2022-2023
Energy Report

School District of the Menomonie Area

June 07, 2023

Introduction

Steve Thomas
Director of Energy

Personal history

- Reside in Menomonie
- Married and have two children, who have graduated from MHS
- Employed with the District since July 2022

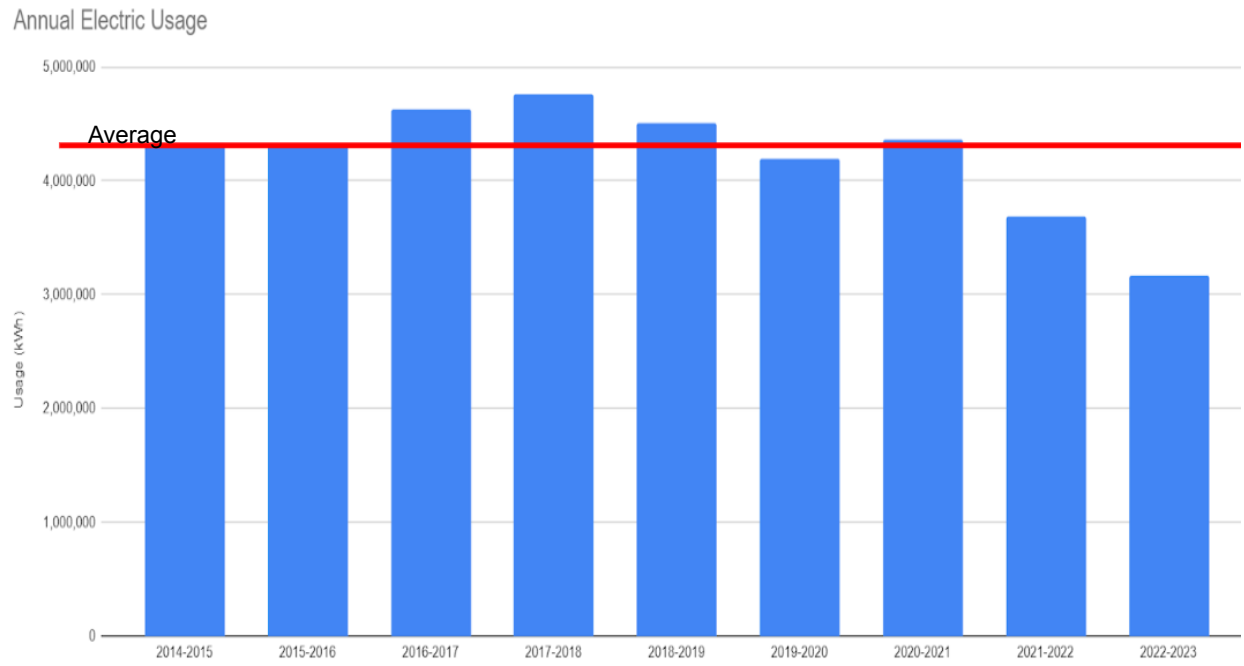
Work history

- U.W Stout- Building Automation and HVAC
- Stillwater Correctional Facilities- Building Automation and HVAC
- Badger Truck Refrigeration and Custom A/C

Energy Consumption

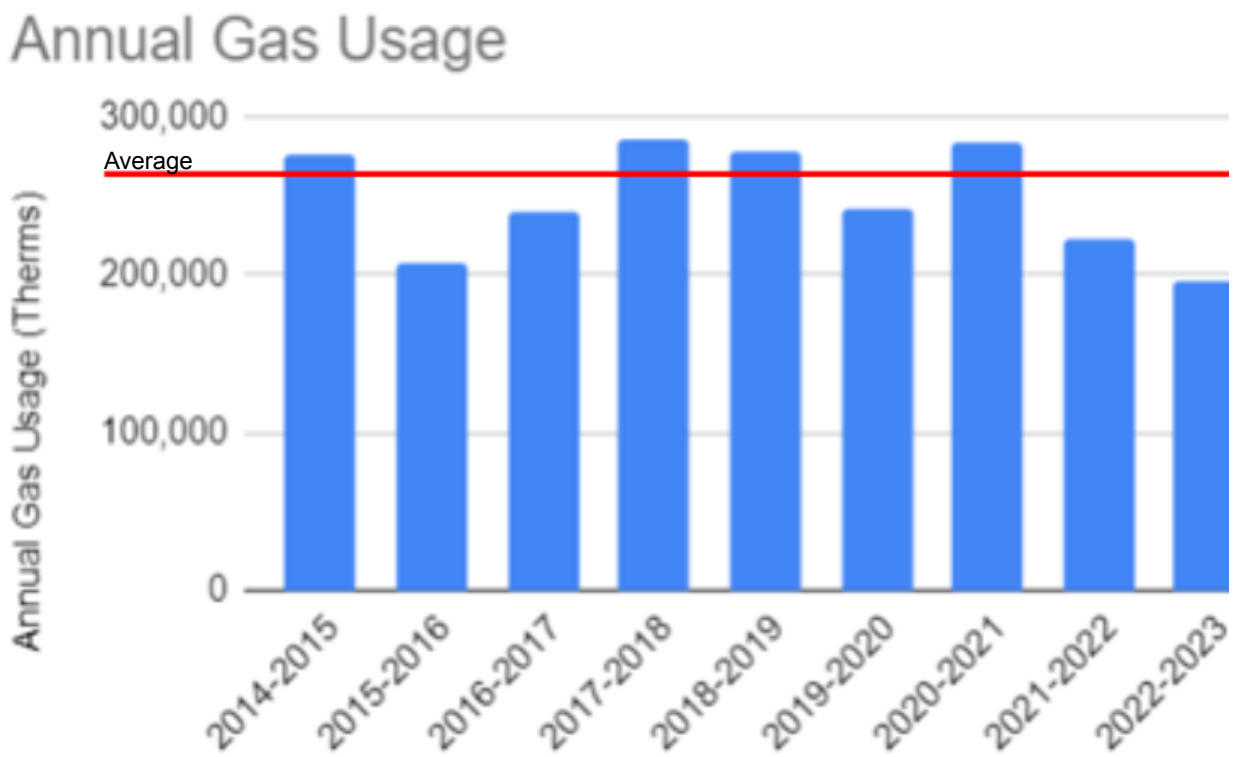
District Use

The energy used in the SDMA over the past nine years has averaged approximately 4.2 million kWh. The red line on the graph indicates an average kilowatt use from the years shown. During the 2022-2023 school year, the district used approximately 3.1 million kWh. The district is working diligently to keep these numbers declining. With the help of building automation and maintenance, we can continue to work on decreasing usage and the resources spent on energy.



	July	August	September	October	November	December	January	February	March	April	May	June
2014-2015	**232,828**	301,263	342,301	370,525	413,301	447,484	433,141	422,799	343,517	367,972	366,875	279,174
2015-2016	263,861	323,729	444,185	336,062	386,873	371,040	377,670	358,929	305,987	368,599	408,246	365,883
2016-2017	378,560	392,257	423,783	381,310	395,811	439,338	381,993	401,842	368,290	366,521	367,137	325,722
2017-2018	334,541	331,270	415,618	388,512	408,940	442,030	391,414	377,870	350,478	366,988	499,074	449,463
2018-2019	435,081	419,348	410,895	367,933	415,025	379,501	341,937	377,907	323,632	329,743	358,673	341,490
2019-2020	387,553	373,923	438,441	346,084	378,485	404,099	393,806	390,712	**260,280**	**221,591**	**255,922**	339,220
2020-2021	351,567	393,862	372,596	363,848	387,976	385,289	388,032	361,674	310,605	360,791	367,115	323,484
2021-2022	279,658	**297,546**	**326,883**	**280,406**	**323,868**	**356,741**	**341,285**	333,543	288,426	300,110	301,966	**254,215**
2022-2023	263,538	**276,617**	**296,585**	**339,237**	**321,788**	**359,491**	**340,016**	338,154	323,355	309,181		

The next graph demonstrates annual gas usage in the SDMA. The graph's red line indicates an average use over the past years, which has been approximately 275,000 therms. The District has significantly lowered these numbers through building automation and necessary maintenance of the heating systems. During the 2022-2023 school year, the district used approximately 190,000 therms.



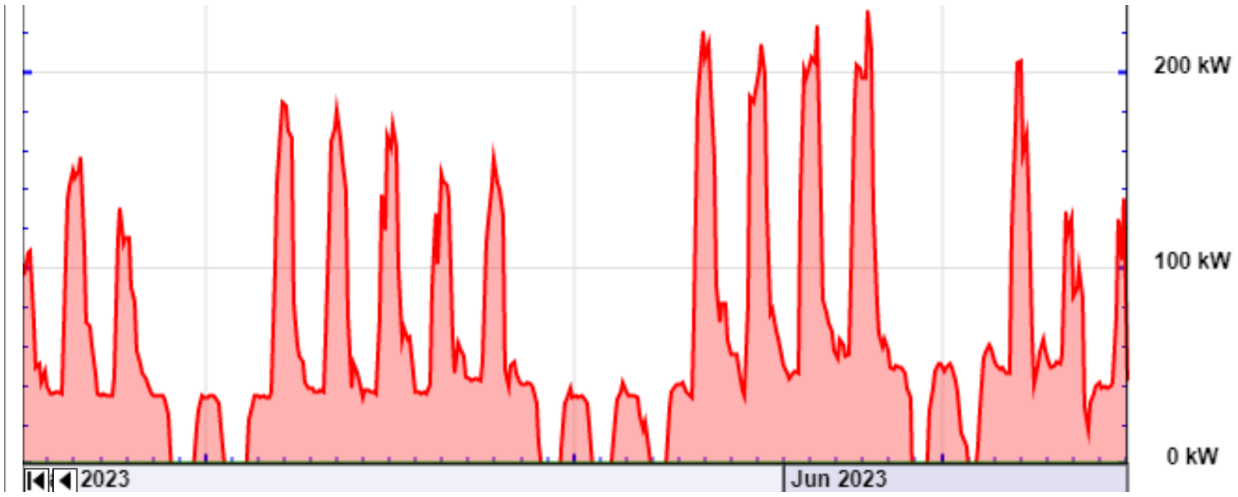
The District continually works to maintain equipment to peak efficiency to keep up with these never-ending changes. This is the importance of properly working equipment. Many variables in the District influence the use of electricity and gas, such as:

1. Weather
2. Occupancy
3. Equipment
4. Efficiency
5. Controls

Menomonie Middle School Solar Project

As of April 2023, the solar panels at the middle school went live. We do not have any cumulative data to share with you today. We can view through the e-gauges at live time kW usage and see the meters reacting to the panels' output. Olson Solar Energy is working with Xcel Energy to be able to record the panel's performance.

The screenshot below shows energy usage at MMS during the months of May and June. Electricity generated by the system is dependent on the amount of sunshine, and this graph shows that peak energy consumption at the end of May and beginning of June.



This graph details valuable information showing us how these panels are making a difference. As we can see on May 21-28, we had unblocked sunlight and the amount of peak energy use was lower. On May 28-June 4, it was cloudy and overcast, blocking the sun's rays, which redacted the effectiveness of the solar panels and increased the peak energy consumption.

Progress

The District has worked hard on HVAC equipment in the past year, ensuring it operates properly. If this equipment is not running efficiently, it is like throwing money out of the window. There have been many repairs made along with control and setting changes such as changing out inoperable drives, motors, and pumps, and improving settings on air damper controls. These repairs are making a big difference in some problem areas. The District ensures the chiller coils are clean and efficient to change air filters at the recommended intervals. It will be very exciting to see what this next year will show us.

The District is still working on LED lighting, occupancy switch changeouts, and possible solar options in other areas. Continued work in this area will be heavily dependent on available funding, the supply chain, and being able to schedule work outside of regular school hours.