

Energy Management

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Henrico Energy Management

Key efforts:

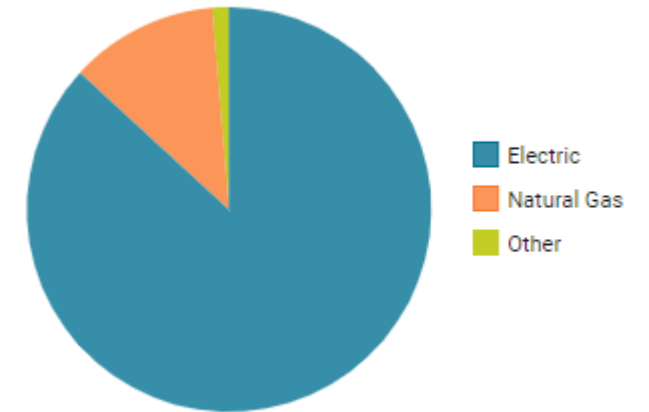
- Improve economic and **environmental well-being** of the county
- **Reduce energy use and costs** in government, school, and public utilities
- Support **green building** design and construction
- **Educate** on energy and environmental issues
- Participate with local and regional **energy organizations**
- Foster a culture of **conservation**
- Implement energy **efficiency** projects
- Transition to **renewable** energy sources





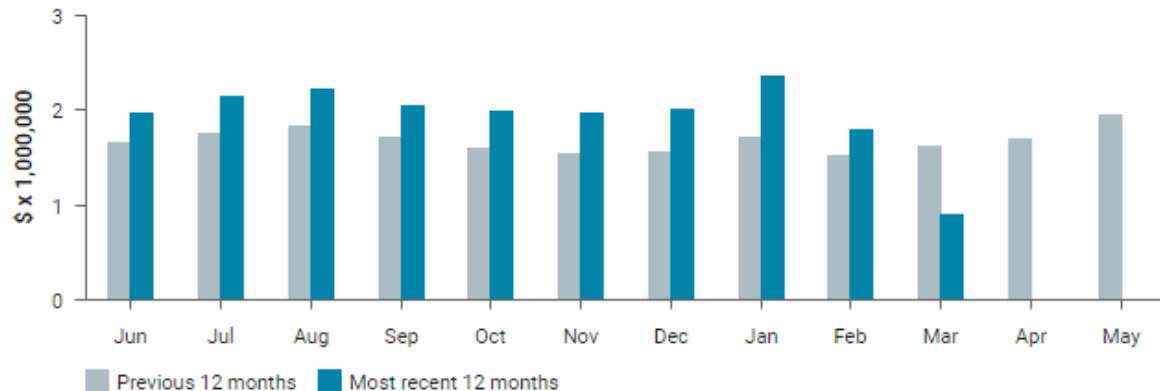
Measurement/Benchmarking

- Monthly importing of energy use and cost into software:
 - Electricity
 - Natural Gas
 - Propane
 - Solar
- Tracking 350+ county facilities and over 1,000 utility accounts
- Identify opportunities for improvement

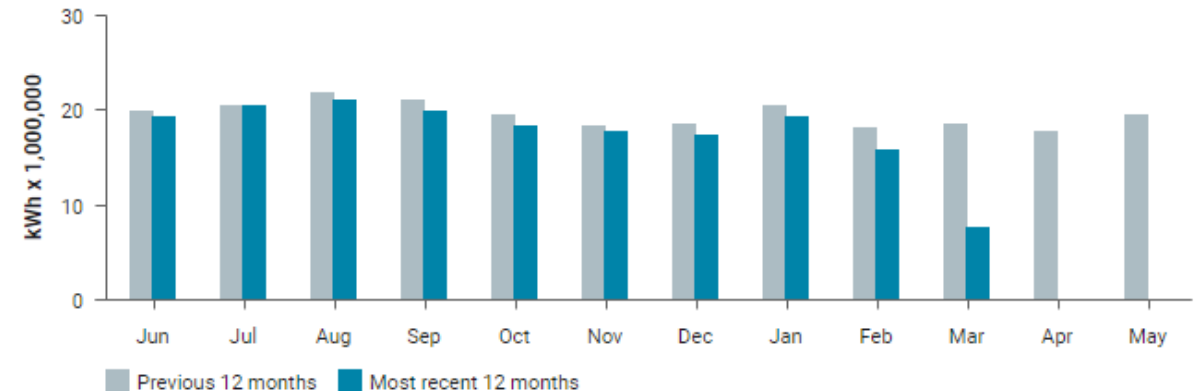


⚡ Electric

Monthly Cost

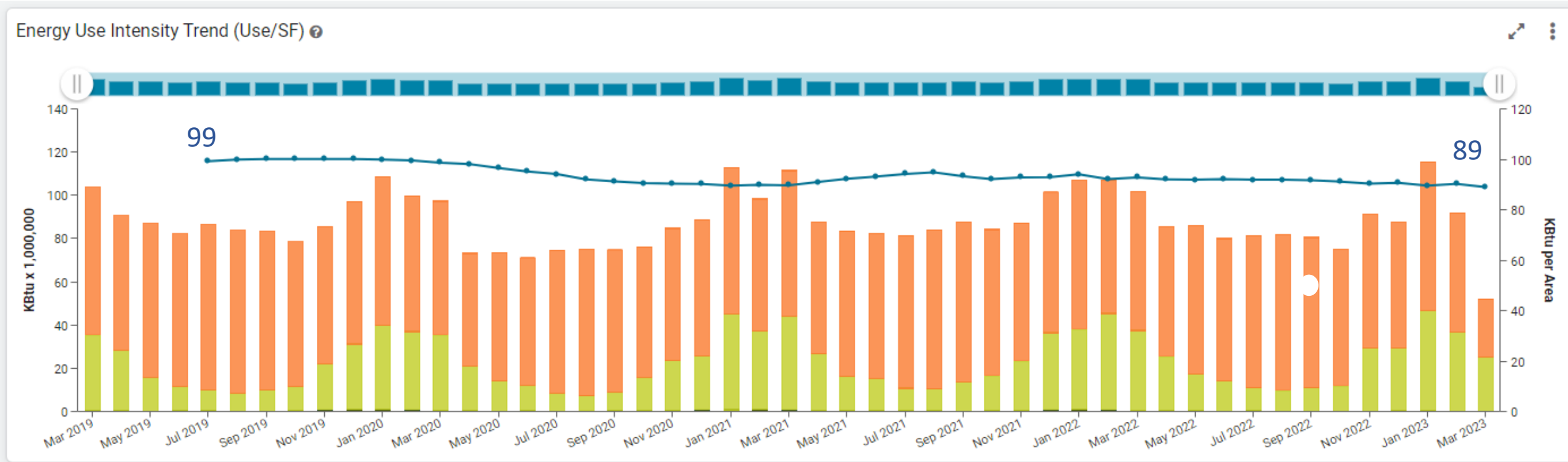


Monthly Use



Measurement/Benchmarking

Total county energy use per square foot of building area = EUI = measure of efficiency



Conservation

- Education and outreach
- Behavior changes
- Please waste less!



Office Energy Tips

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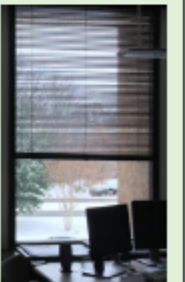


The Energy Management program works to keep Henrico County as a leader in sustainable energy use, and to promote good energy management for the economic and environmental well-being of the county's residents and employees. There are many ways to save energy at work and at home, to conserve resources while also saving money.

Energy Conservation

Conservation is reducing energy use with the tools and technologies that you already have through simple behavior changes. Here are some conservation tips:

- **Turn off the lights.** Use natural light or lamps instead of overhead lights whenever possible. Keep lights off in empty rooms.
- **Put computers in sleep mode when not in use.** Sleep mode uses very little energy but allows you to return to your work quickly.
- **Set thermostats to balance thermal comfort with energy management.** If you have a thermostat in your office, please keep it at the county's standard of no more than 72° F in winter and no less than 72° in summer. Avoid using individual desk heaters if possible.
- **Think before printing.** Printing uses energy and paper. If you must print, use the shared office printer instead of individual desktop printers, so only one piece of equipment must be kept on. Turn off all machines before you leave in the evening.
- **Use window blinds wisely.** Lower blinds against sunlight on hot days to limit heat gain, and raise them on cold days to let in warmth. Close them on cold nights to insulate the windows and keep heat in.
- **Unplug chargers and electronics when not in use.** Small amounts of electricity, called standby power or vampire power, are drawn by chargers, appliances, and electronic devices when plugged in.



Efficiency

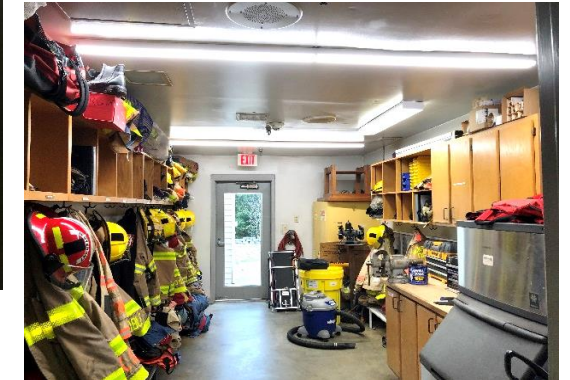
Administration Building Lights Before and After



Virginia Randolph Academy Classroom Before and After



Firehouse 16 Gear/Shop Room Before and After

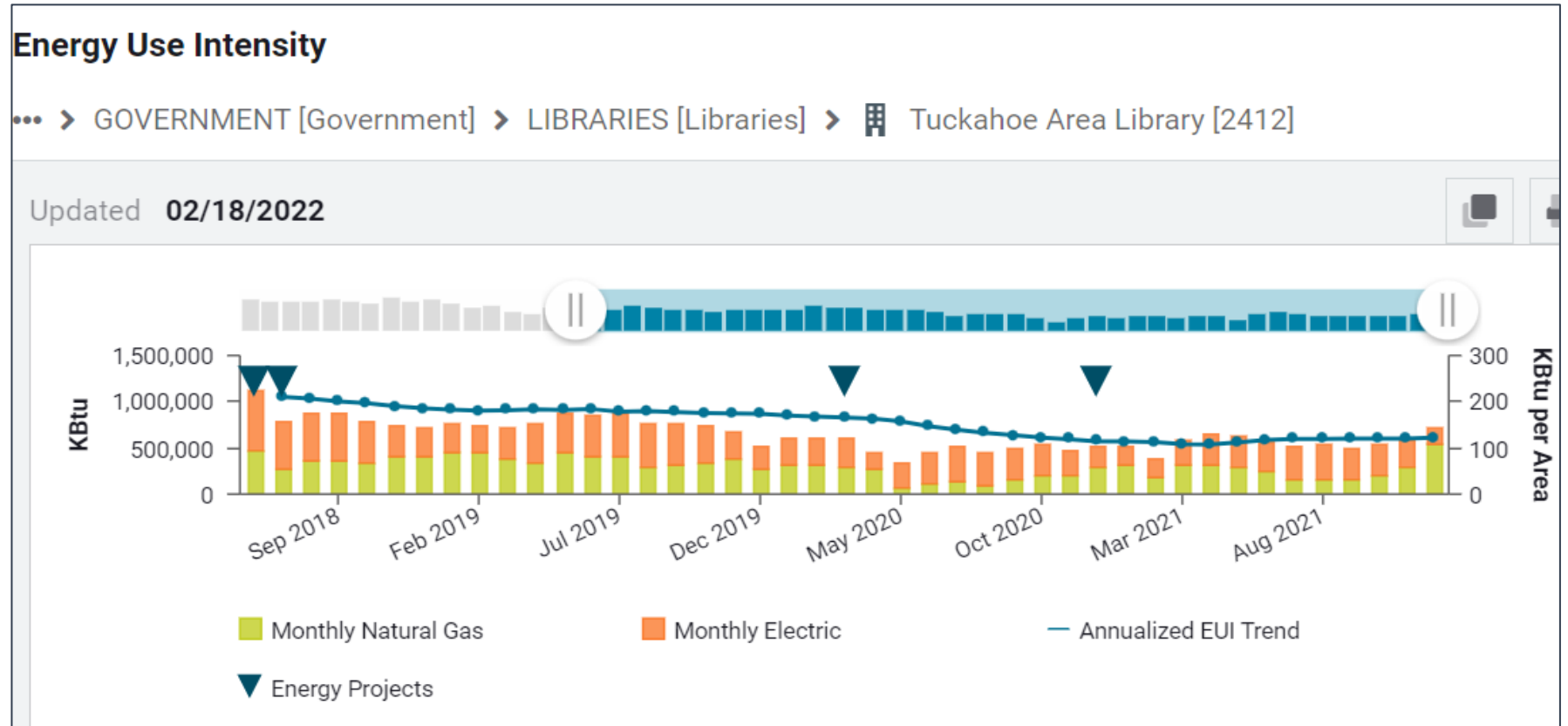


Tuckahoe Library Lights Before and After



Efficiency

- 2016 EUI = 223
 - Interior lights
 - New chiller
 - Manage BAS settings
 - Exterior lights
 - Conservation efforts
-
- Current EUI = 122
 - Use and cost ↓40+%



Renewables

Round 1 – 2019

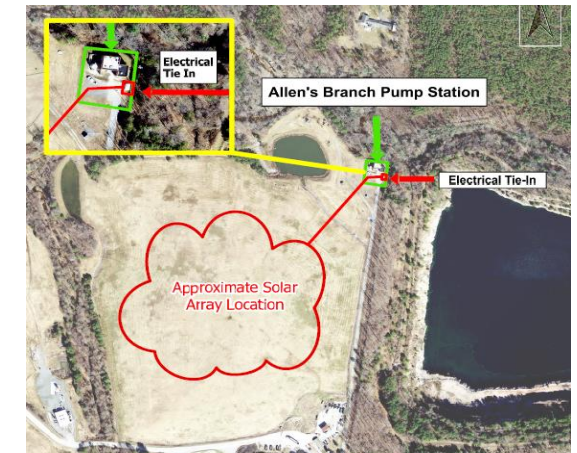


**= 7.8 megaWatts
of solar total and
>\$3.5 million projected
savings over 25 years**

Round 2 – 2020-22



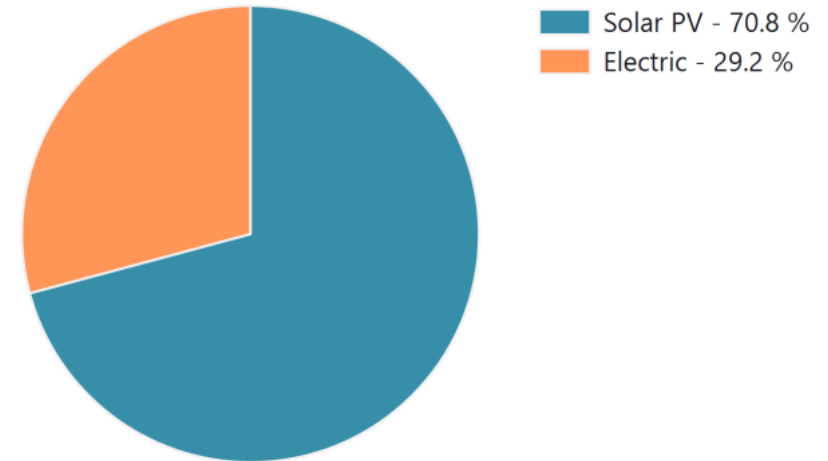
Round 3 – 2022-23



Mental Health East Center

- Opened 2018
- LEED Gold certified
- Education of staff
- All electric
- Demand response mode in BAS program
- All LED lights
- Current EUI = 54 kBTU/SF
 - Grid electricity ~16 kBTU/SF
 - Solar electricity ~38 kBTU/SF
- Benchmarking against CBECS
 - Outpatient healthcare = 94.8
 - Office building = 77.8
- Solar offsetting 244 metric tons CO2 equivalent

Energy Use Percentage



Green Building



HENRICO COUNTY'S LEED CERTIFIED PROJECTS

Holman MS - Silver 2011



Glen Allen HS - Gold 2011



Glen Allen Library - Silver 2012



Firehouse 12 - Gold 2012



Firehouse 13 - Gold 2013



Eastern Rec Center - Silver 2014



Gayton Library - Silver 2014



Kaechele ES - Silver 2014



Firehouse 7- Silver 2014



East Health Clinic - Gold 2015



Firehouse 3 - Silver 2016



Firehouse 10 - Gold 2016



Libbie Mill Library - Silver 2017



Varina Area Library - Silver 2017



Firehouse 9 - Gold 2017



Firehouse 19 - Gold 2019



Mental Health East - Gold 2020



Fairfield Library - Gold 2021



Firehouse 20 - Silver 2023



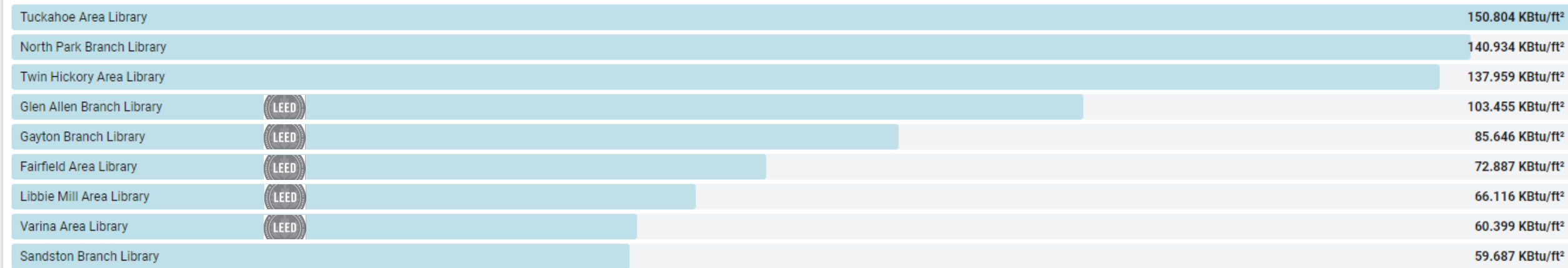
Green Building


Building Groups > Place Primary Use Auto-Group >  Library

Benchmarks Buildings

Use / Area High to Low Filt

Last 12 Months (Calendarized)



 Building with Partial Data

Use/Area (KBtu/ft²)

Low	Median	High
59.687	85.646	150.804

Total Cost

Low	Median	High
\$15,871	\$74,363	\$180,382

Reporting

Energy Management Fiscal Year 2021-2022 Annual Report



Key Metric	FY2021	FY2022	Difference	% Difference
Total Energy (kBTU)	1,048,043,225	1,077,749,257	29,706,032	+2.8%
EUI (kBTU/SF)	89.81	90.49	0.68	+0.8%
Total Energy Cost	\$20,977,200	\$23,242,417	\$2,265,217	+10.8%
ECI (\$/SF)	\$1.80	\$1.95	\$0.15	+8.3%
Carbon Emissions (metric tons CO2)	83,469	80,313	-3,156	-3.8%

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