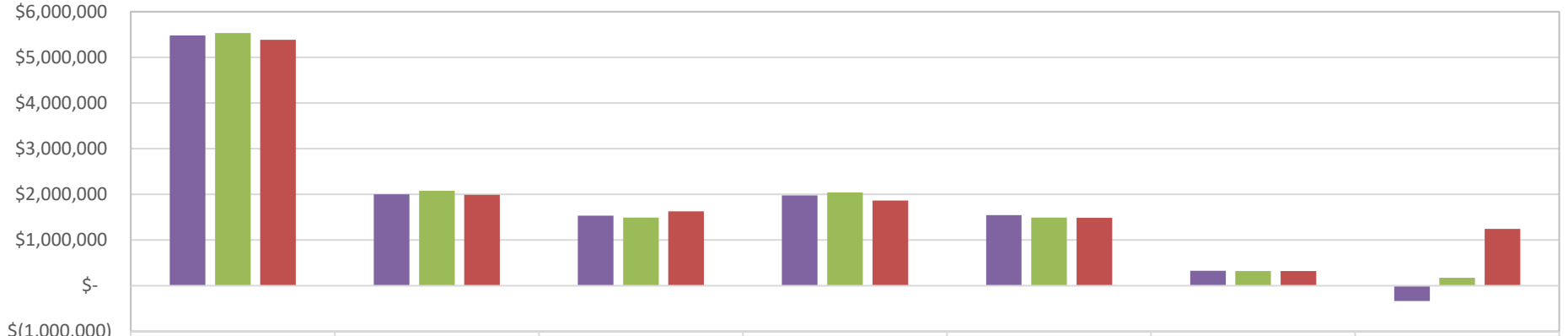
	Current Year to Date			Prior Year to Date			% Increase (Decrease)		
	Electric	Water	Total	Electric	Water	Total	Electric	Water	Total
Charges for Services	$ 13,924,825	$ 1,819,248	$ 15,744,073	$ 13,134,790	$ 1,838,107	$ 14,972,897	6.0%	(1.0%)	5.2%
Other Operating Revenues	$ 332,617	$ 935,571	$ 1,268,187	$ 328,624	$ 893,929	$ 1,222,552	1.2%	4.7%	3.7%
Total Operating Revenues	$ 14,257,442	$ 2,754,819	$ 17,012,260	$ 13,463,414	$ 2,732,036	$ 16,195,450	5.9%	0.8%	5.0%
Operating Expenses	11,841,941	1,574,065	13,416,007	11,730,874	1,607,761	13,338,636	0.9%	(2.1%)	0.6%
Depreciation Expense	1,154,498	470,630	1,625,129	1,156,634	460,065	1,616,698	(0.2%)	2.3%	0.5%
Taxes Expense	811,200	502,500	1,313,700	826,950	506,400	1,333,350	(1.9%)	(0.8%)	(1.5%)
Total Operating Expenses	13,807,640	2,547,196	16,354,835	13,714,458	2,574,226	16,288,684	0.7%	(1.1%)	0.4%
Operating Income (Loss)	**$ 449,802**	**$ 207,623**	**$ 657,425**	**$ (251,045)**	**$ 157,810**	**$ (93,235)**	**155.8%**	**31.6%**	**114.2%**
Non-Operating Income	365,898	98,754	464,652	298,301	38,091	336,391	22.7%	159.3%	38.1%
Interest Charges	84,890		84,890	80,993		80,993	4.8%		4.8%
Other Non-operating Exp	183,003	52,597	235,600	190,233	49,176	239,408	(3.8%)	7.0%	(1.6%)
Net Income (Loss)	**$ 547,807**	**$ 253,779**	**$ 801,587**	**$ (223,969)**	**$ 146,725**	**$ (77,244)**	**140.9%**	**73.0%**	**109.6%**

Wisconsin Rapids Water Works and Lighting Commission
Electric Income Statement
Year to Date for Months Ending June 2023, 2022, 2021

	Current Budget	2023 YTD	2022 YTD	2021 YTD	Remaining Budget
Sales of Electricity					
Residential Sales	$ 11,743,000	$ 5,385,450	$ 5,531,915	$ 5,481,484	$ 6,357,550
General Service	$ 4,338,000	$ 1,990,867	$ 2,078,789	$ 2,001,875	$ 2,347,133
Small Power (CP1)	$ 3,155,000	$ 1,629,768	$ 1,495,089	$ 1,534,992	$ 1,525,232
Large Power (CP2 & CP3)	$ 4,371,000	$ 1,865,861	$ 2,041,015	$ 1,976,631	$ 2,505,139
Industrial Power (CP4)	$ 3,558,000	$ 1,484,188	$ 1,492,027	$ 1,543,949	$ 2,073,812
Street & Athletic Field Lighting	$ 660,500	$ 323,543	$ 323,508	$ 325,968	$ 336,957
Power Cost Adjustment Clause	$ 500,000	$ 1,245,148	$ 172,446	$ (335,702)	$ (745,148)
Total Sales of Electricity	$ 28,325,500	$ 13,924,825	$ 13,134,790	$ 12,529,196	$ 14,400,675
Other Operating Revenues					
Misc Service Revenues - Reconnect Fees	$ 35,000	$ 14,900	$ 17,650	$ 9,135	$ 20,100
Rent From Electric Property	$ 284,000	$ 283,592	$ 272,054	$ 265,006	$ 408
Forfeited Discounts	$ 90,000	$ 33,206	$ 37,885	$ 34,769	$ 56,794
Other Electric Revenues	$ 3,500	$ 918	$ 1,035	$ 988	$ 2,582
Total Operating Revenues	$ 28,738,000	$ 14,257,442	$ 13,463,414	$ 12,839,094	$ 14,480,558
Operating Expenses					
Purchased Power Expense	$ 20,154,700	$ 9,893,763	$ 9,770,408	$ 8,505,428	$ 10,260,937
Maintenance & Distribution Expense	$ 1,627,800	$ 926,629	$ 960,569	$ 811,286	$ 701,171
Customer Accounts Expense	$ 749,800	$ 407,442	$ 368,122	$ 372,082	$ 342,358
Advertising Expense	$ 25,500	$ 100	$ -	$ -	$ 25,400
Administrative And General Expense	$ 1,259,500	$ 614,008	$ 631,775	$ 521,179	$ 645,492
Depreciation Expense	$ 2,390,000	$ 1,154,498	$ 1,156,634	$ 1,130,267	$ 1,235,502
Taxes Expense	$ 1,580,000	$ 811,200	$ 826,950	$ 769,500	$ 768,800
Total Operating Expenses	$ 27,787,300	$ 13,807,640	$ 13,714,458	$ 12,109,741	$ 13,979,660
Operating Income	**$ 950,700**	**$ 449,802**	**$ (251,045)**	**$ 729,353**	**$ 500,898**
Merchandise and Jobbing	$ 45,000	$ 30,904	$ 37,078	$ 4,710	$ 14,096
Interest and Dividend Income	$ 838,000	$ 304,222	$ 215,863	$ 217,239	$ 533,778
Miscellaneous Non-Operating Income	$ 160,000	$ 30,772	$ 45,360	$ 39,311	$ 129,228
Total Other Income Additions	$ 1,043,000	$ 365,898	$ 298,301	$ 261,260	$ 677,102
Interest Charges	$ 182,000	$ 84,890	$ 80,993	$ 85,733	$ 97,110
Other Income Deductions	$ 148,300	$ 183,003	$ 190,233	$ 176,560	$ (34,703)
Total Net Income	**$ 1,663,400**	**$ 547,807**	**$ (223,969)**	**$ 728,320**	**$ 1,115,593**

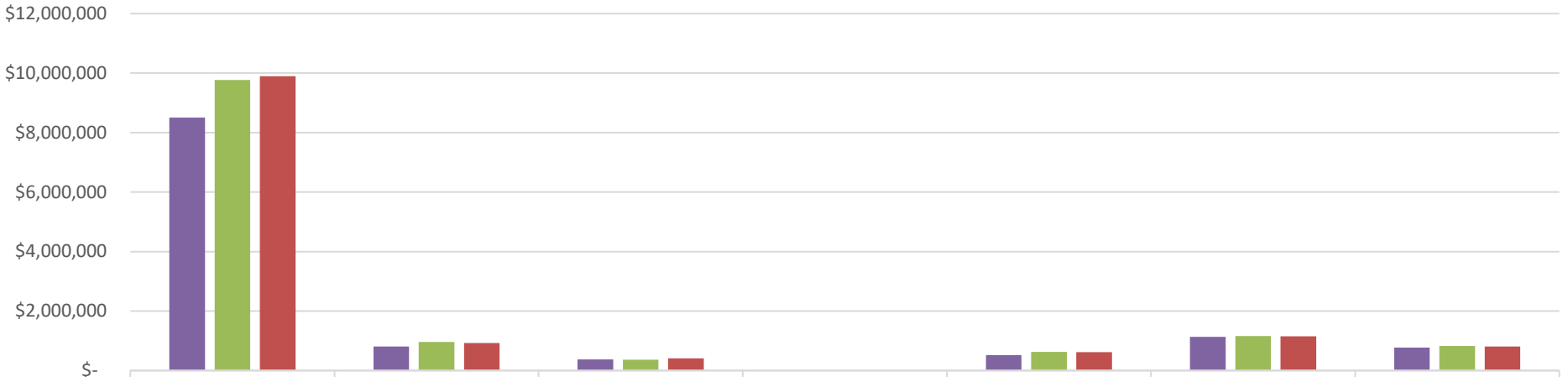
Wisconsin Rapids Water Works and Lighting Commission
Selected Electric Utility Financial Charts
Year to Date for Months Ending June 2023, 2022, 2021

Electric Utility Sales Revenue by Customer Type



	Residential Sales	General Service	Small Power (CP1)	Large Power (CP2 & CP3)	Industrial Power (CP4)	Street & Athletic Field Lighting	Power Cost Adjustment Clause
2021	$5,481,484	$2,001,875	$1,534,992	$1,976,631	$1,543,949	$325,968	$(335,702)
2022	$5,531,915	$2,078,789	$1,495,089	$2,041,015	$1,492,027	$323,508	$172,446
2023	$5,385,450	$1,990,867	$1,629,768	$1,865,861	$1,484,188	$323,543	$1,245,148

YTD Electric Operating Expenses

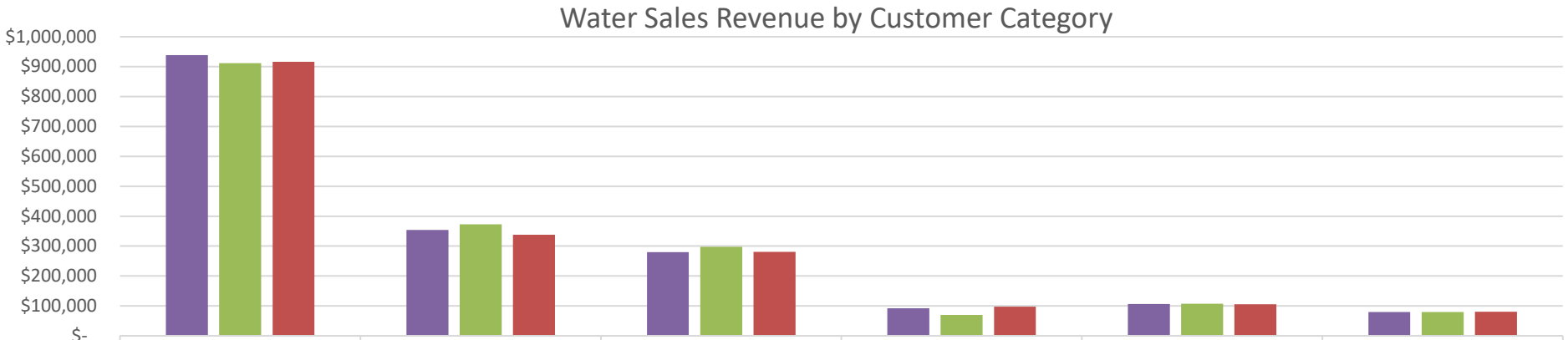


	Purchased Power Expense	Maintenance & Distribution Expense	Customer Accounts Expense	Advertising Expense	Administrative And General Expense	Depreciation Expense	Taxes Expense
2021	$8,505,428	$811,286	$372,082	$-	$521,179	$1,130,267	$769,500
2022	$9,770,408	$960,569	$368,122	$-	$631,775	$1,156,634	$826,950
2023	$9,893,763	$926,629	$407,442	$100	$614,008	$1,154,498	$811,200

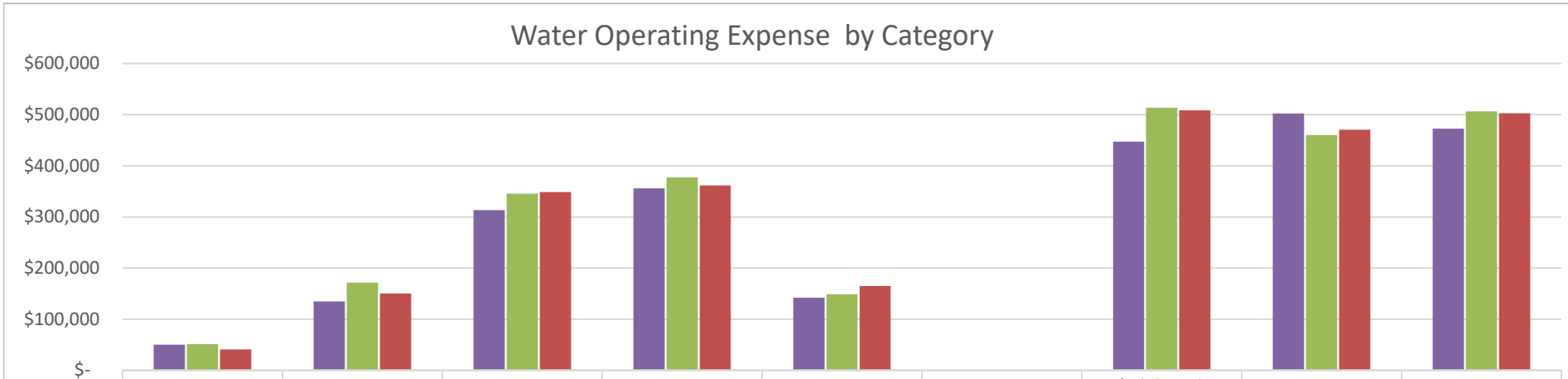
Wisconsin Rapids Water Works and Lighting Commission
Water Income Statement
Year to Date for Months Ending June 2023, 2022, 2021

	Current Budget	2023 YTD	2022 YTD	2021 YTD	Remaining Budget
Metered Sales of Water					
Residential Sales	$ 1,915,000	$ 915,870	$ 911,258	$ 938,478	$ 999,130
Commercial Sales	$ 798,000	$ 338,257	$ 372,547	$ 354,434	$ 459,743
Industrial Sales	$ 620,000	$ 281,032	$ 297,333	$ 280,193	$ 338,968
Irrigation Sales	$ 411,000	$ 97,675	$ 70,213	$ 92,306	$ 313,325
Multi-Family Residential Sales	$ 221,000	$ 105,712	$ 107,332	$ 106,171	$ 115,288
Public Authority Sales	$ 192,000	$ 80,702	$ 79,425	$ 79,632	$ 111,298
Total Sales of Water	$ 4,157,000	$ 1,819,248	$ 1,838,107	$ 1,851,213	$ 2,337,752
Other Operating Revenues					
Private Fire Protection	$ 58,000	$ 28,620	$ 28,617	$ 28,624	$ 29,380
Public Fire Protection	$ 1,339,000	$ 643,561	$ 641,315	$ 634,974	$ 695,439
Forfeited Discounts	$ 25,000	$ 17,804	$ 17,298	$ 16,156	$ 7,196
Miscellaneous Service Revenues	$ 2,000	$ 1,895	$ 1,400	$ 175	$ 105
Rent From Water Property	$ 90,900	$ 48,129	$ 41,391	$ 40,433	$ 42,771
Other Water Revenues	$ 76,000	$ 195,562	$ 163,908	$ 157,167	$ (119,562)
Total Operating Revenues	$ 5,747,900	$ 2,754,819	$ 2,732,036	$ 2,728,743	$ 2,993,081
Operating Expenses					
Source of Supply Expense	$ 119,500	$ 40,626	$ 51,001	$ 49,882	$ 78,874
Pumping Expense	$ 302,600	$ 150,433	$ 171,488	$ 134,515	$ 152,167
Water Treatment Expense	$ 639,900	$ 348,575	$ 345,692	$ 313,149	$ 291,325
Water Transmission/Distribution Expense	$ 803,000	$ 361,302	$ 377,180	$ 355,636	$ 441,698
Customer Accounts Expense	$ 174,700	$ 164,857	$ 148,542	$ 141,808	$ 9,843
Sales Expense	$ 1,000	$ -	$ -	$ -	$ 1,000
Administrative And General Expense	$ 1,023,500	$ 508,272	$ 513,857	$ 447,196	$ 515,228
Depreciation Expense	$ 934,000	$ 470,630	$ 460,065	$ 502,238	$ 463,370
Taxes Expense	$ 1,005,000	$ 502,500	$ 506,400	$ 472,500	$ 502,500
Total Operating Expenses	$ 5,003,200	$ 2,547,196	$ 2,574,226	$ 2,416,924	$ 2,456,004
Operating Income	**$ 744,700**	**$ 207,623**	**$ 157,810**	**$ 311,819**	**$ 537,077**
Merchandise and Jobbing	$ 1,500	$ (2,970)	$ 801	$ 363	$ 4,470
Interest and Dividend Income	$ 85,000	$ 98,390	$ 35,660	$ 27,850	$ (13,390)
Miscellaneous Non-operating Income	$ 75,000	$ 3,334	$ 1,630	$ -	$ 71,666
Total Other Income Additions	$ 161,500	$ 98,754	$ 38,091	$ 28,213	$ 62,746
Other Income Deductions	$ 133,000	$ 52,597	$ 49,176	$ 52,618	$ 80,403
Total Net Income	**$ 773,200**	**$ 253,779**	**$ 146,725**	**$ 287,415**	**$ 519,421**

Wisconsin Rapids Water Works and Lighting Commission
Selected Water Utility Financial Charts
Year to Date for Months Ending June 2023, 2022, 2021



	Residential Sales	Commercial Sales	Industrial Sales	Irrigation Sales	Multi-Family Residential Sales	Public Authority Sales
2021	$938,478	$354,434	$280,193	$92,306	$106,171	$79,632
2022	$911,258	$372,547	$297,333	$70,213	$107,332	$79,425
2023	$915,870	$338,257	$281,032	$97,675	$105,712	$80,702



	Source of Supply Expense	Pumping Expense	Water Treatment Expense	Water Transmission/Distribution Expense	Customer Accounts Expense	Sales Expense	Administrative And General Expense	Depreciation Expense	Taxes Expense
2021	$49,882	$134,515	$313,149	$355,636	$141,808	$-	$447,196	$502,238	$472,500
2022	$51,001	$171,488	$345,692	$377,180	$148,542	$-	$513,857	$460,065	$506,400
2023	$40,626	$150,433	$348,575	$361,302	$164,857	$-	$508,272	$470,630	$502,500

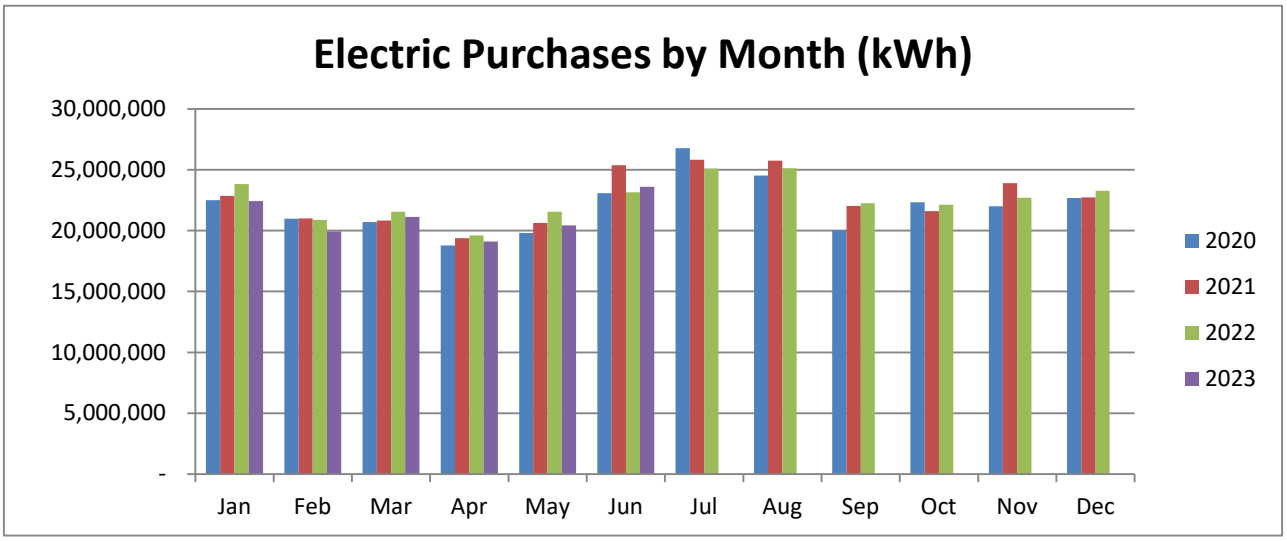
Wisconsin Rapids Water Works and Lighting Commission
Electric and Water Utility Balance Sheet
Balances as of June 2023 & 2022

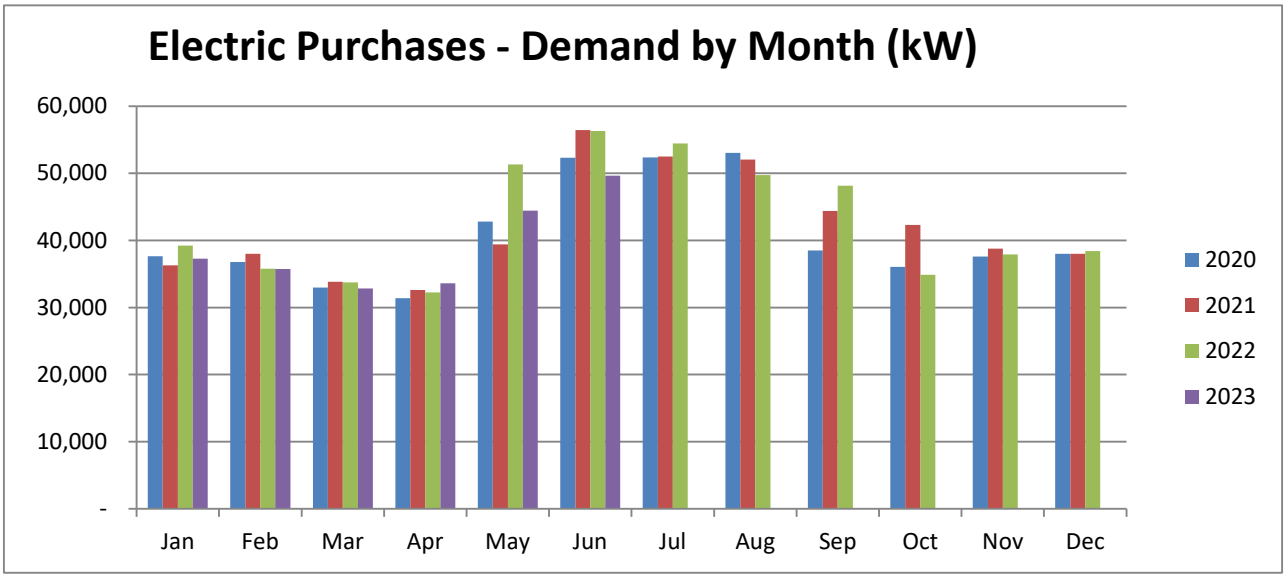
	2023			2022		
	Electric Utility	Water Utility	Combined Utilities	Electric Utility	Water Utility	Combined Utilities
ASSETS						
Utility Plant						
Utility Plant in Service	68,366,171	48,933,905	117,300,076	66,438,509	45,809,525	112,248,034
Utility Plant in Service - Common	7,993,186	2,800,333	10,793,519	7,894,496	2,689,445	10,583,942
Property Held for Future Use	500	104,255	104,755	500	104,255	104,755
Construction Work in Progress	2,466,232	387,832	2,854,064	1,832,471	469,527	2,301,998
Total Utility Plant	78,826,090	52,226,325	131,052,414	76,165,977	49,072,752	125,238,729
Less: Accumulated Depreciation						
Accumulated Depreciation	(30,434,995)	(19,580,082)	(50,015,077)	(28,676,072)	(18,774,655)	(47,450,727)
Accumulated Depreciation - Common	(6,275,218)	(1,917,249)	(8,192,467)	(5,794,933)	(1,851,413)	(7,646,345)
Total Accumulated Depreciation	(36,710,213)	(21,497,331)	(58,207,544)	(34,471,004)	(20,626,068)	(55,097,072)
Net Utility Plant	**42,115,877**	**30,728,993**	**72,844,870**	**41,694,972**	**28,446,684**	**70,141,657**
Current and Accrued Assets						
Cash	347,183	707,650	1,054,832	478,524	789,201	1,267,725
Working Funds	940	-	940	940	-	940
Rate Stabilization Deposit	0	-	0	(220,641)	-	(220,641)
Temporary Cash Investments	649,605	569,525	1,219,130	739,675	524,622	1,264,297
Customer Accounts Receivable	3,467,293	607,838	4,075,131	2,983,842	656,523	3,640,365
Other Accounts Receivable	242,439	335,455	577,894	279,514	380,608	660,122
Receivable From Municipality	21,349	-	21,349	9,287	-	9,287
Notes Receivable	500,000	-	500,000	500,000	-	500,000
Sewer Fee For Collections	-	350,174	350,174	-	315,367	315,367
Due To (From) Municipality	22,745	56,972	79,717	11,157	47,835	58,992
Plant Materials & Supplies	2,083,228	791,943	2,875,171	1,762,379	509,550	2,271,928
Stores Expense	(52,919)	26,125	(26,794)	(36,666)	(21,663)	(58,328)
Prepayments	189,449	40,854	230,303	174,900	37,166	212,066
Interest Receivable	-	-	-	-	-	-
Total Current and Accrued Assets	7,471,313	3,486,535	10,957,848	6,682,910	3,239,209	9,922,119
Other Investments						
Depreciation Fund	4,952,747	5,325,524	10,278,271	4,653,819	6,729,172	11,382,991
Other Investments	9,111,511	-	9,111,511	8,619,490	-	8,619,490
Other Special Funds	183,931	3,280	187,211	176,768	3,280	180,048
Total Other Investments	14,248,189	5,328,804	19,576,993	13,450,078	6,732,452	20,182,530
Deferred outflows of Resources						
Unamortized Debt Disc & Expense	391,972	-	391,972	460,721	-	460,721
Preliminary Survey & Investigation Charges	2,808	-	2,808	2,808	-	2,808
Clearing Accounts	(29,992)	(26,588)	(56,580)	(3,969)	7,996	4,028
Deferred Outflows Related To Pension	3,304,963	1,911,567	5,216,530	2,457,774	1,323,414	3,781,188
Misc Deferred Debits	210,864	126,032	336,896	260,448	139,549	399,997
Total Deferred Outflows of Resources	3,880,615	2,011,011	5,891,627	3,177,782	1,470,959	4,648,742
Total Assets and Deferred Outflows	**67,715,994**	**41,555,344**	**109,271,338**	**65,005,742**	**39,889,305**	**104,895,047**

Wisconsin Rapids Water Works and Lighting Commission
Electric and Water Utility Balance Sheet
Balances as of June 2023 & 2022

	2023			2022		
	Electric Utility	Water Utility	Combined Utilities	Electric Utility	Water Utility	Combined Utilities
LIABILITIES						
Current and Accrued Liabilities						
Accounts Payable	2,444,076	-	2,444,076	2,339,140	-	2,339,140
Payables To Municipality	-	136	136	-	-	-
Customer Deposits	440,898	-	440,898	429,493	-	429,493
Taxes Accrued	798,845	762,357	1,561,202	853,952	784,821	1,638,773
Interest Accrued	42,383	-	42,383	38,673	-	38,673
Tax Collections Payable	184,538	-	184,538	171,458	-	171,458
Misc Current And Accrued Liabilities	1,823,665	846,355	2,670,019	1,886,155	911,802	2,797,957
Total Current and Accrued Liabilities	5,734,406	1,608,848	7,343,253	5,718,871	1,696,623	7,415,494
Long Term Debt						
Long Term Debt - Bonds	3,460,000	-	3,460,000	3,995,000	-	3,995,000
PROPRIETARY CAPITAL						
Capital Paid In By Municipality	1,030,967	798,819	1,829,787	1,030,967	798,819	1,829,787
Retained Earnings	54,213,401	37,334,180	91,547,581	51,403,377	36,069,448	87,472,825
Total Proprietary Capital	55,244,369	38,132,999	93,377,367	52,434,344	36,868,267	89,302,612
Deferred Inflows of Resources						
Customer Advance For Construction	67,425	-	67,425	296,176	-	296,176
Wholesale Rate Refund & Public Benefits	307,669	-	307,669	341,713	-	341,713
Unamortized Premium On Debt	37,295	-	37,295	43,828	-	43,828
Other Deferred Credits	2,864,832	1,813,498	4,678,330	2,175,811	1,324,415	3,500,226
Total Deferred Inflows of Resources	3,277,220	1,813,498	5,090,718	2,857,527	1,324,415	4,181,941
Total Liabilities, Equity and Def Inflows	**67,715,994**	**41,555,344**	**109,271,338**	**65,005,742**	**39,889,305**	**104,895,047**

Wisconsin Rapids Water Works and Lighting Commission
Monthly Electric Purchases
2020-2023





Water Works and Lighting Commission
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715/423-6300 FAX: 715/423-2831

INFORMATION SYSTEMS ADMINISTRATOR'S REPORT
July 2023

Cyber Security

I keep up on cyber security information and trends in many different ways. My main source of information is the E-ISAC and the MS-ISAC.

E-ISAC is the Electric Information Sharing and Analysis Center and is operated by NERC. They collect security information as well as analyze cyber security and physical security incidents for the purpose of quickly sharing information specific to the electric industry.

MS-ISAC is the Multi-State Information Sharing and Analysis Center and is funded by the Cybersecurity and Infrastructure Security Agency (CISA) which is part of the Department for Homeland Security (DHS). They monitor and share information at the State, Local, Tribal, and Territorial (SLTT) level.

Both organizations share information very quickly and usually before it comes out in the media. They use the Traffic Light Protocol (TLP) classification levels for the information they are sharing which specify who that information can be shared with. Almost all of the information they send is at the amber or green level. Amber level is the organization on a need to know basis. Green level is the "community", meaning electric community or government community, and includes the organization and partner organizations but not through publicly accessible channels.

I also encourage everyone I know to ask me questions about cyber security or technology topics that they saw on websites or news articles. This helps me share information and sometimes prompts me to research something I have never seen before.

Network Hardware Replacement

I will begin working with the network engineer the week of August 14th. We should be able to get everything configured and operational by the end of August.

Projects

1. Cyber Security
2. SCADA Server Replacement
3. Network Hardware Replacement

Sincerely,

Matt Stormoen
Information Systems Administrator

Water Works and Lighting Commission
221 16th Street So. P.O. Box 399 Wisconsin Rapids, WI 54495-0399 715/423-6300 FAX: 715/423-2831

Key Accounts/Conservation Manager Report
July 2023

Community Impact Pilot

Water Works & Lighting Commission is one of two utilities selected from 105 Focus on Energy participant utilities throughout the state. WW&LC will be partnering with Focus on Energy (Wisconsin's statewide energy efficiency and renewable energy program), to provide a limited number of small businesses in our community with energy efficiency makeovers. The Community Impact Pilot will provide selected businesses the opportunity to receive up to $30,000 in energy-efficiency upgrades for their business.

This past month, I have had several meetings with the Community Impact Program Manager and their team to discuss area businesses that may qualify for this great opportunity. At this point, 28 businesses have received a letter from the marketing team as well as communications from myself through previous on-site visits to businesses that may need these improvements. In the early part of August another email letter will be sent out along with follow-up calls promoting this offer. Energy Specialists will be scheduling and facilitating on-site energy assessments from August 21st through August 24th to the businesses interested in the energy efficiency improvements.

Ocean Spray Cranberry – The Sustainability Analyst has contacted me to discuss green power options for the facility. A thorough discussion of their options led to our Green Energy Program offer. This option of purchasing a large amount of green energy blocks seems to be a practical option for marketing renewable energy for their facility. We are waiting confirmation of the facility purchasing and taking advantage of our Green Energy Program.

Mariani Packaging – I reached out to the facility to discuss a large jump in water consumption this past month. Considering their operation has been running normal with no changes, they were appreciative of the notification. They are investigating any potential leaks within their facility.

Solarus – A rate decrease letter was sent to their facility. The Facility Manager contacted me to discuss options available. The reason for the decrease in usage was replacing lighting over to LED, and a great number of employees now working remotely from home. The facility also requested load data needed for electrical equipment upgrades throughout their building. All data was sent over to assist the electrical contractors with the project.

Respectfully,

Shawn Reimer

Key Accounts Manager

Water Works and Lighting Commission
221 16th Street So. P.O. Box 399 Wisconsin Rapids, WI 54495-0399 715/423-6300 FAX: 715/423-2831

ELECTRICAL ENGINEER'S REPORT
July 2023

GLU Revenue Meters

Recently I have been working with Marshfield Utilities on their GLU revenue meters as they have been having some issues with connecting to them so they can get a reading. We have a few of these revenue meters in our system, and they are all read via a dialup connection. You would think that this old technology would be reliable since it is still around, but it is far from it. I was periodically having to power-cycle the meters 1, 2, or even 3 times before they were able to finally get a reading from them. Manitowoc Public Utilities preferred the dialup metering, but now that Marshfield Utilities has taken over for them, we decided it would be a good time to make a change. I have talked with the IT Manager at Marshfield Utilities, and we have agreed that it would be a good idea to convert these meters over to a more modern ethernet connection for stability and reliability's sake. I will be assisting them in this conversion project as soon as we get a plan of action figured out.

Relay Settings Index

I have been working on creating a backup of all the settings and programs running on the Schweitzer relays in our system. This will ensure that if a relay failure occurs, we will be able to hot-swap a new relay in and have it back up and running in a timely manner.

Tyler Sneen
Electrical Engineer

Water Works and Lighting Commission
221 16th St. So. P.O. Box 399 Wisconsin Rapids, WI 54495-0399 715/423-6300 FAX: 715/423-2831

DIRECTOR OF ENGINEERING AND ELECTRIC OPERATIONS REPORT
July 2023

Peak Load
WW&LC hit a 2023 peak load of 55.5 mega-watts on July 27.

APPA RP3 Application
Most of the month was spent working on the APPA RP3 application. I have included a couple of the documents that are required for the application. One is an updated arc flash study and the other is a long term analysis of the electrical system. I hope to have the application completed and submitted by mid-August.

Capital Budget
I have been working with our various suppliers to obtain quotes for equipment that will be required for our 2024 projects. Most of the equipment have very long lead times and will need to be ordered soon to guarantee a timely 2024 delivery.

Todd Weiler, P.E.
Director of Engineering & Electric Operations

Water Works and Lighting Commission
221 16th St. So. P.O. Box 399 Wisconsin Rapids, WI 54495-0399 715/423-6300 FAX: 715/423-2831

ELECTRIC DISTRIBUTION SYSTEM ARC-FLASH HAZARD STUDY

Prepared For:

WISCONSIN RAPIDS WATER WORKS & LIGHTNG COMMISSION

Latest Revision: July 7th, 2023

Prepared By: Todd N. Weiler, P.E.

System Overview

Wisconsin Rapids Water Works and Lighting Commission (WR WW&LC) is located in Wisconsin Rapids, Wisconsin. WR WW&LC serves approximately 14,000 electrical customers and has a peak load of 60 MWs (mega-watts). The city and the electrical system is divided by the Wisconsin River. The West Side of the river has a peak load of about 20 MWs and has a 69 KV (kilo-volt) interconnection point with ATC in the West WR Substation. The East Side of the river has a peak load of about 40MWs and has a 115 KV interconnection point with ATC in the Baker Substation.

The fault currents at these two interconnections points were supplied by ATC and are updated each year by ATC. They are as follows:

West Side Substation	**Fault Current at 69KV**	**X/R ratio**
Three Phase	7,329A	7.07
Single Line to Ground	6.266A	7.83

Baker Substation	**Fault Current at 115KV**	**X/R ratio**
Three Phase	13,103A	8.75
Single Line to Ground	12,075A	6.11

The 69KV voltage at the West Side Substation and the 115KV voltage at the Baker Substation are stepped down to 46KV. Each substation has a pair of transformers to step down this voltage.

West Side Substation	**connection/voltage**	**impedance**
66MVA ABB	wye-wye/69-46KV	5.67%
15MVA GE	wye-wye/69-46KV	4.00%

Baker Substation	**connection/voltage**	**impedance**
30MVA North American	wye-wye/115-46KV	6.22%
30MVA Waukesha	wye-wye/115-46KV	6.48%

There are a pair of 46KV distribution lines that leave both the West Side Substation and the Baker Substation. All of these lines are constructed of 397.5 ACSR cable which is rated at 600 continuous amps. There is the capability to connect both the West and East side of the system through these 46KV lines but the tie points located on either side of the river are kept open and only closed in the event of an emergency. The system was modeled with these switches in the open position and the East and West Side isolated from each other.

One of the 46KV lines leaving West Side Substation feeds the Gaynor Substation. These two substations support the West portion of the WR WW&LC service territory. One of the 46KV lines leaving Baker Substation feeds the High School Substation and the other 46KV line feeds the Peach Street Substation. These three substations support the East portion of the WR WW&LC service territory. All of the lines have the capability to be

configured to back feed each of the substations in an emergency situation. For the purpose of this study the switches were kept in there normal closed or open state.

All five substations have transformers which step the 46KV voltage down to the standard 13.2KV distribution voltage. The transformers that are in service are listed below.

West Side Substation	**connection/voltage**	**impedance**
10MVA West GE	delta-wye/46-13.2KV	6.50%
10MVA Center WES	delta-wye/46-13.2KV	7.95%
10MVA East Virginia	delta-wye/46-13.2KV	7.78%
Baker Substation	**connection/voltage**	**impedance**
10MVA East WES	delta-wye/46-13.2KV	6.58%
High School Substation	**connection/voltage**	**impedance**
10MVA South WES	delta-wye/46-13.2KV	6.50%
10MVA North WES	delta-wye/46-13.2KV	6.30%
Peach Street Substation	**connection/voltage**	**impedance**
15MVA East Penn	delta-wye/46-13.2KV	7.80%
15MVA West Penn	delta-wye/46-13.2KV	7.70%
Gaynor Substation	**connection/voltage**	**impedance**
6.8MVA East Jordan	delta-wye/46-13.2KV	9.16%
6.8MVA West Jordan	delta-wye/46-13.2KV	9.70%

All of the substations with the exception of Baker use 15KV switchgear with vacuum breakers from various manufacturers to feed the 13.2KV lines that leave the substations. Baker Substation uses Cooper Re-closures to perform this task. All of the switchgear has a tie breaker to connect the split switchgear buses, but this breaker is always in the open position and is only closed in the event of an emergency. The system was modeled with the tie breakers in the open position.

All of the 13.2KV lines leaving the substations range in conductor size based on feeder load. All of the lines have switches capable of back feeding neighboring lines in the event of an emergency. The system was modeled with all of the switches left in their normally open or normally closed positions.

In order to provide a sampling of the incident energy levels available on the low voltage equipment (1000 volts or less). 29 distribution transformers of various sizes were modeled in the system.

Arc Flash Overview

The Public Service Commission of Wisconsin (PSCW) has adopted the new National Electric Safety Code (NESC) C2-2007 as published by the Institute of Electrical and Electronics Engineers, Inc. (IEEE). The PSCW and the Wisconsin State Legislature have approved a revised PSCW 114 – Wisconsin State Electrical Code – Volume 1 effective February 1, 2008. Included in these new rules are PSCW 114.410 and the referenced NESC C2-2007 rule 410 A. 3. These new rules require utility owners to have an arc-flash hazard assessment performed; they require training on the results of the assessment and the identification of hazards, and they mandate the use of a clothing system (typically FR clothing) rated for the exposure as determined by the hazard assessment.

Effective January 1, 2009 MEUW Member utilities must "ensure that an assessment is performed to determine potential exposure to an electric arc for employees who work on or near energized parts or equipment and if the assessment determines a potential employee exposure greater than 2 cal/cm^2 exists, the employer shall require employees to wear clothing or a clothing system that has an effective arc rating not less than the anticipated level of arc energy."

Hazard/Risk Category levels for protective clothing have been set and are listed in the NFPA (National Fire Protection Agency) 70E Safety Handbook. A category 0 level equates to an arc rating of $2cal/cm^2$ or below. A category 1 level is an arc rating of above $2cal/cm^2$ to $4cal/cm^2$. A category 2 level is an arc rating above $4cal/cm^2$ to $8cal/cm^2$. A category 3 level is an arc rating above $8cal/cm^2$ to $25cal/cm^2$. A category 4 level is an arc rating above $25cal/cm^2$ to $40cal/cm^2$. Anything above $40cal/cm^2$ is considered an extreme danger and protective clothing cannot provide proper protection.

The Wisconsin Rapids Water Works and Lighting Commission (WR WW&LC) Arc Flash Study was compiled with information collected from the American Transmission Company, Alliant Energy, Krause Power Engineering, and from the WR WW&LC Electrical and Engineering Departments.

The study was performed originally using ESA Easy Power Version 8 Software containing ANSI Short Circuit, Arc Flash, and Power Protector Modules and has since been updated and revised each year when revised system information. The current ESA Easy Power software is Version 10.2.

The purpose of this study was to model the WR WW&LC distribution system in order to determine the arc flash ratings of the distribution system so employees could be made aware of these hazards and proper safety measures be placed into effect. The system one line shows all of the arc flash calculations on the buses that were modeled and the Arc Flash Report list all of the information for each bus. The information that follows is a summary of the findings of the study.

Summary of Findings and Mitigation Plan

The WR WW&LC system can be broken apart into three sections based upon voltage level. Section 1 is equipment with voltages greater than 15,000 volts. This would include all of the 115,000 volt equipment in Baker Substation, all of the 69,000 volt equipment in Westside Substation, and all of the 46,000 volt equipment throughout the system. Section 2 is all equipment between 1,000 and 15,000 volts. This would include all of the 13,200 volt equipment in the substations and throughout the system. Section 3 is all equipment below 1,000 volts. This equipment is all of the secondary 480 volt or 208 volt lines which leave the distribution transformers. The utility ownership of this equipment typically ends at the meter panel.

Section 1: Equipment greater than 15,000 volts.

The Arc Flash ratings for this group of equipment ranged from Category 1 at 0.1cal/cm^2 to a Category 3 at 13.8cal/cm^2. Since the only time WR WW&LC crews work around this type of equipment while it is in the energized state is when breakers or gang operated switches are closed or opened, or when information is being recorded during substation inspections, the working distance was set 72 inches in the substations and to 96 inches for the gang operated switches on the poles.

Clothing combinations providing at least 16cal/cm^2 of protection should be worn when working on energized equipment above 15,000 volts.

Section 2: Equipment between 1,000 & 15,000 volts.

The Arc Flash ratings for this group of equipment ranged from Category 1 at 0.1cal/cm^2 to a Category 3 at 11.9cal/cm^2 if the normal 26 inch working distances are used for open air and 18 inch working distances are used for switchgear for the calculations.

Clothing combinations providing at least 16cal/cm^2 of protection should be worn when working on energized 13,200 volt distribution lines.

Section 3: Equipment below 1,000 volts.

It would not be practical to model all of the transformers in the system between 5KVA and 2500KVA. A sampling of 29 transformers were modeled for this study of varying sizes in order to provide enough results in order to draw the conclusions provided in this report. The Arc Flash ratings for this group of equipment ranged from Category 1 at 0.4cal/cm^2 to an Extreme Danger at 30,227cal/cm^2 if the normal 18 inch working

distances are used for panels and MCC for the calculations. The model was built with the appropriate fuse size for each specific transformer. Field inspection confirmed the actual fuse sizes were the same as what is recommended in the chart. The study shows that these low voltage areas are of the most concern when it comes to Arc Flash Levels since there is typically no secondary protection from the low voltage terminals of the transformer, through the meter socket, to the customer panel. This portion of the system is rarely worked energized but it would become an issue when the Electric Meter Department needs to pull an electric meter if the meter is directly connected to the system and not connected through potential transformers and current transformers. The Electric Meter Electricians will need to wear the appropriate clothing dependent on the transformer size feeding the meter panel and when dealing with the larger sizes as shown in the chart, the line crew will be required to de-energize the transformer before the meter can be removed. The two voltages at this level are 480 volts and 208/240 volts. Below are tables showing the results from the study.

LOW VOLTAGE ARC FLASH CHARTS

480 VOLTS

1PH KVA	3PH KVA	Incident Energy (cal/cm2)	Clothing Category
37.5 or less	112.5 or less	8 or less	2 or less
50-100	150-300	great than 8 to 40	3 & 4
167 or above	500 or above	greater than 40	extreme danger

208/240 VOLTS

1PH KVA	3PH KVA	Incident Energy (cal/cm2)	Clothing Category
25 or less	75 or less	8 or less	2 or less
37.5-50	112.5-150	great than 8 to 40	3 & 4
75 or above	225 or above	greater than 40	extreme danger

Executive Summary

The Arc Flash Study conducted for the Wisconsin Rapids Water Works and Lighting Commission shows incident energy levels exceed 2cal/cm^2 for the majority of the equipment being worked on while it is energized. These energy levels do not exceed 16cal/cm^2 which is classified as a category 3. Employees that are exposed to these energized locations include the Line Crew, the Electric Meter Department, the Electric Superintendent and the Engineering Supervisor. When these employees are working on energized equipment they should be dressed in FR (Flame Resistant) clothing that provides a protection rating of at least 16cal/cm^2. This would typically require cotton underwear plus an FR shirt and FR pants that have a 16cal/cm^2 rating, in addition these employees should be provided with a FR hooded sweatshirt/jacket so that during cold weather when a hood is required, it too is FR rated. These employees should also be fitted for an FR coverall which would include bibs and a jacket to be worn when working on category 3 equipment.

There are also locations at WR WW&LC that exceed 40cal/cm^2 and no rated clothing system can adequately protect an employee working on this equipment while it is energized. These locations can only be worked on while de-energized.

Warning labels have been placed on all of the switchgear and MCC equipment providing both Arc Flash and Shock Hazard information.

Arc Flash Hazard Report

Arc Fault Bus Name	Arc Fault Bus kV	Upstream Trip Device Name	Upstream Trip Device Function	Equip Type	Gnd	Electrode Gap (mm)	Bus Bolted Fault (kA)	Bus Arc Fault (kA)	Trip Time (sec)	Opening Time (sec)	Arc Time (sec)	Est Arc Flash Boundary (inches)	Working Distance (inches)	Incident Energy (cal/cm2)	PPE / Comments
ATC-69-MAIN	69														No Valid Trip Device Found Upstream or in Bus Dialog.
ATC-115-MAIN	115														No Valid Trip Device Found Upstream or in Bus Dialog.
BS-0.208 CC S	0.208	FU-10 CC SC		Panel	X	25	17.82	*5.547	0.561	0	0.561	65	18	9.9	3
BS-0.208 SNNY	0.208	FU-5 SNNY A		Panel	X	25	13.326	*4.523	0.167	0	0.167	27.1	18	2.4	1
BS-0.480 WELL	0.48	FU-C08 WELL		MCC	X	25	8.876	*5.034	0.462	0	0.462	54.1	18	7.3	2
BS-0.480 WELL	0.48	LB_WELL4		MCC	X	25	9.312	*5.245	0.024	0	0.024	9.2	18	0.4	1
BS-0.480 WELL	0.48	FU-C05 WELL		MCC	X	25	5.839	*3.52	0.128	0	0.128	19.5	18	1.4	1
BS-13.2 48-AR	13.2	R-1-36S	51	Open Air	X	153	3.622	3.577	0.462	0.067	0.528	30.4	26	1.6	1
BS-13.2 48-WT	13.2	R-1-38S	51	Open Air	X	153	2.4	2.386	0.6	0.05	0.65	27.1	26	1.3	1
BS-13.2 80-WT	13.2	R-1-38S	51	Open Air	X	153	1.638	1.639	0.773	0.05	0.823	24.9	26	1.1	1
BS-13.2 80TH	13.2	R-1-37S	51	Open Air	X	153	1.105	1.113	1.588	0.05	1.638	28.5	26	1.4	1
BS-13.2 80TH-	13.2	R-1-37S	51	Open Air	X	153	1.412	1.416	1.003	0.05	1.053	26	26	1.2	1
BS-13.2 ARPRT	13.2	R-1-35S	51	Open Air	X	153	4.32	4.253	0.356	0.067	0.422	29.8	26	1.6	1
BS-13.2 HWY F	13.2	R-5	51	Other	X	153	1.105	1.113	0.6	0.083	0.683	24.3	18	1.6	1
BS-13.2 LAKE-	13.2	R-1-35S	51	Open Air	X	153	3.104	3.074	0.591	0.067	0.658	31.2	26	1.7	1
BS-13.2 LAKE-	13.2	R-1-37S	51	Open Air	X	153	1.949	1.945	0.6	0.05	0.65	24.2	26	1.0	1
BS-13.2-WELL3	13.2	R-1-38S	51	Open Air	X	153	2.491	2.475	0.6	0.05	0.65	27.6	26	1.4	1
BS-48TH-WAZ-	13.2	R-1-123S	51	Open Air	X	153	1.949	1.945	0.024	0.05	0.074	8.2	26	0.1	1
BS-F-13.2 NOR	13.2	R-1-35S	51	Open Air	X	153	4.76	4.679	0.312	0.067	0.378	29.7	26	1.6	1
BS-F-13.2 SOU	13.2	R-1-36S	51	Open Air	X	153	4.76	4.679	0.312	0.067	0.378	29.7	26	1.6	1
BS-S-13.2 MAI	13.2	R-1-31S-51	51/50	Open Air	X	153	4.792	4.709	0.854	0.067	0.921	46.5	26	3.8	1
BS-S-46-AIRPO	46	R-1-21D-87	51P/50P IEE	Open Air	X	101.6	4.926	4.926	0.017	0.15	0.167	158	72	5.8	2
BS-S-46-DIST	46	R-1-21D-87	51P/50P IEE	Open Air	X	101.6	4.925	4.925	0.017	0.15	0.167	158	72	5.8	2
BS-S-46-EAST	46	R-1-22D-87	51P/50P IEE	Open Air	X	101.6	5.111	5.111	0.017	0.15	0.167	161	72	6.0	2
BS-S-46-EXPR	46	R-1-22D-87	51P/50P IEE	Open Air	X	101.6	5.099	5.099	0.017	0.15	0.167	160.8	72	6.0	2
BS-S-46-WEST	46	R-1-21D-87	51P/50P IEE	Open Air	X	101.6	4.937	4.937	0.017	0.15	0.167	158.2	72	5.8	2
BUS-1	13.2	R-1-3S-87_A	51P/50P IEE	Other	X	153	5.267	5.168	0.91	0.05	0.96	189.8	18	11.9	3
BUS-2	13.2	FU-140 CLD S		Other	X	153	3.293	3.257	0.046	0	0.046	5	18	0.3	1
BUS-4	13.2	FU-C08 ASS		Other	X	153	4.461	4.39	0.013	0	0.013	1.9	18	0.1	1
B_46PEACHEA	46	R-1-27S-351	51/50	Open Air	X	101.6	3.97	3.97	0.826	0.067	0.892	328.3	96	14.0	3
B_46UNDERG	46	R-1-25S-351	51/50	Open Air	X	101.6	3.19	3.19	0.416	0.067	0.482	216.4	96	6.1	2
GS-0.208 PYN	0.208	FU-2 PAYNE		Panel	X	25	4.034	*1.954	0.364	0	0.364	25.1	18	2.1	1
GS-0.480 HP-C	0.48	FU-C18 HP-C		Panel	X	25	19.422	*9.827	88.612	0	88.612	2068.8	18	2886.5	Dangerous!
GS-0.480 HP20	0.48	FU-C18 HP20		Panel	X	25	23.014	*11.36	46.931	0	46.931	1545.2	18	1788.1	Dangerous!
GS-0.480-WRA	0.48	FU-C14 WRA		Panel	X	25	12.036	*6.53	54.98	0	54.98	1181.5	18	1151.2	Dangerous!
GS-13.2 HS199	13.2	FU-C18 HP-C		Open Air	X	153	1.877	1.874	1.119	0	1.119	31.2	26	1.7	1
GS-13.2 HS200	13.2	FU-C18 HP20		Open Air	X	153	1.877	1.874	1.119	0	1.119	31.2	26	1.7	1
GS-13.2 PAYN	13.2	FU-2 PAYNE		Open Air	X	153	2.019	2.013	0.013	0	0.013	3.5	26	0.02	1
GS-13.2 PAYN	13.2	FU-C14 WRA		Open Air	X	153	2.019	2.013	0.348	0	0.348	18.1	26	0.6	1
GS-F-13.2 CHA	13.2	R-1-46S	51/50	Open Air	X	153	2.328	2.316	0.834	0.067	0.901	31.4	26	1.7	1
GS-F-13.2 EAS	13.2	R-1-46S	51/50	Open Air	X	153	2.635	2.616	0.687	0.067	0.753	30.6	26	1.7	1
GS-F-13.2 GAY	13.2	R-1-44S	51/50	Open Air	X	153	2.768	2.745	0.639	0.067	0.706	30.4	26	1.6	1
GS-F-13.2 GYN	13.2														No Valid Trip Device Found Upstream or in Bus Dialog.
GS-F-13.2 HOS	13.2	R-1-46S	51/50	Open Air	X	153	1.878	1.875	1.216	0.067	1.283	33.4	26	2.0	1

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* indicates a reduced arcing current

Arc Flash Hazard Report

Arc Fault Bus Name	Arc Fault Bus kV	Upstream Trip Device Name	Upstream Trip Device Function	Equip Type	Gnd	Electrode Gap (mm)	Bus Bolted Fault (kA)	Bus Arc Fault (kA)	Trip Time (sec)	Opening Time (sec)	Arc Time (sec)	Est Arc Flash Boundary (inches)	Working D stance (inches)	Incident Energy (cal/cm2)	PPE / Comments
GS-F-13.2 HOS	13.2	R-1-46S	51/50	Other	X	153	1.878	1.875	1.216	0.067	1.283	82.9	18	5.3	2
GS-F-13.2 HP-	13.2	R-1-46S	51/50	Switchgear	X	153	1.878	1.875	1.216	0.067	1.283	82.9	18	5.3	2
GS-F-13.2 HP2	13.2	R-1-46S	51/50	Switchgear	X	153	1.878	1.875	1.216	0.067	1.283	82.9	18	5.3	2
GS-F-13.2 W-E	13.2	R-1-105S	51	Open Air	X	153	2.328	2.316	0.751	0.05	0.801	29.6	26	1.6	1
GS-S-13.2-EAS	13.2	R-1-43S	51/50	Switchgear	X	153	2.645	2.626	0.987	0.1	1.087	101.6	18	6.5	2
GS-S-13.2-WE	13.2	R-1-42S	51/50	Switchgear	X	153	2.778	2.756	0.907	0.1	1.007	99.1	18	6.3	2
GS-S-46-MAIN	46	R-1-1S	51/50	Open Air	X	101.6	5.488	5.488	0.26	0.067	0.326	233.3	96	7.1	2
GS-S-46FU-EA	46	1-41F		Open Air	X	101.6	5.487	5.487	0.078	0	0.078	113.9	72	3.0	1
GS-S-46FU-WE	46	1-40F		Open Air	X	101.6	5.487	5.487	0.078	0	0.078	113.9	72	3.0	1
HS-0.208 16 ST	0.208	FU-5 16TH ST		Panel	X	25	10.561	*3.842	0.219	0	0.219	28.7	18	2.6	1
HS-0.208 AMR	0.208	FU-5 AMER E		Panel	X	25	11.481	*4.074	0.198	0	0.198	28.1	18	2.5	1
HS-0.480 LHS	0.48	FU-C14 LHS		Panel	X	25	16.891	*8.722	22.348	0	22.348	826.1	18	639.9	Dangerous!
HS-0.480 WAL	0.48	FU-65 WALM		Panel	X	25	21.617	*10.768	1.735	0	1.735	200	18	62.4	Dangerous!
HS-0.480 WELL	0.48	FU_WELL#1		MCC	X	25	5.601	*3.397	0.088	0	0.088	15.2	18	0.9	1
HS-0.480 WELL	0.48	FU-C08 WELL		MCC	X	25	12.68	*6.827	0.257	0	0.257	46.2	18	5.6	2
HS-13.2 16 ST	13.2	FU-5 16TH ST		Open Air	X	153	4.262	4.197	0.013	0	0.013	5.3	26	0.05	1
HS-13.2 AMR E	13.2	FU-5 AMER E		Open Air	X	153	2.811	2.788	0.013	0	0.013	4.2	26	0.03	1
HS-13.2 LINCO	13.2	FU-C14 LHS		Open Air	X	153	3.582	3.538	0.11	0	0.11	13.8	26	0.3	1
HS-13.2 WALM	13.2	FU-65 WALM		Open Air	X	153	2.485	2.47	0.053	0	0.053	7.9	26	0.1	1
HS-13.2 WELL#	13.2	FU-C08 WELL		Open Air	X	153	2.42	2.406	0.015	0	0.015	4.1	26	0.03	1
HS-13.2 WELL#	13.2	FU-C08 WELL		Open Air	X	153	1.97	1.965	0.016	0	0.016	3.8	26	0.03	1
HS-13.2-WD	13.2	R-1-67S	51/50	Open Air	X	153	2.503	2.488	0.493	0.1	0.593	26.4	26	1.2	1
HS-23RD-WAS	13.2	R-1-127S	51	Open Air	X	153	2.503	2.488	0.024	0.05	0.074	9.4	26	0.2	1
HS-F-13.2 LIN	13.2	R-1-65S	51/50	Open Air	X	153	4.728	4.648	0.307	0.1	0.407	30.7	26	1.7	1
HS-F-13.2 PEP	13.2	R-1-66S	51/50	Open Air	X	153	4.728	4.648	0.276	0.1	0.376	29.5	26	1.5	1
HS-F-13.2 S LO	13.2	R-1-68S	51/50	Open Air	X	153	4.628	4.551	0.304	0.1	0.404	30.2	26	1.6	1
HS-F-13.2 WDL	13.2	R-1-67S	51/50	Open Air	X	153	4.628	4.551	0.28	0.1	0.38	29.4	26	1.5	1
HS-S-13.2-NOR	13.2	R-1-62S	51/50	Switchgear	X	153	4.759	4.678	0.534	0.1	0.634	110.9	18	7.0	2
HS-S-13.2-SOU	13.2	R-1-63S	51/50	Switchgear	X	153	4.658	4.58	0.55	0.1	0.65	111	18	7.0	2
HS-S-46-MAIN	46	R-1-22D-87	51P/50P IEE	Open Air	X	101.6	4.34	4.34	0.017	0.15	0.167	148.3	72	5.1	2
HS-S-46-NORT	46	R-1-22D-87	51P/50P IEE	Open Air	X	101.6	4.34	4.34	0.017	0.15	0.167	148.3	72	5.1	2
HS-S-46-SOUT	46	R-1-22D-87	51P/50P IEE	Open Air	X	101.6	4.34	4.34	0.017	0.15	0.167	148.3	72	5.1	2
L-46-2028	46	R-1-22D-87	51P/50P IEE	Open Air	X	101.6	4.439	4.439	0.017	0.15	0.167	150	96	2.9	1
L-46-271A	46	R-1-25S-351	51/50	Open Air	X	101.6	3.556	3.556	0.338	0.067	0.404	209.1	96	5.7	2
L-46-271N-225	46	R-1-25S-351	51/50	Open Air	X	101.6	3.28	3.28	0.394	0.067	0.461	214.4	96	6.0	2
L-46-271W	46	R-1-25S-351	51/50	Open Air	X	101.6	3.556	3.556	0.338	0.067	0.404	209.1	96	5.7	2
L-46-313	46														No Valid Trip Device Found Upstream or in Bus Dialog.
L-46-721	46														No Valid Trip Device Found Upstream or in Bus Dialog.
L-46-1625-2820	46	R-1-27S-351	51/50	Open Air	X	101.6	4.079	4.079	0.786	0.067	0.853	325.3	96	13.8	3
L-46-2820	46	R-1-22D-87	51P/50P IEE	Open Air	X	101.6	4.272	4.272	0.017	0.15	0.167	147.2	96	2.8	1
L-46-4020	46	R-1-22D-87	51P/50P IEE	Open Air	X	101.6	4.484	4.484	0.017	0.15	0.167	150.8	96	3.0	1
L-46-GAYNOR	46	R-1-1S	51/50	Open Air	X	101.6	6.254	6.254	0.22	0.067	0.286	233.4	72	12.6	3
L-46-RISER-EA	46														No Valid Trip Device Found Upstream or in Bus Dialog.
L-46-RISER-EA	46														No Valid Trip Device Found Upstream or in Bus Dialog.

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* Indicates a reduced arcing current

Arc Flash Hazard Report

Arc Fault Bus Name	Arc Fault Bus kV	Upstream Trip Device Name	Upstream Trip Device Function	Equip Type	Gnd	Electrode Gap (mm)	Bus Bolted Fault (kA)	Bus Arc Fault (kA)	Trip Time (sec)	Opening Time (sec)	Arc Time (sec)	Est Arc Flash Boundary (inches)	Working Distance (inches)	Incident Energy (cal/cm2)	PPE / Comments
L-46-RISER-W	46														No Valid Trip Device Found Upstream or in Bus Dialog.
L-46-RISER-W	46														No Valid Trip Device Found Upstream or in Bus Dialog.
L-69-N STL CS	69														No Valid Trip Device Found Upstream or in Bus Dialog.
L-225-1625	46	R-1-25S-351	51/50	Open Air	X	101.6	3.239	3.239	0.404	0.067	0.47	215.3	96	6.0	2
MARICOLDN	0.48	FU-140 CLD S		Panel	X	25	33.183	*15.529	1.663	0	1.663	248	18	88.8	Dangerous!
MARICOLDSE	0.48	FU-140 CLD S		Panel	X	25	33.183	*15.529	1.663	0	1.663	248	18	88.8	Dangerous!
MARICOLDW	0.48	FU-140 CLD S		Panel	X	25	28.469	*13.624	8.92	0	8.92	633.2	18	413.6	Dangerous!
PS-.48 ANDER	0.48	FU-140 CLD S		Panel	X	25	12.867	8.133	1000	0	1000	7997.6	18	26548.5	Dangerous!
PS-0.48 MARIA	0.48	1-104S	51	Transformer T		32	26.33	*11.989	7 778	0.083	7.861	928	18	399.4	Dangerous!
PS-0.48 MARIA	0.48	1-104S	51	Switchgear		32	16.997	*8.326	15.307	0.083	15.391	1120.6	18	527.2	Dangerous!
PS-0.48 NEW J	0.48	FU-20 CRT H		Panel	X	25	24.519	*11.992	0.103	0	0.103	38.4	18	4.2	2
PS-0.208 7 ST	0.208	FU-15 7TH S		Panel	X	25	16.366	*5.225	1.432	0	1.432	110.5	18	23.6	3
PS-0.208 CHES	0.208	FU-10 CHEST		Panel	X	25	20.951	*6.215	0.454	0	0.454	61.5	18	9.0	3
PS-0.240 4TH S	0.24	FU-2 4TH STR		Panel	X	25	2.943	*1.608	0.398	0	0.398	23.3	18	1.8	1
PS-0.480 FP M	0.48	1-95S		MCC	X	25	25.206	14.445	0.018	0	0.018	14.7	18	0.9	1
PS-0.480 FP O	0.48	FU-C50 FP		Panel	X	25	25.206	*12.278	1.545	0	1.545	203.1	18	64.0	Dangerous!
PS-0.480 MRS	0.48	R-1-92S	51/50	Transformer T	X	32	16.248	9.435	1000	0.067	1000	17506.7	18	30227.6	Dangerous!
PS-0.480 WR O	0.48	R-1-92S	51/50	Transformer T	X	32	8.973	5.753	1000	0.067	1000	12177.6	18	17709.2	Dangerous!
PS-2.4 CRT HS	0.208	FU-20 CRT H		Panel	X	25	23.578	*6.753	1.63	0	1.63	141.6	18	35.4	4
PS-13.2 7 ST	13.2	FU-15 7TH S		Open Air	X	153	3.11	3.079	0.014	0	0.014	4.6	26	0.04	1
PS-13.2 4TH S	13.2	R-1-86S	51/50	Open Air	X	153	2.979	2.952	0.403	0.067	0.47	25.8	26	1.2	1
PS-13.2 CHEST	13.2	FU-10 CHEST		Open Air	X	153	3.489	3.447	0.013	0	0.013	4.7	26	0.04	1
PS-13.2 CLD S	13.2	FU-140 CLD S		Open Air	X	153	3.293	3.257	0.046	0	0.046	8.5	26	0.1	1
PS-13.2 CRT H	13.2	FU-20 CRT H		Open Air	X	153	3.729	3.681	0.014	0	0.014	5.1	26	0.05	1
PS-13.2 FLTR	13.2	FU-C50 FP		Open Air	X	153	4 491	4 418	0.028	0	0.028	7.9	26	0.1	1
PS-13.2 RURAL	13.2	R-1-92S	51/50	Conductor	X	13	3.11	3.079	0.386	0.067	0.453	21.7	26	0.8	1
PS-46-EAST	46	R-1-25S-351	51/50	Open Air	X	101.6	3.165	3 165	0.422	0.067	0.489	217	72	10.9	3
PS-46-MAIN-EA	46	R-1-25S-351	51/50	Open Air	X	101.6	3.165	3 165	0.422	0.067	0.489	217	96	6 1	2
PS-46-MAIN-W	46	R-1-25S-351	51/50	Open Air	X	101.6	3.165	3.165	0.422	0.067	0.489	216.9	72	10.9	3
PS-46-WEST	46	R-1-25S-351	51/50	Open Air	X	101.6	3.165	3 165	0.422	0.067	0.489	217	72	10.9	3
PS-F-13.2 APP	13.2	R-1-87S	51/50	Open Air	X	153	4.545	4.47	0.243	0.067	0.31	26.3	26	1.2	1
PS-F-13.2 LP 2	13.2	R-1-86S	51/50	Open Air	X	153	4.545	4.47	0.283	0.067	0.35	27.9	26	1.4	1
PS-F-13.2 LP-1	13.2	R-1-85S	51/50	Open Air	X	153	4.545	4.47	0.283	0.067	0.35	27.9	26	1 4	1
PS-F-13.2 RUR	13.2	R-1-92S	51/50	Open Air	X	153	4.576	4.501	0.282	0.067	0.349	27.9	26	1.4	1
PS-F-13.2 SPA	13.2														No Valid Trip Device Found Upstream or in Bus Dialog.
PS-F-13.2 SPR	13.2	R-1-89S	51/50	Open Air	X	153	4.576	4.501	0.282	0.067	0.349	27.9	26	1.4	1
PS-F-13.2 WAS	13.2	R-1-90S	51/50	Open Air	X	153	4.576	4.501	0.282	0.067	0.349	27.9	26	1.4	1
PS-F-13.2 WW	13.2	R-1-88S	51/50	Other	X	153	4.545	4.47	0.243	0.067	0.31	50.5	18	3.3	1
PS-S-13.2 EAS	13.2	R-1-83S	51/50	Switchgear	X	153	4.609	4.532	0.587	0.067	0.654	110.5	18	7.0	2
PS-S-13.2 WES	13.2	R-1-82S	51/50	Switchgear	X	153	4.576	4.501	0.594	0.067	0.661	110.8	18	7.0	2
WS-0.208 ASS	0.208	FU-C08 ASS		Other	X	32	23.903	*6.427	1.789	0	1.789	180.2	18	35.7	4
WS-0.208 FST	0.208	FU-C08 FRST		Panel	X	25	22.512	*6.537	1.712	0	1.712	142.8	18	35.9	4
WS-0.208 HIGH	0.208	FU-7 HIGH ST		Panel	X	25	10.6	*3.852	0.738	0	0.738	60.3	18	8.7	3
WS-0.480 OCN	0.48	FU-150 OCN		Panel	X	25	32.004	*15.056	11.179	0	11 179	776	18	577.5	Dangerous!

Warning: These Arc-Flash 'IEEE 1584-2002' results are based on theoretical equations derived from measured test results
The test results are a funct on of specific humidity, barometric pressure, temperature, arc distance, and many other variables.
These parameters will NOT be the same in your application These results should be applied only by experienced engineers in the
application of Arc-flash hazards. EasyPower makes no warranty concerning the accuracy of these results as applied to real world scenarios.

* Indicates a reduced arcing current

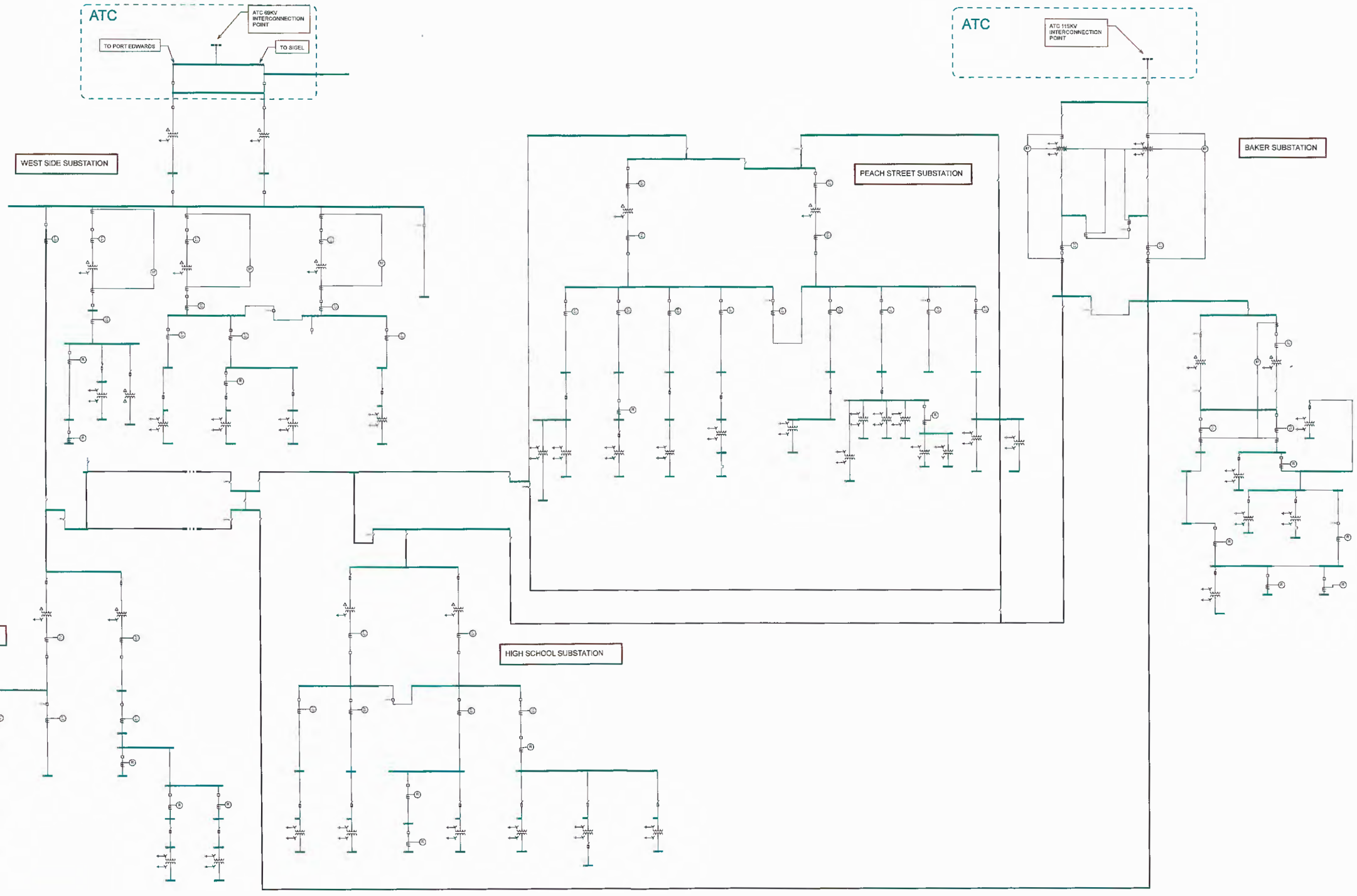
Arc Flash Hazard Report

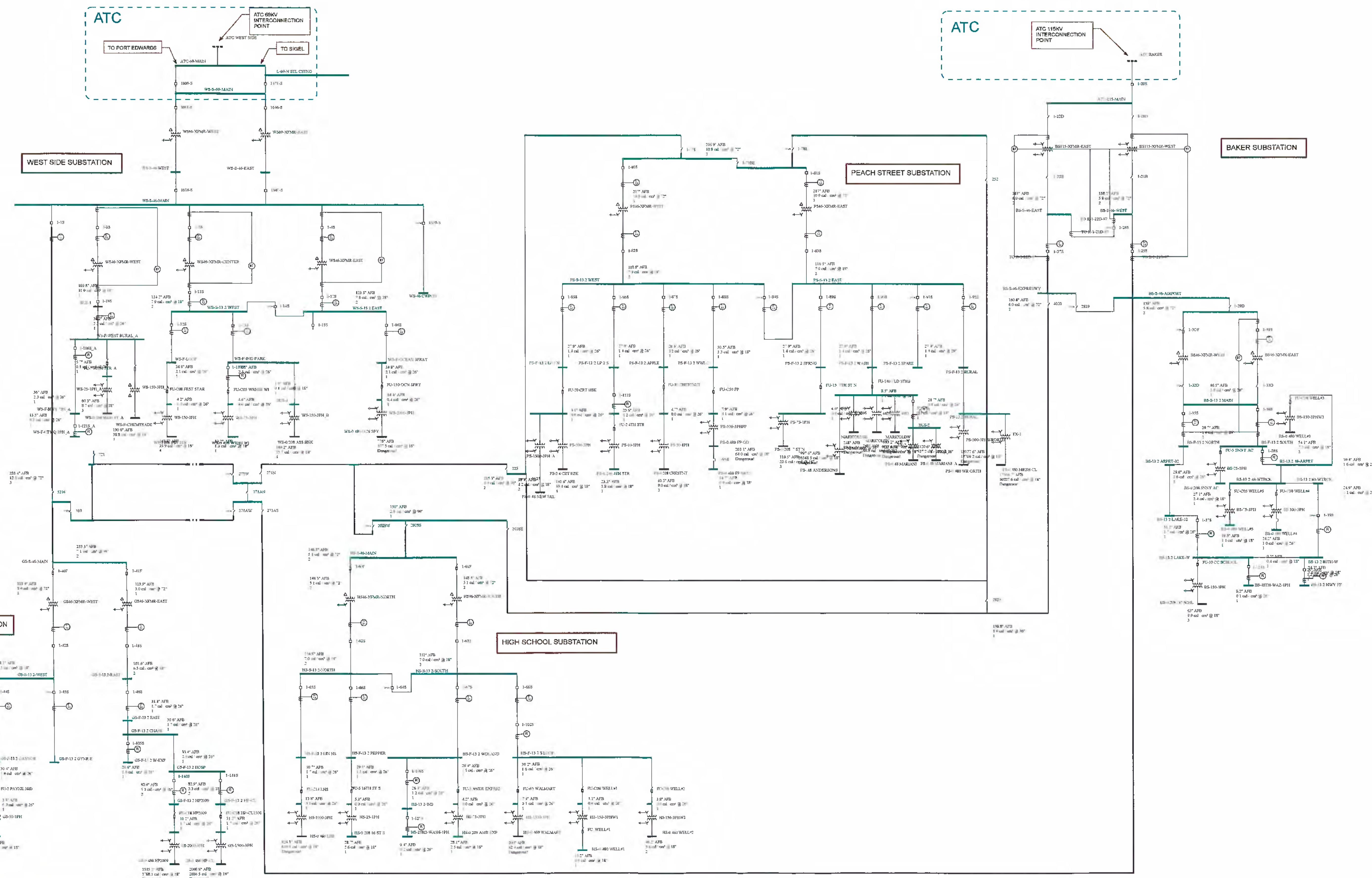
Arc Fault Bus Name	Arc Fault Bus kV	Upstream Trip Device Name	Upstream Trip Device Function	Equip Type	Gnd	Electrode Gap (mm)	Bus Bolted Fault (kA)	Bus Arc Fault (kA)	Trip Time (sec)	Opening Time (sec)	Arc Time (sec)	Est Arc Flash Boundary (inches)	Working Distance (inches)	Incident Energy (cal/cm2)	PPE / Comments
WS-0.480 WRH	0.48	FU-C05 WRH		Panel	X	25	6.01	*3.608	0.121	0	0.121	19.2	18	1.3	1
WS-13.2 FST S	13.2	FU-C08 FRST		Open Air	X	153	2.627	2.609	0.014	0	0.014	4.2	26	0.03	1
WS-13.2 HIGH	13.2	FU-7 HIGH ST		Open Air	X	153	4.994	4.905	0.013	0	0.013	5.7	26	0.06	1
WS-13.2 OCN	13.2	FU-150 OCN		Open Air	X	153	3.473	3.432	0.125	0	0.125	14.4	26	0.4	1
WS-13.2 WRH	13.2	FU-C05 WRH		Open Air	X	153	3.426	3.386	0.013	0	0.013	4.6	26	0.04	1
WS-46 CWPCO	46														No Valid Trip Device Found Upstream or in Bus Dialog.
WS-F-CHEMTR	0.24	FS-1		Other		32	4.373	*2.091	5.046	0	5.046	190.6	18	38.8	4
WS-F-CTY Q 1	13.2	R-1-121S_A	51	Open Air	X	153	4.994	4.905	0.024	0.05	0.074	13.5	26	0.3	1
WS-F-HWY 73	13.2	R-1-15S_A	51/50	Open Air	X	153	4.994	4.905	0.427	0.1	0.527	36	26	2.3	1
WS-F-IND PAR	13.2	R-1-13S	51/50	Open Air	X	153	4.461	4.39	0.488	0.067	0.554	34.8	26	2.1	1
WS-F-LOOP	13.2	R-1-12S	51/50	Open Air	X	153	4.461	4.39	0.488	0.067	0.554	34.8	26	2.1	1
WS-F-OCEAN	13.2	R-1-16S	51/50	Open Air	X	153	4.542	4.468	0.477	0.067	0.544	34.8	26	2.1	1
WS-F-WEST R	13.2	R-1-15S_A	51/50	Open Air	X	153	5.235	5.137	0.406	0.1	0.506	36.2	26	2.3	1
WS-S-13.2 EAS	13.2	R-1-17S	51/50	Switchgear	X	153	4.564	4.489	0.669	0.067	0.736	123.5	18	7.8	2
WS-S-13.2 WE	13.2	R-1-11S	51/50	Switchgear	X	153	4.484	4.412	0.687	0.067	0.754	124.2	18	7.9	2
WS-S-46-EAST	46														No Valid Trip Device Found Upstream or in Bus Dialog.
WS-S-46-MAIN	46														No Valid Trip Device Found Upstream or in Bus Dialog
WS-S-46-WES	46														No Valid Trip Device Found Upstream or in Bus Dialog
WS-S-69-MAIN	69														No Valid Trip Device Found Upstream or in Bus Dialog

* Indicates a reduced arcing current

Community Impact Pilot - Wisconsin Rapids

Business	***Contact Name***	***Phone#***
The Collar Club	Kristina	715-213-2544
Quality Foods	Merlin Jeffery	715-423-8350
Gremler's Bakery	Steven Gremler	715-421-0900
Ace Hardware	Mike Flammini	715-421-1550
Galles Marine	Mike Galles	715-423-4260
Dairy Queen	Tami Kasen	715-424-6944
Dairy Treat	Gary Magsam	760-534-1394
Rapids Inn & Suites		605-214-1980
Cobble Stone Hotel		715-424-3444
Pasquale's Italian	John Foti	715-459-3416
Danny K's		715-421-0200
Rodgers Cinema		715-421-3177
Brings Cycling & Fitness	Alen Bring	715-423-5520
four star resturant	Gemal Alimi	715-424-4554
Esquire Mufflers	Doug Bodin	715-421-1030
Unifirst		715-423-4640
Rapids Rental	Gary Knuth	715-421-5500
1716 Bar/Rest	Preston Sietz	715-751-0297
Taco Johns	Kelly Knudson	701-235-2014
Savory Steakhouse		708-218-5621
Buds Corner Mart	Manish Patel	715-697-0444


ATC
ATC 69KV INTERCONNECTION POINT
TO PORT EDWARDS
TO SIGEL
WEST SIDE SUBSTATION
PEACH STREET SUBSTATION
ATC
ATC 115KV INTERCONNECTION POINT
BAKER SUBSTATION
GAYNOR SUBSTATION
HIGH SCHOOL SUBSTATION


ATC
ATC 69KV INTERCONNECTION POINT
ATC WEST SIDE
TO PORT EDWARDS
TO SIGEL
ATC-69-MAIN
L-69-N STL CSTNG
WS-S-69-MAIN
WEST SIDE SUBSTATION
WS-S-46-MAIN
WS46-XFMR-WEST
WS46-XFMR-CENTER
WS46-XFMR-EAST
WS-S-13.2 WEST
WS-S-13.2 EAST
WS-F-WEST RURAL_A
WS-F-CHEMTRADE
WS-0.208 ASS BNK
ATC
ATC 115KV INTERCONNECTION POINT
BAKER SUBSTATION
BS115-XFMR-EAST
BS115-XFMR-WEST
BS-S-46-EAST
BS-S-46-WEST
BS-S-46-EXPRESWY
BS-S-46-AIRPORT
BS46-XFMR-EAST
BS-S-13.2 MAIN
BS-F-13.2 NORTH
BS-F-13.2 SOUTH
BS-13.2 ARPRT-32
BS-13.2 46-ARPRT
BS-13.2 48-WTRCK
BS-13.2 LAKE-32
BS-13.2 LAKE-W
FU-10 CC SCHOOL
BS-150-3PH
PEACH STREET SUBSTATION
PS46-XFMR-EAST
PS-S-13.2 WEST
PS-S-13.2 EAST
PS-F-13.2 APPLE
PS-F-13.2 SPRNG
PS-F-13.2 SPARE
PS-F-13.2 RURAL
FU-20 CRT HSE
FU-C50 FP
PS-75-1PH
PS-500-3PHFP
PS-0.480 FP OD
PS-48 ANDERSONS
PS-2.4 CRT HSE
PS-0.208 CHESTNT
BUS-2
TX-1
GAYNOR SUBSTATION
GS-S-46-MAIN
GS46-XFMR-WEST
GS46-XFMR-EAST
GS-S-13.2-WEST
GS-F-13.2 EAST
GS-F-13.2 CHASE
GS-F-13.2 HOSP
GS-F-13.2 HP2009
GS-F-13.2 GYNR E
FU-2 PAYNE 3RD
GS-10-1PH
GS-1500-3PH
HIGH SCHOOL SUBSTATION
HS-S-46-MAIN
HS46-XFMR-NORTH
HS-S-13.2-NORTH
HS-S-13.2-SOUTH
HS-F-13.2 PEPPER
HS-F-13.2 WDLAND
FU-65 WALMART
FU-C08 WELL#1
HS-150-3PHW1
HS-150-3PHW2
HS-25-1PH
HS-1000-3PH
HS-0.208 16 ST S
HS-0.480 WALMART
HS-0.480 WELL#1
HS-0.480 WELL#2
HS-25RD-WASH-1PH

Water Works and Lighting Commission
221 16th St. So. P.O. Box 399 Wisconsin Rapids, WI 54495-0399 715/423-6300 FAX: 715/423-2831

ELECTRIC ANALYSIS
5 YEAR STUDY

Prepared For:

WISCONSIN RAPIDS
WATER WORKS & LIGHTNG COMMISSION

Latest Revision: July, 2023

Prepared By: Todd N. Weiler, P.E.

Water Works and Lighting Commission Long Term Analysis

Revised July, 2023

Introduction

This document provides a record of field observations made and data collected during the 15 years that I have been the Director of Engineering and Electric Operations at WW&LC and the analysis is based on my 33 years of engineering experience in the utility business. It identifies issues and attempts to prioritize the issues so that they can be properly budgeted in the 5 year capital plan.

Priorities are as follows:

Immediate: Priority 0
2024 Project: Priority 1
2025 Project: Priority 2
2026 Project: Priority 3
2027 Project: Priority 4
2028 Project: Priority 5

Load Forecast

The system peak loads in 2021 and 2022 have been approximately 56 mega-watts. The system peak has been very constant for the past 5 years but lower than the past 10 years due to energy conservation and efficiency improvements in the industry.

All substation transformers are of sufficient size to handle this peak even if the parallel/redundant transformer next to it were to fail but at Baker Substation there is currently only one distribution transformer and a redundant second transformer should be added.

There is a major project currently taking place in the city, a new County Jail is being built, this is currently fed from Loop 1 which is 64 years old. This line is in the progress of being rebuilt and was a capital project in the 2023 budget

There is another project which might take place in 2024. It is an expansion to one of our industrial customers. We have been in contact with their engineering consultant and have been asked to elaborate about the project at this time. A portion of the underground feeder to this facility will need to be upsized in order to accommodate this addition and two larger distribution transformers would

also need to be ordered. This would be budgeted for 2024 if it were approved and would be given a priority 1.

Contingency Analysis

There is one circuit (South Loop) which has load which exceeds 200 amps when temperatures go above 85 degrees Fahrenheit. The South Loop should eventually be split and it has been given a priority level of 2 with preliminary work completed in 2021 and final work taking place in 2025. The addition of the previously mentioned additional transformer at the Baker Substation would be required to split this circuit's load.

Fuse Coordination/Fault Analysis

Coordination and Arc Flash Studies are performed each year. Special "hot line" tag settings have been added to the substation overcurrent relays, reducing arc flash values for when line crews work on these energized distribution lines. Some coordination issues still exist on single phase distribution lines with loads greater than 100 amps, currently the larger fuse or single phase re-closure does not coordinate with the upstream three phase re-closure. This problem can be remedied by splitting the circuits in half. The locations were this occurs have been given a priority 2 and will be a budget item in 2024 and 2025.

SPCC Plan

The SPCC Plan was updated in early 2020 but will need to be updated again in 2024 with the addition of the new transformer at Baker Substation.

Equipment Age Analysis

The following projects have been identified based on their age:

1. Replace "danger poles" from pole testing report (In Progress): Priority 0
2. Rebuild 3 Phase Loop 1 Circuit Feeder with new County Jail (64 Years Old) (In Progress): Priority 0
3. Add an additional distribution transformer at Baker Sub: Priority 1
4. Upgrade URD cables on industrial customer if new 2024 expansion occurs: Priority 1
5. Rebuild 3 Phase West Rural Circuit Feeder (69 Years Old): Priority 2
6. Replace Derrick Digger Truck: Priority 2
7. Replace Bucket Truck: Priority 3
8. Rebuild 3 Phase North Loop (59 Years Old): Priority 3

9. Replace 10MVA transformer in High School Substation (41 years old): Priority 4
10. Replace 12MVA transformer in West WR Sub (39 Years Old): Priority 5

Reliability Improvements

The following projects have been identified as projects which would improve system reliability

1. Install a new transformer in the Baker Substation: Priority 1.
2. Upgrade the Rural Feeder: Priority 2.
3. Convert single phase areas of the distribution system that are inaccessible with a truck to underground: Priority 1, 2, and 3.
4. Upgrade the Pepper and South Loop Feeders coming out of the High School Substation: Priority 3.
5. Eliminate all double circuit three phase distribution lines: Priority 3.
6. Install a new transformer in the High Shool Substation: Priority 4.
7. Replace the 12MVA transformer in West WR Sub: Priority 5.

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GENERAL MANAGER'S REPORT
July, 2023

Great Lakes Utilities: There was no Great Lakes Utilities Board meeting for the month of July. I had several calls with ACES to help them develop an initial power supply planning model and administrative matters conference calls with Marshfield Utilities.

Electric Rate Case Hearing: Our electric rate case hearing with the Public Service Commission was on July 18th. Several PSC employees attended as well as WW&LC team members. No members of the public or customers attended.

Municipal Electric Utilities of Wisconsin: The Legislative and Regulatory Committee held a meeting on July 21st in Hartford. The utility highway relocation legislation was discussed and there was a change to the legislation which makes it easier for MEUW to support it. The green lights on utility vehicles legislation is also proceeding in Madison. A former PSC Commissioner, Ellen Nowak, received a Friend of Public Power Award.

Jem Brown
General Manager