



CY2024 Rock Hill Schools District Energy Report

To: Brian Vaughan, Assistant Superintendent of Operations

Cc: Dr. John Jones, Interim Superintendent

Darren Wilson, Assistant Superintendent

Maurice Murphey, Executive Director of Operations

Michael Cox, Director of Facility Services

Report Period: January, 2024 through December, 2024

Date: 2/28/2025

Prepared By: Kim Melander, Senior Energy Services Manager

Index:

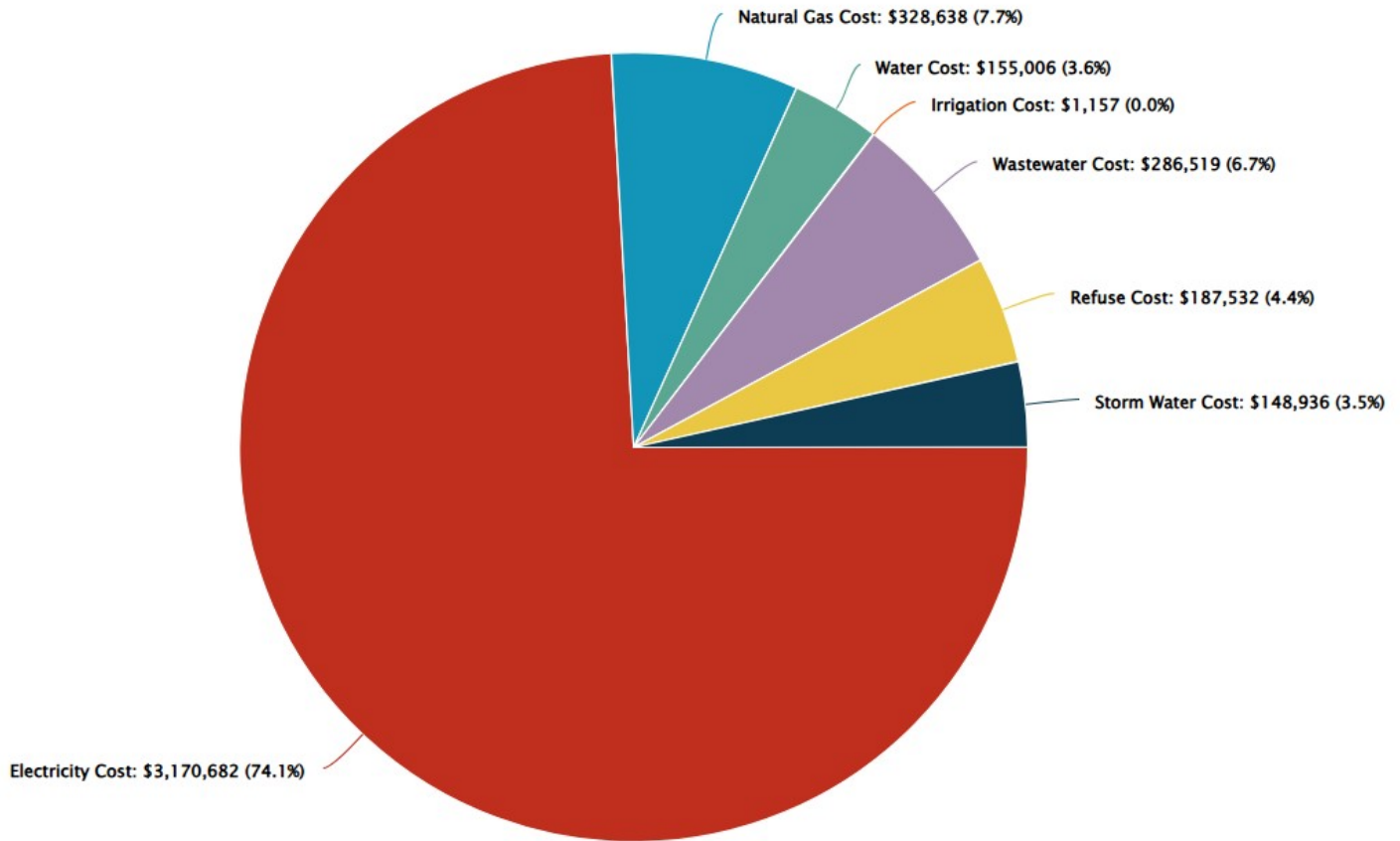
<u>Description</u>	<u>Page #</u>
District utility cost breakdown pie-chart	3
District total & unit energy cost comparison	4
District Annual Total Energy Consumption Comparison	5
Local Weather Impacts on Energy Consumption	6
Electricity Unit Cost by Utility Provider	7
Energy Key Performance Indicators (KPI)	8
Energy Budget Performance	9
RHS F-Gym Chiller Replacement Project	10
Hail Storm Damage HVAC Replacement Projects	11

Total Utility Cost Breakdown Pie-Chart



Utility Cost Breakdown

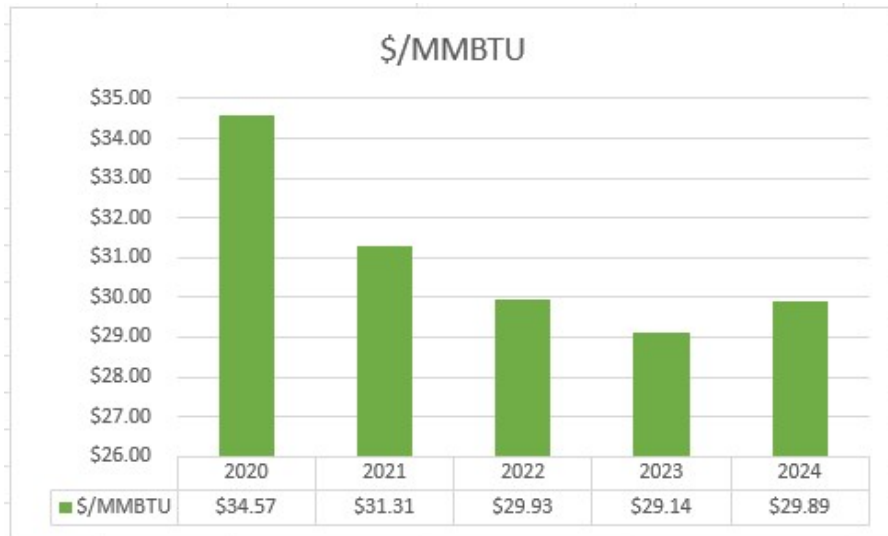
All Facilities -- 01/2024 to 12/2024



CY2024 Utility Cost Breakdown Comparison to CY2023

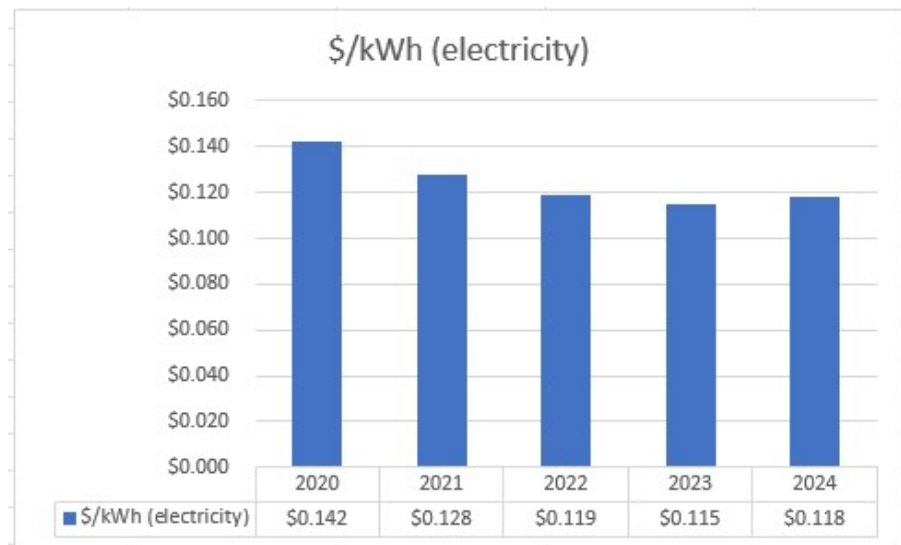
Period	Electricity Cost	Natural Gas Cost	Water Cost	Irrigation Cost	Wastewater Cost	Refuse Cost	Storm Water Cost	Total Cost
2024	\$3,170,682	\$328,638	\$155,006	\$1,157	\$286,519	\$187,532	\$148,936	\$4,278,469
2023	\$2,997,922	\$309,536	\$137,697	\$781	\$272,560	\$172,993	\$207,071	\$4,098,561
% Change	5.8%	6.2%	12.6%	48.1%	5.1%	8.4%	-28.1%	4.4%

Annual Total and Individual Energy Cost Comparison

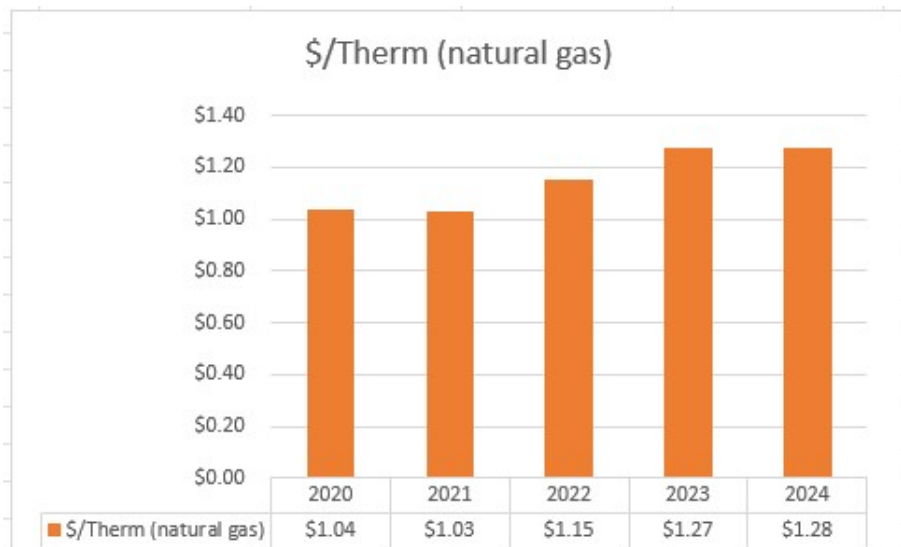


2024 combined energy cost per MMBTU increased by 2.6% compared to 2023.

2024 combined electricity cost per kWh increased by 2.6% compared to 2023.

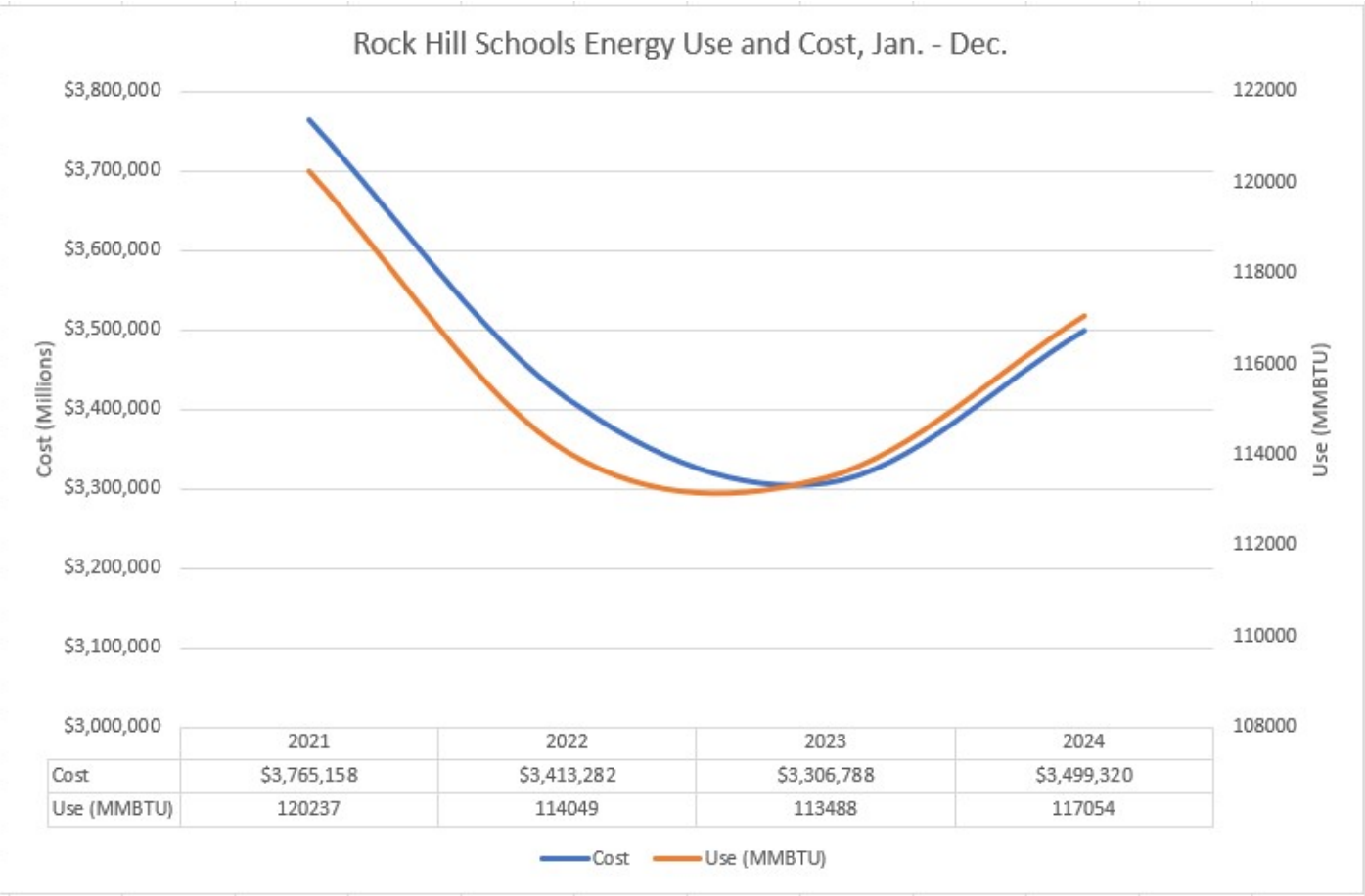


2024 natural gas cost per Therm increased 0.8% compared to 2023.



Annual Total Energy Consumption Comparison

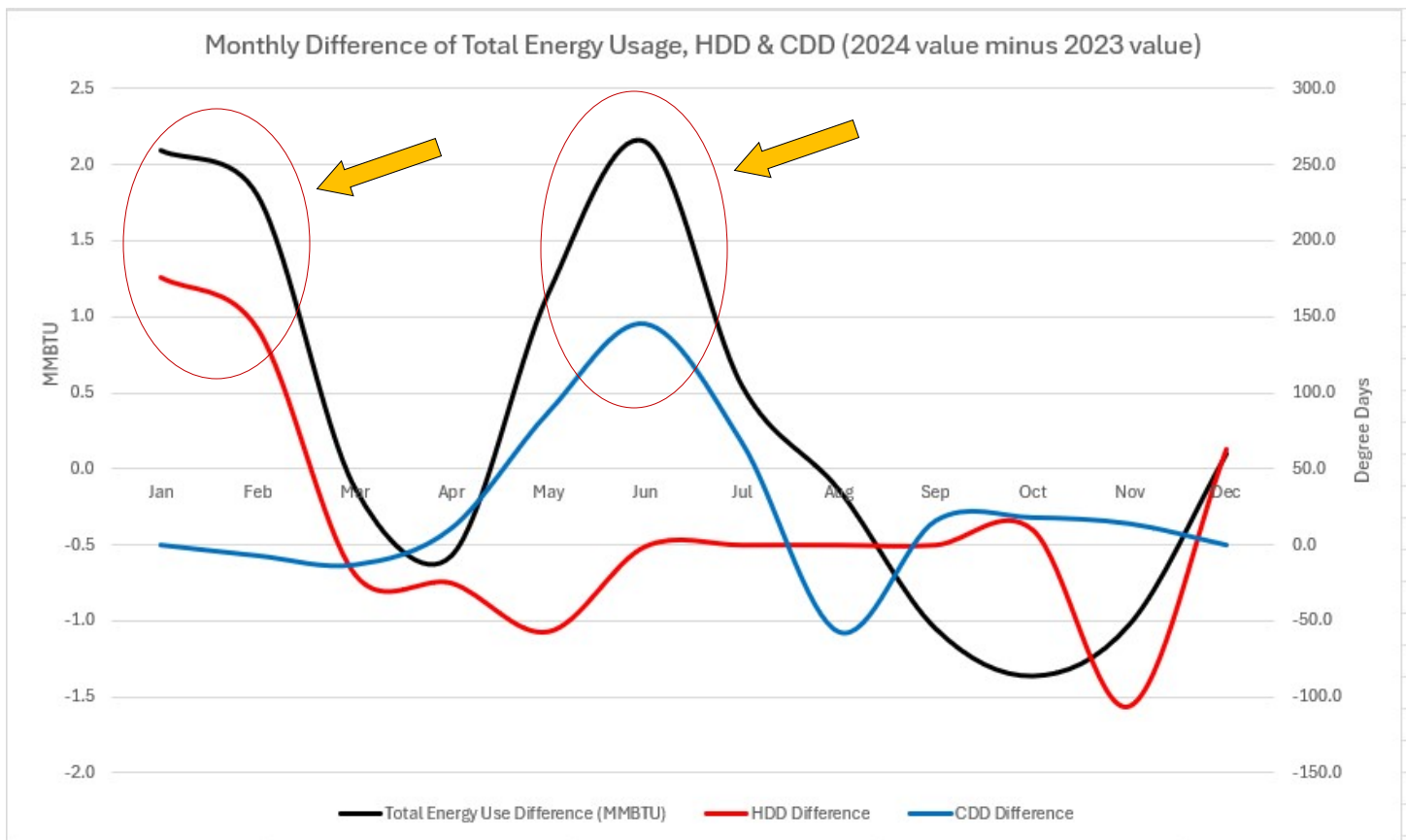
Total energy costs for 2024 increased by 5.8% compared to last year. Energy consumption increased by 3.1%.



Local Weather Impacts on Energy Consumption

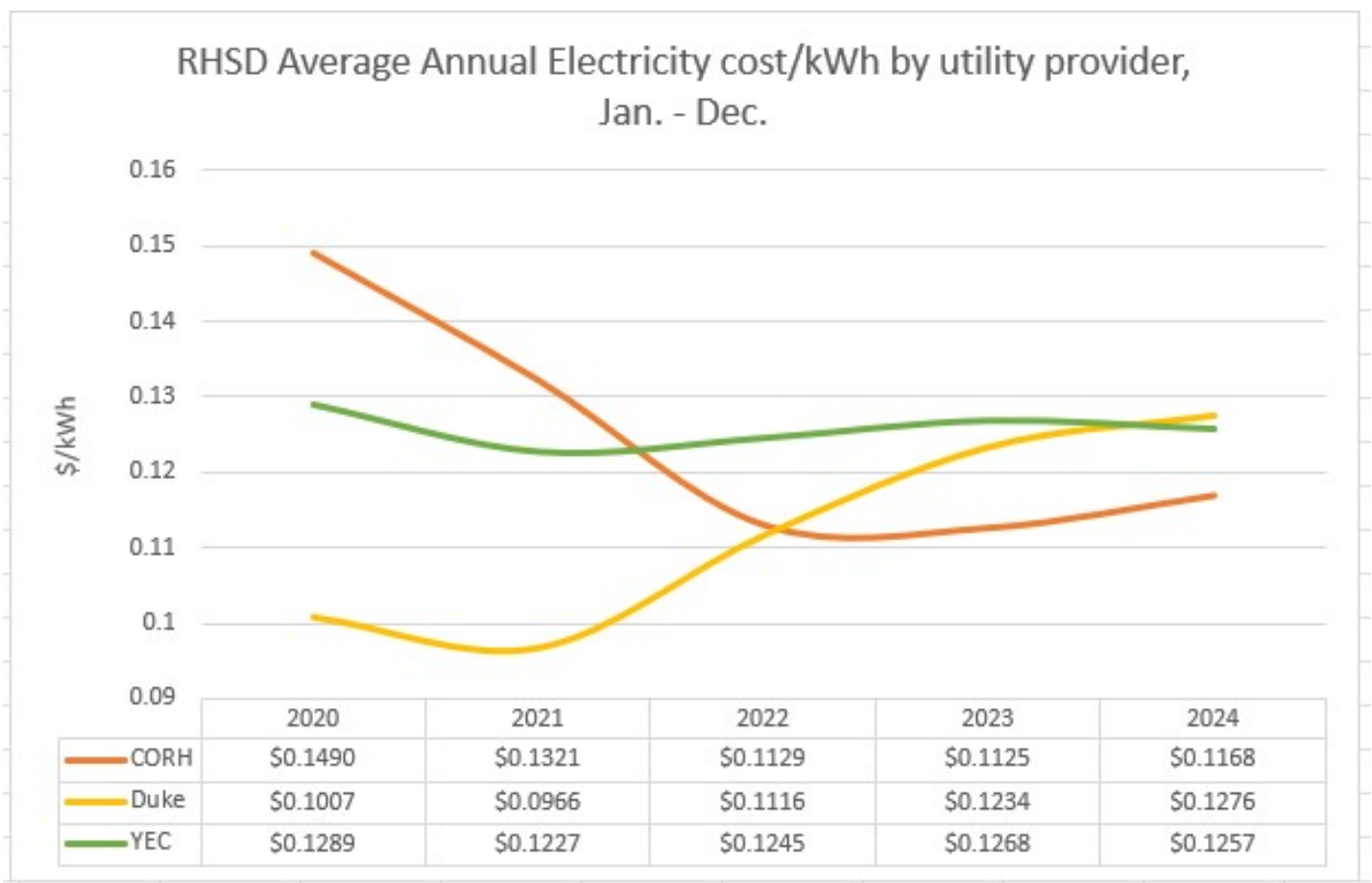
The chart below shows the effects of weather on energy consumption. As we would expect, when we experience a “warmer” or “colder” period comparatively, our energy usage increases. 2024 experienced a 7% increase in Heating Degree Days (HDD) and a 20% increase in Cooling Degree Days (CDD) compared to 2023.

January through December of 2024 compared to the same period of and 2023



Electricity Unit Cost by Utility Provider

The 2024 average annual unit cost of electricity from the CORH increased 3.8% when compared to 2023. Duke Energy increased 3.4% and YEC decreased 0.9% for the same periods.





Energy Key Performance Indicators (KPI)

Rock Hill Schools average annual energy use of 33.53 kBtu per square foot is 2.8% lower than the SC state average of 34.46 kBtu per square foot for School Districts. Our average annual energy cost of \$1 per square foot is 19% lower than the State average of \$1.19 per square foot.

Table below provided by South Carolina State Energy Office Annual Report on the Implementation of State Government Energy Conservation dated December 2024.

Public Entities by Type	Average Energy Use per Square Foot (site kBtu)			Average Energy Spending per Square Foot (\$)		
	FY 2000	FY 2024	% change	FY 2000 ³	FY 2024	% change
State Agencies	113	76.47	-32%	\$2.46	\$1.98	-20%
Residential Colleges and Universities	143	110.23	-23%	\$2.38	\$2.13	-10%
Non-Residential Colleges and Universities	80	61.18	-24%	\$2.13	\$1.67	-21%
School Districts	45	34.46	-23%	\$1.55	\$1.19	-23%
Overall	74	55.32	-25%	\$1.87	\$1.51	-20%

Note: These statistics are based on data submitted by public entities. The State Energy Office makes no representation regarding the accuracy of the data it received.



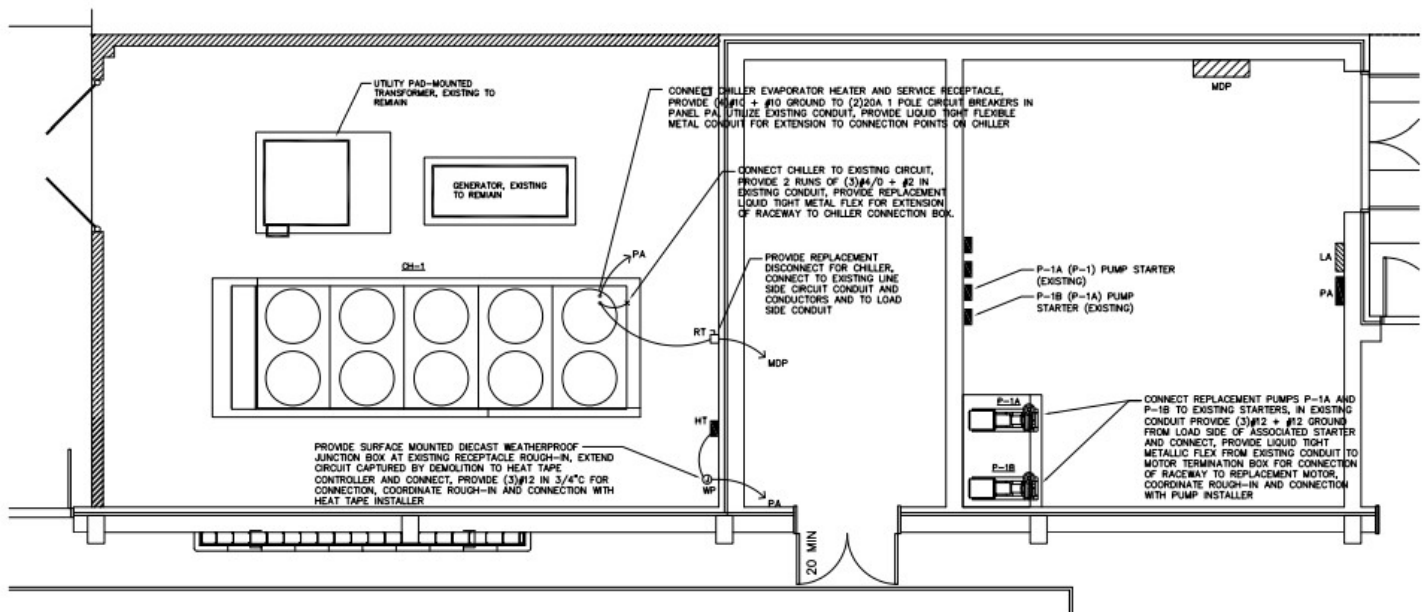
2024/2025 Energy Budget Performance

	<u>*EM 24-25 Budget</u>	<u>24-25 Actual (Jul-Dec)</u>	<u>Percent Remaining</u>
Heating/Energy Costs	\$3,500,000	\$1,814,601	48%
Public Utilities	\$450,000	\$277,290	38%
Total	\$3,950,000	\$2,091,891	47%

Energy costs are tracking comfortably at 48% of budgeted funds remaining through 50% of the school year. The 2% overrun is not terribly concerning since weather patterns play a significant role in when the costs are realized.

Public utilities costs are tracking about \$52k higher than expected with 38% of budgeted funds remaining. If this trend continues, we could expect to see the total cost exceed the budget amount by \$104k.

Rock Hill HS F-Gym Chiller Replacement Project



The 180 TR (Tons Refrigeration) chiller serving Rock Hill HS F-Building Gym suffered a compressor failure (1 of 2) in the spring of 2024. It is approximately 24 years old and repair components are not available which necessitates a complete unit replacement. Due to extended manufacturer lead times, the unit has been operating at 50% capacity with frequent periods of downtime resulting from unit faults and safety trips.

We flagged this unit as one of several priority capital needs in 2021.

Project Floor Space = ~55,000 square feet

Budget Estimate = \$350K

Project Cost (to date) = \$293k

Total Refrigeration Tonnage (TR) = 200

Cost/square foot = \$5.33

Cost/TR = \$1,465.00

A/E cost = 7.3% of project cost

MC cost = 92% of project cost

Funding Source = A/E-General Funds, MC-Building Funds (from PO account #'s)



2024 Hail Storm Damage HVAC Replacement Projects

Rock Hill experienced severe, damaging hail storms in the spring of 2024. As a result, there was a significant effort by the District's insurance underwriters to identify and address the damaged HVAC equipment, as well as building roofing systems.

We procured and coordinated local contractors to perform the listed HVAC equipment replacements.

- Purchase orders totaling \$114k have been issued to Harper Carolinas.
- Purchase orders totaling \$445k have been issued to Action Mechanical.
- Purchase orders totaling \$231k have been issued to Team Mechanical.

*Amounts shown below are approved replacement amounts from insurance adjuster.

<i>School/Building</i>	<i>Claim #</i>	<i>CCC Option #</i>	<i>Description</i>	<i>CCC \$ Amount</i>	<i>Rec. Contractor</i>	<i>Unit TAG/Location</i>
ATC	PR042161	OP-2	WI Freezer Refrigeration System	\$12,433	Harper Carolinas	
Sunset Park ES	PR042161	Unit-1, Op-2	WI Freezer Refrigeration System	\$12,860	Harper Carolinas	Cafe/Kitchen Existing Bally Units
Sunset Park ES	PR042161	Unit-2, Op-2	WI Cooler Refrigeration System	\$27,225	Harper Carolinas	Cafe/Kitchen Existing Bally Units
Sunset Park ES	PR042161	Unit-5	Mitsu Ductless Split	\$3,198	Harper Carolinas	B-hall Exist Carrier Units on Roof
Sunset Park ES	PR042161	Unit-6	Mitsu Ductless Split	\$3,198	Harper Carolinas	B-hall Exist Carrier Units on Roof
Sunset Park ES	PR042161	Unit-7	Mitsu Ductless Split	\$3,198	Harper Carolinas	B-hall Exist Carrier Units on Roof
Sunset Park ES	PR042161	Unit-13, Trane	5-Ton Pkg HP	\$20,587	Harper Carolinas	B-112A, MP, Existing Trane Unit
Oakdale ES	PR042161	Unit-13, Trane	3-Ton Split HP Sys.	\$10,296	Harper Carolinas	B116, Music? Existing Carrier
Oakdale ES	PR042161	Unit-14, Op-2	WI Freezer Refrigeration System	\$12,860	Harper Carolinas	Cafe/Kitchen Existing Bally Units
Oakdale ES	PR042161	Unit-15, Op-2	WI Cooler Refrigeration System	\$27,225	Harper Carolinas	Cafe/Kitchen Existing Bally Units
Total				\$133,080		

<i>School/Building</i>	<i>Claim #</i>	<i>CCC Option #</i>	<i>Description</i>	<i>CCC \$ Amount</i>	<i>Rec. Contractor</i>	<i>Unit TAG/Location</i>
NHS	PR042161	Bldg-A, Unit-1	10-Ton Split System w/AHU	\$42,156	Action Mechanical	Main Office, Trane Odessey
NHS	PR042161	Bldg-A, Unit-2	4-Ton RTU HP	\$14,278	Action Mechanical	A213 or 214 or 229 or 230. Existing Carrier
NHS	PR042161	Bldg-A, Unit-3	4-Ton RTU HP	\$14,278	Action Mechanical	A213 or 214 or 229 or 230. Existing Carrier
NHS	PR042161	Bldg-A, Unit-5	4-Ton RTU HP	\$14,278	Action Mechanical	A211 or 212 or 227 or 228,. Existine Carrier
NHS	PR042161	Bldg-A, Unit-8	4-Ton RTU HP	\$14,278	Action Mechanical	A211 or 212 or 227 or 228,. Existine Carrier
NHS	PR042161	Bldg-A, Unit-4	15-Ton Split Sys w/AHU	\$62,200	Action Mechanical	Library, Trane Odessey
NHS	PR042161	Bldg-B, Unit-1	3/4-Ton Ductless Split	\$3,198	Action Mechanical	Carrier located B-roof. Room?
NHS	PR042161	Bldg-B, Unit-2	3/4-Ton Ductless Split	\$3,198	Action Mechanical	Carrier located B-roof. Room?
NHS	PR042161	Bldg-D, Unit-1	2.5 Ton Split System w/AHU	\$10,296	Action Mechanical	D-100 Office, AH3, Existing Carrier
RRMS	PR042161	Unit-12	20-Ton RTU/NG	\$147,612	Action Mechanical	Gym, RTU2, AAON
RRMS	PR042161	Unit-17	8.5-Ton Pkg AC w/NG (RTU)	\$26,680	Action Mechanical	Kitchen
RRMS	PR042161	Unit-18	15-Ton Pkg AC w/NG	\$31,622	Action Mechanical	Library, Carrier RTU
RRMS	PR042161	Unit-19	4-Ton Pkg AC w/NG	\$16,278	Action Mechanical	Principal, Trane RTU
RRMS	PR042161	Unit-20	4-Ton Pkg AC w/NG	\$14,278	Action Mechanical	Office, Carrier RTU
RRMS	PR042161	Unit-21	4-Ton Pkg AC w/NG	\$14,278	Action Mechanical	Health Office, Carrier
Total				\$428,908		

<i>School/Building</i>	<i>Claim #</i>	<i>CCC Option #</i>	<i>Description</i>	<i>CCC \$ Amount</i>	<i>Rec. Contractor</i>	<i>Unit TAG/Location</i>
Finley Road ES	PR042161	Unit-7	2-Ton HP RTU	\$9,800	Team Mechanical	Office, Carrier RTU
Finley Road ES	PR042161	Unit-8	10-Ton Split Sys HP w/AHU	\$42,156	Team Mechanical	Media, Carrier ODU + IDU
Finley Road ES	PR042161	Unit-9	7.5-Ton Pkg. HP	\$24,200	Team Mechanical	Multi-Purpose, Carrier
York Road ES	PR042161	Unit-1	15-Ton Pkg AC w/NG	\$48,222	Team Mechanical	Cafeteria North, Trane RTU
York Road ES	PR042161	Unit-2	15-Ton Pkg AC w/NG	\$48,222	Team Mechanical	Cafeteria South, Trane RTU
STMS	PR042161	Unit-7	10-Ton RTU w/NG	\$21,115	Team Mechanical	Café Serving Line, Trane RTU
STMS	PR042161	Unit-8	27.5-Ton RTU w/NG	\$118,179	Team Mechanical	Cafeteria, Trane RTU
STMS	PR042161	Unit-10	4-Ton RTU w/NG	\$14,278	Team Mechanical	Mufiti Purpose, Trane RTU
Total				\$326,172		