

Charlottesville City Schools

CITY ANNUAL ENERGY AND WATER PERFORMANCE
REPORT FISCAL YEAR 2023



**Energy & Water
Management Program**
City of Charlottesville



Agenda

- Background
- FY2023 Energy and Water Performance Report Highlights
 - Operations
 - Technology
 - People
 - Performance
- FY2024 Energy and Water Management Program Outlook
- Office of Sustainability: Other Related Upcoming Items

Annual Energy and Water Performance Report

FY2023 Report- City wide report on fiscal year 2023 performance and actions

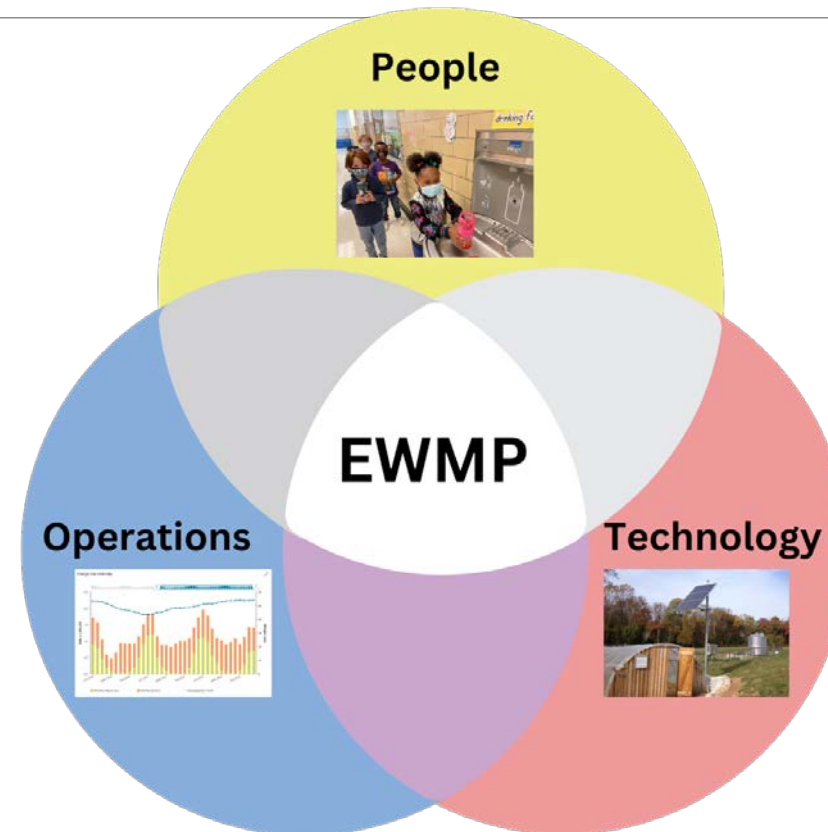
FY2022 Report- City wide report on fiscal year 2022 performance and actions

FY2021 Report- City wide report on fiscal year 2021 performance and actions

2020 Report- CCS report, focuses on 2020 performance and actions

- COVID-19 is addressed often in this report

2019 Report- Inaugural CCS report which includes more detail and establishes a baseline of information and data



Report Outline:

- Actions
 - Operations
 - Technology
 - Behavior (People)
- Performance

*Reports & Interactive Dashboards Available on Website:
[Charlottesville.gov/EnergyWater](https://www.charlottesville.gov/EnergyWater)*



Operations

- EWMP and Monthly Meetings with CCS Administration
- Utility Tracking & Investigation
- HVAC Schedules & Communication
- Demand-Side Management: Load Shedding
- HVAC control strategies



Technology

- Greenbrier Library: LED Lighting
- Johnson Elementary, Venable Elementary, and Walker Upper Elementary: HVAC Equipment Replacement
- Clark Elementary: BAS Upgrade
- Johnson Elementary: CO2 Monitors
- CHS: Roof Replacement (Phase 1)

Note: We submit eligible projects and receive compensation for energy efficiency that reduces demand on the electricity grid

Master Energy Performance Contract

New, multi-year design/build project delivery mechanism

2021 – Initiated procurement (Request for Proposal) and selected energy services company (ESCO) - CMTA

2022 – ESCO performed technical energy audits (TEAs) at 41 facilities

2022 – Received audit reports

2023 – Developed/Negotiated Master Energy Performance Contract and first project details

April 2024 - Executed Master Energy Performance Agreement with ESCO (CMTA)!





People (Behavior)

2022-2023 Education Campaigns: Be an Energy and Water Saving Leader

- Fall 2022: Create your energy and water saving story.
- Winter 2022-2023: Develop your energy and water saving message.
- Spring 2023: Make your energy and water saving message be seen.

330 Climate Action Kits at Walker Upper Elementary

"Think Global Act Local" Classroom Activity

Light Switch Reminders

Employee Outreach - Space Heater PSA and holiday/summer break checklists and reminders



Greenhouse Gas Goal

45% Reduction
in GHG by
FY2030



Energy Goal

30% Reduction
in EUI by
FY2030

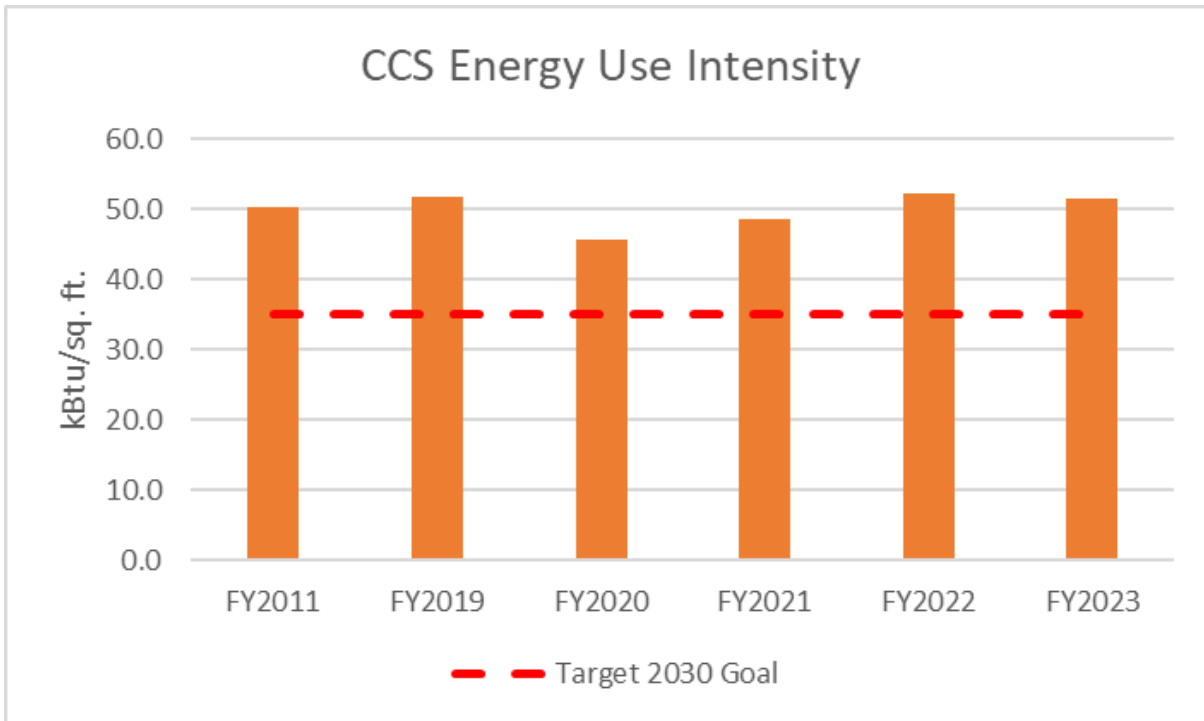


Water Goal

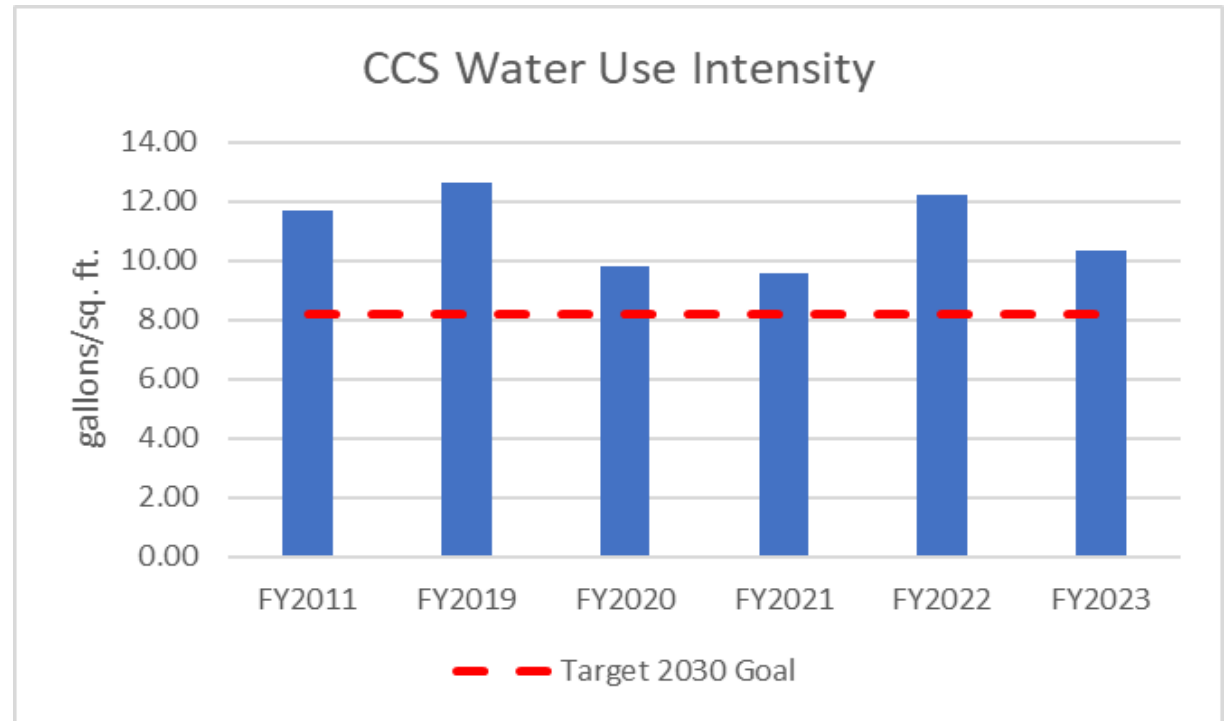
30% Reduction
in WUI by
FY2030

CCS Performance Targets and Reduction Goals

Energy Use Intensity & Water Use Intensity



2030 EUI Target: 35 kBtu/sq.ft.
Regional Average for Schools: 48.5 kBtu/sq.ft.

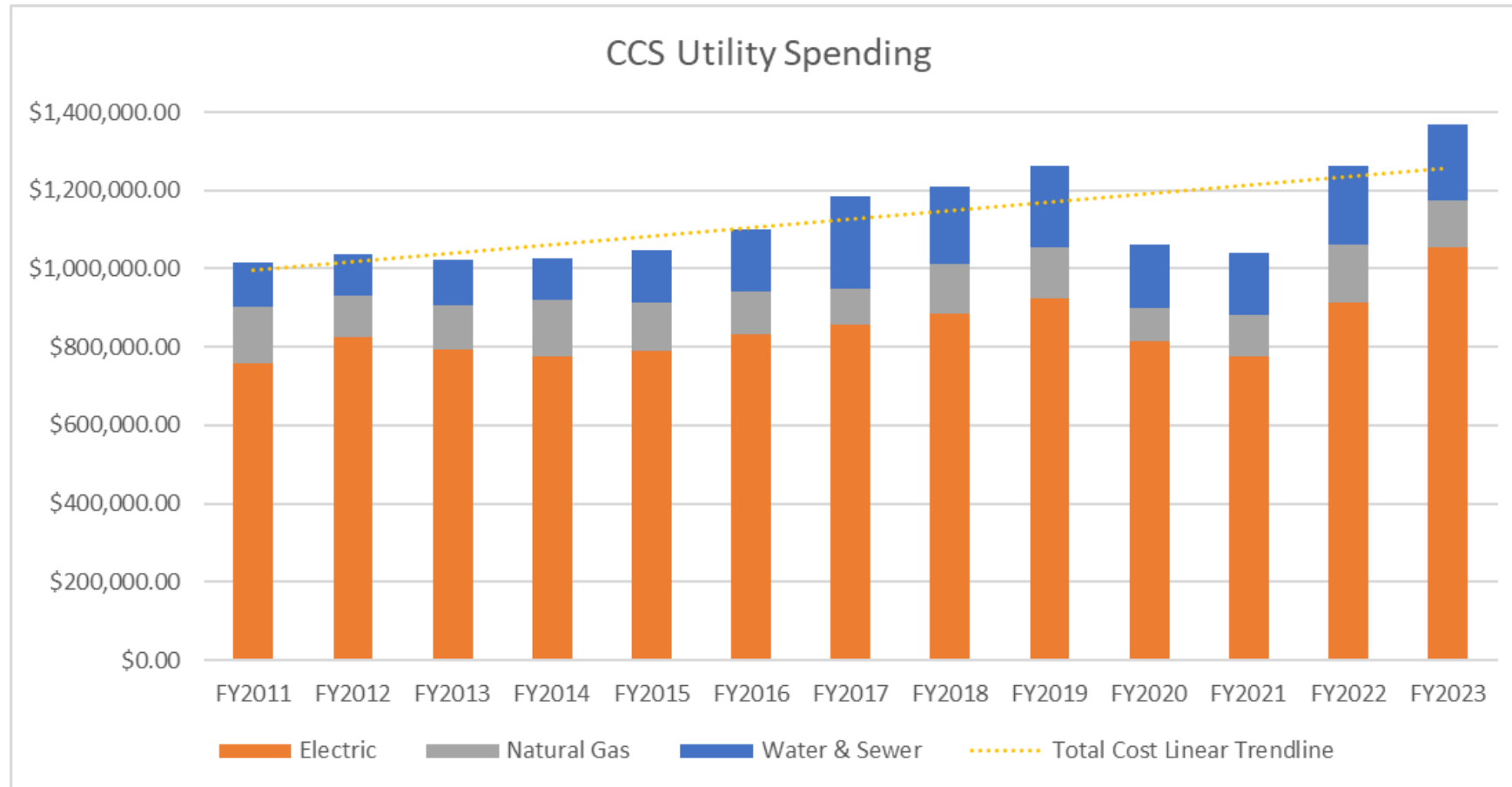


2030 WUI Target: 8.2 gallons/sq.ft.
National Median for Schools: 10.84 gallons/sq.ft.

Performance - Usage

	Electric	Natural Gas	Water
FY2023 Usage	8,780,513 kWh	13,264,459 cf	1,196,479 cf
<i>Percent Change</i>			
FY2022 to FY2023	-4% ↓	0%	-15% ↓
FY2011 (baseline year) to FY2023	-2% ↓	6% ↑	-11% ↓

Performance - Cost



**Total FY2023
Utility Cost:
\$1.37 million**

Utility Rate Changes:
Electric: +42.6%
Natural Gas: -23.7%
Water: +96.1%

Performance- ENERGY STAR

School Facilities	ENERGY STAR Score*		
	FY2015	FY2022	FY2023
Buford Middle School	43	34	34
Burnley-Moran Elementary School <i>(ES Cert. 2009)</i>	33	72	68
Charlottesville High School <i>(ES Cert. 2009)</i>	71	57	57
Clark Elementary School <i>(ES Cert. 2009)</i>	37	38	28
Greenbrier Elementary School <i>(ES Cert. 2009)</i>	51	60	64
Jackson-Via Elementary School <i>(ES Cert. 2009)</i>	65	50	48
Johnson Elementary School <i>(ES Cert. 2009)</i>	71	78	75
Lugo-McGinness Academy	82	84	86
Venable Elementary School	52	55	48
Venable School Annex	1	21	14
Walker Upper Elementary School	40	20	19

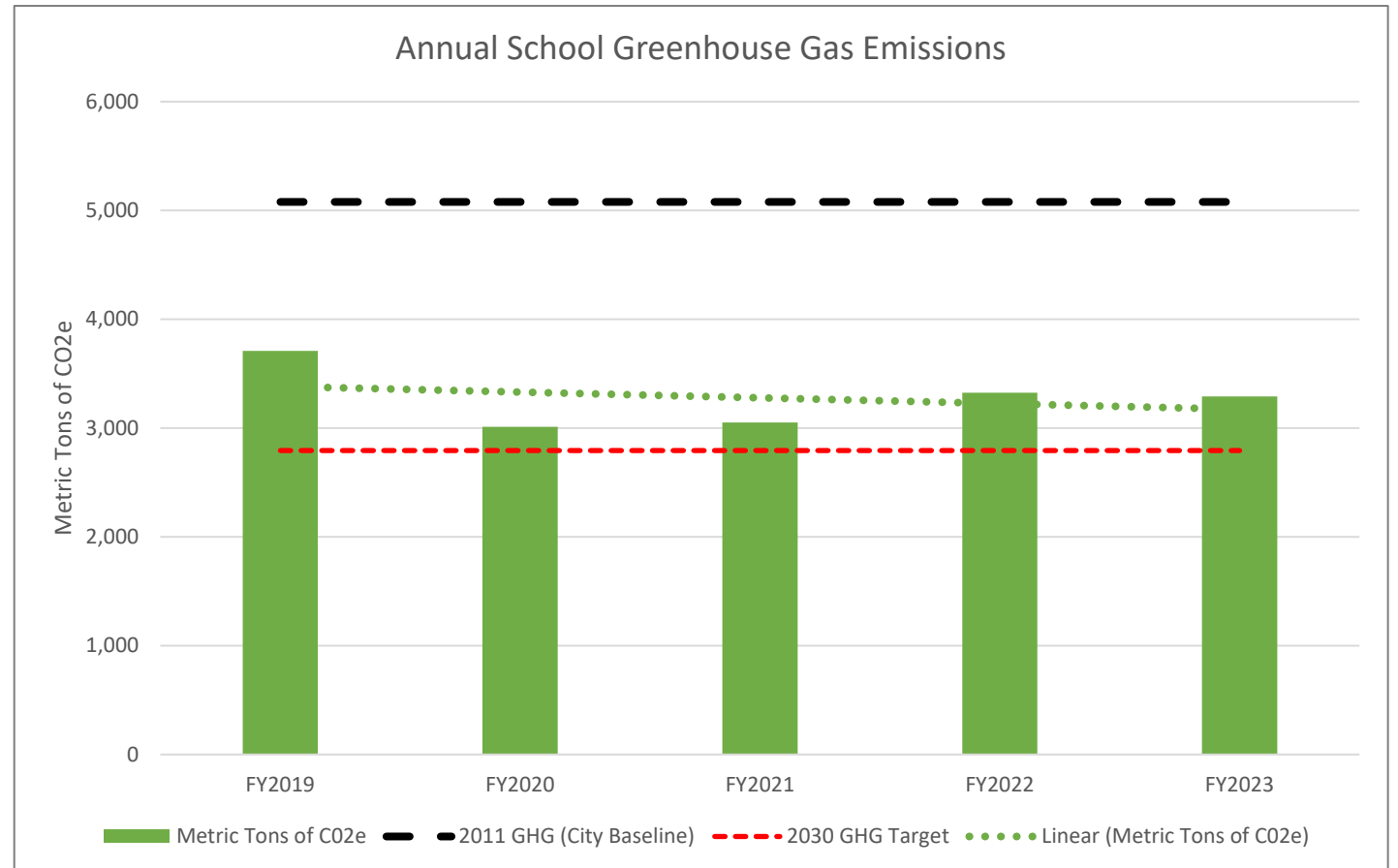
2030 Goal:
10 schools reach an ENERGY STAR score of 75

National Median ENERGY STAR Score: 50

Greenhouse Gas

1.1% decrease in GHG emissions in FY2023 from FY2022

35.2% decrease since 2011



The image shows the exterior of a school building. A brick wall is visible, with a decorative banner that reads "JACKSON VIA ELEMENTARY". The building has a dark brown roof and a large glass window. The scene is captured from a low angle, looking up at the building.

FY2024 EWMP Outlook

- Continue work towards meeting energy and water reduction goals.
- Pursue ENERGY STAR certification for Lugo-McGinness and Johnson Elementary School
- CHS: Replace lighting contactors/wiring to restore control
- Greenbrier: Replacement of water source heat pumps
- Jackson-Via: Cooling tower replacement
- Mirror clings targeting water saving behavior in all school restrooms
- Development of energy and water conservation materials for CCS Science Pacing Guide (K – 8th Grade)

Solar on Schools - Plan Development



- Existing Solar: CHS and Lugo-McGinness Academy
- Established projected solar capacity as part of the CMTA energy audits:
 - CHS, CATEC, Burnley-Moran, Greenbrier, Jackson-Via, Johnson, Walker Upper
- Funding/Financing Options:
 - City Capital Improvement Program (CitySolar) for smaller systems
 - Note: tax-exempt entities are now eligible for elective (“direct”) pay
 - Power Purchase Agreements for larger systems/multiple schools
 - Exploring with peer communities, community partners, and solar developers
 - Anticipating some back of envelope analysis by solar developers
 - Grants
 - FY23 Department of Energy: Renew America’s Schools grant for CHS solar, lighting, HVAC, and BAS projects - unsuccessful
 - FY24 and beyond: various (including Climate Pollution Reduction Grant)

Office of Sustainability

Other Related Upcoming Items



- Pupil Transportation: fleet electrification
 - EPA Clean School Bus Program: applied for rebates to replace 2 old diesel buses with electric buses
- Community Electric Vehicle (EV) Infrastructure Deployment Plan
 - In partnership with Albemarle County
 - Aimed at supporting vehicle electrification within government operations and throughout the community
- Charlottesville Middle School: pursuing LEED certification
- Green Building Standards
 - To standardize green building and sustainability best practices and integrate them throughout the entire life cycle of the municipal building portfolio.
- Resilient Together
 - In partnership with Albemarle County and UVA
 - Collaborative planning and implementation process designed to ensure our community is strong, safe, and healthy in the face of a changing climate.

Thank You for
Your Time

Contact:

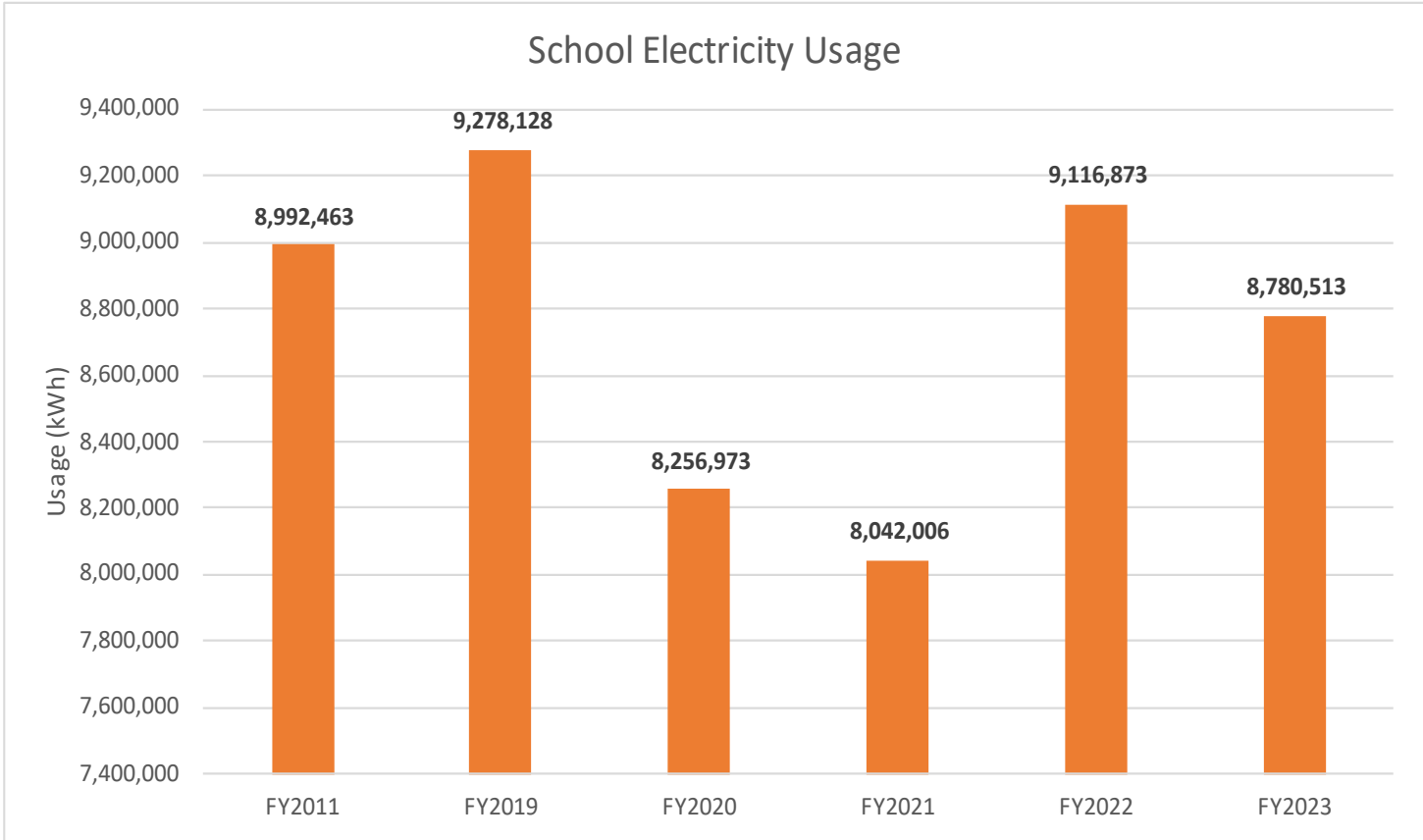
EnergyWaterTeam@Charlottesville.gov

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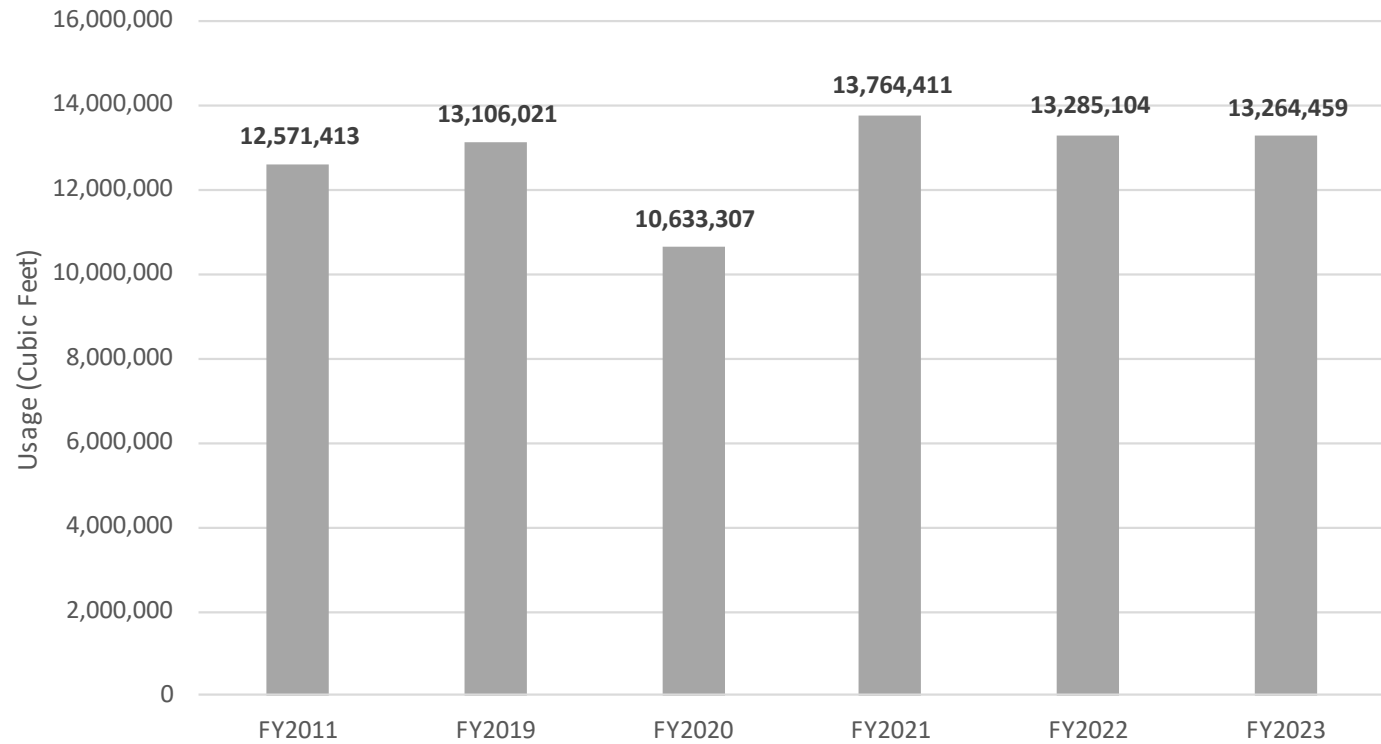
Charlottesville.gov/EnergyWater

Additional information on
performance by utility

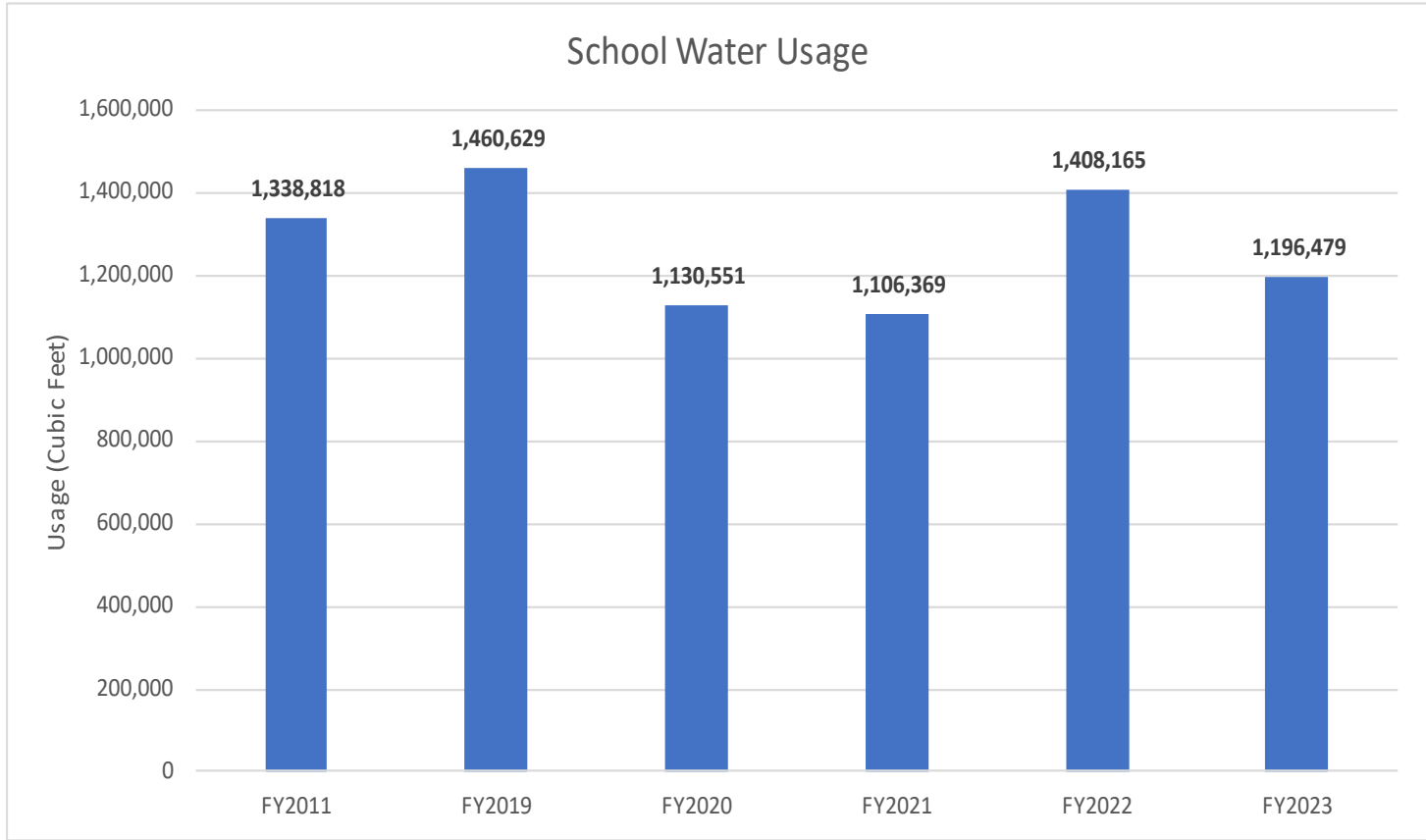


Performance- Electricity

School Natural Gas Usage



Performance-
Natural Gas



Performance- Water & Sewer
