MONTGOMERY COLLEGE

Office of Facilities

— MC —

Resource Conservation Plan

FY 2023

Energy Management Team

9122 Coorporate Blvd,
Rockville , MD-20850
Web
https://www.montgomerycollege.edu/offices/facilities/energy-conservation/index.html

MAKE YOUR MOVE

Revision #	Description	Date
0	Issued for Use	03/01/2022

Owner's Sustainability Statement

As good stewards, it is Montgomery College's goal to furnish and maintain sustainable facilities, which are safe, reliable, life cycle cost effective, environmentally friendly, resilient and conform to Owner's Project Requirements (OPR). These facilities exist to provide a quality built environment which enhances the learning experience and contributes to student success. To achieve this goal Montgomery College embraces a total quality process which relies on the vision, talents, and collaboration of all individuals involved or affected by this project.

The Long Nguyen and Kimmy Duong Student Services Center

Rockville Campus

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Executive Summary

The Resource Conservation Plan (RCP) has been prepared by Montgomery College's Office of Facilities to support the College's Fiscal Year (FY) 2023 Energy Conservation Capital Improvements Program (CIP) and Utility Operating Budget requests for funding. Published annually, this plan provides historical background and discusses FY2021-FY2022 accomplishments and FY2022-2023 plans as mandated by Montgomery County Code Section 18A-9 Interagency Committee on Energy and Utility Management (ICEUM).

This document describes Montgomery College's Resource Conservation Program that includes master planning, utility management, benchmarking, sustainable building design, energy conservation activities, waste stream management, climate change activities, and program outreach and awareness. Included are the following descriptions:

- Resource conservation organization.
- Discussion of current and historical utility consumption and costs
- Resource conservation program accomplishments, and plans.

Tables and graphs present information on historical utility consumption and utility budget estimates, while (CIP) Project Description Forms (PDF) that relate to the College's Resource Conservation efforts are discussed and included in the appendix section of this document.

Historically, all buildings regardless of function have been optimized to meet the project requirements while minimizing environmental impacts. The College attempts to achieve the U.S. Green Building Council (USGBC) Leadership in Energy and Environmental Design (LEED) Gold certification that exceeds the County Legislated LEED Silver as well as surpassing the requirements of the SEC 8-14.A Energy Performance Standards for County Buildings. Currently, the College is meeting the city of Rockville and Montgomery County International Green Construction Code (IgCC).

The College continues to implement recommendations in the college-wide Master Plans and Utility Master Plans on all three campuses, while at the same time preparing new and expanded master plans for the out-years. Master planning is an important tool using Integrated Lifecycle Management (ILM) practices to ensure that sustainability issues are fully examined and properly integrated into the fabric of the institution.

In FY 2022 the College began purchasing its electricity in the wholesale market to obtain more competitive prices as compared to the retail market. The College participates in the joint agency procurement of natural gas, and wind-generated renewable energy certificates (REC). In FY 2021, the College purchased 208% of its electricity in the form of wind REC. In FY 2022 & FY 2023, the College will need to reduce the number of RECs to 100% of its electricity consumption due to the significant price increase for RECs.

The College continues to participate as a member of various County-sponsored sustainability, climate change, energy, and national engineering and professional society committees. In our mission to enrich the lives of our community, the College encourages faculty, staff, student, and public participation in our sustainability efforts via social media, and electronic newsletter articles. The College's sustainability committee, MC Green Team, represents the College stakeholders and addresses green issues. Specifically, MC Green Team's goals are to address climate change, conserve resources, and share stewardship values. The team holds monthly meetings where topics related to energy, sustainability, economics, and community outreach are discussed. The MC Green Team representatives are students, faculty, and staff members that bring a vast amount of knowledge and ideas to the team. The College offers credit and non-credit academic and continuing education courses in subjects related to green jobs, sustainable design, green business practices, solar trades training, and the LEED Rating System.

Montgomery College is requesting $300,000 for the FY 2023 Energy Conservation Capital Improvements Program (CIP) which funds the Utility Analyst, the Energy Engineer position, and various energy projects. This is a $175,000 increase from previous years. The FY 2023 College operating budget includes funding for one Energy Manager position. Energy and sustainability opportunities are also integrated into various building renovation and equipment replacement projects which are funded by various capital and operating budgets. The FY 2023 utility operating budget request is $8,073,607, a 12.8% increase from the FY 2022 request. The budget increase will cover rate increases, higher prices for RECs, the addition of the new The Catherine and Isiah Leggett Math and Science Building, and increase occupancy after COVID-19.

MONTGOMERY COLLEGE GENERAL INFORMATION

Montgomery College founded in 1946 established its first campus in Takoma Park in 1950. In 1965 and 1978 The College added the Rockville and the Germantown campuses, respectively. In the year 2000 the Takoma Park Campus expanded into the city of Silver Spring. Currently, the College owns and maintains approximately 333 acres of property on three campuses and operates 55 buildings in excess of 2.9 million gross square feet (GSF), which includes three parking garages and four leased sites.

Central Services (CT) is an off-campus building with an area equal to 126,801 GSF. This building consolidated central administrative functions that were previously scattered throughout various owned or leased spaces. Campus maps and summaries of space allocations can be found in Appendix A.

Buildings

The College buildings consist of classrooms, computer laboratories, offices, science and engineering laboratories, libraries, meeting rooms, gymnasiums, automobile shops, shipping and receiving areas, childcare centers, swimming pools, and greenhouses.

Schedule

The hours of use are from 7:00 a.m. until 11:00 p.m. on weekdays, and at different times of the day on weekends. Summer and winter session classes are offered at all three campuses and The College's administrative and academic offices are open year-round. There are frequent activities in the Physical Education (PE) building, as well as community use (rental) of PE and other spaces on the weekends. In addition to the programs offered at each campus, the College offers regular college credit programs and non-credit courses in off-campus locations throughout the County.

Montgomery College

RCPs

Montgomery College, which began its resource conservation program prior to 1973, is a charter member of the Interagency Committee on Energy and Utility Management (ICEUM) and has submitted a Resource Conservation Plan in support of the utility operating budget since January 1976.

ITOC

The College's Information Technology Operations Center (ITOC) is a 4,000 GSF space located in the Cafritz Arts Center on the Takoma Park/Silver Spring Campus, operating 24 hours a day. ITOC accounts on redundant systems and high-density servers which support cloud-based computing. The College provides backup systems to the ITOC infrastructure in the Computer Science Building on the Rockville Campus. Currently, ITOC provides server space to the Maryland-National Capital Parks and Planning Commission (MNCPPC).

Environmental Stewarship

Since the late 1970s, the College has been a leader in environmental stewardship by implementing energy-efficient, environmentally friendly, green, award-winning building designs, and creating an award-winning recycling program. The College has an active occupational safety and health program which ensures occupant environmental quality and a hazardous waste management and recycling program which minimizes its hazardous solid waste stream. In FY 2016, the College was awarded a green seal certification for cleaning services, on the Takoma Park/Silver Spring campus.

Sustainability Features Shown: 90 kW PV Solar Generation, Day-lit Atrium Roof, Green Roof, High Albedo (reflective white) Roof, High Performance Day-lit Envelope, On-site Storm Water Management Features (rain garden front & pond rear) and Roof-Top Mounted High Performance HVAC System, with Energy Recovery.

Science Center (SC) on the Rockville Campus (top right) LEED Gold Certified, Science East (SE) (middle) LEED Gold Certified, and Science Center West (SW) LEED Gold Targeted (bottom left)

The College Involment Energy & Sustainability

Electricity Deregulation Task Force

- Electricity and Gas procurement with other government agencies

Environmental Policy Implementation Task Force (EPITF in FY04)

- First Environmental Policy Issues and Action Report

Montgomery County Green Building Law (FY06 and FY 07)

Environmental Sustainability Working Law (FY08 and FY 09)

- Response to County Council Bill No. 32-07, “Environmental Sustainability - Climate Action Plan”

County Agency Resource Sharing (CARS) Committee (FY10)

In-house Print Management Committee (FY10)

MC Green Team (College Sustainability Committee in FY11)

Montgomery County Energy Benchmarking since FY13

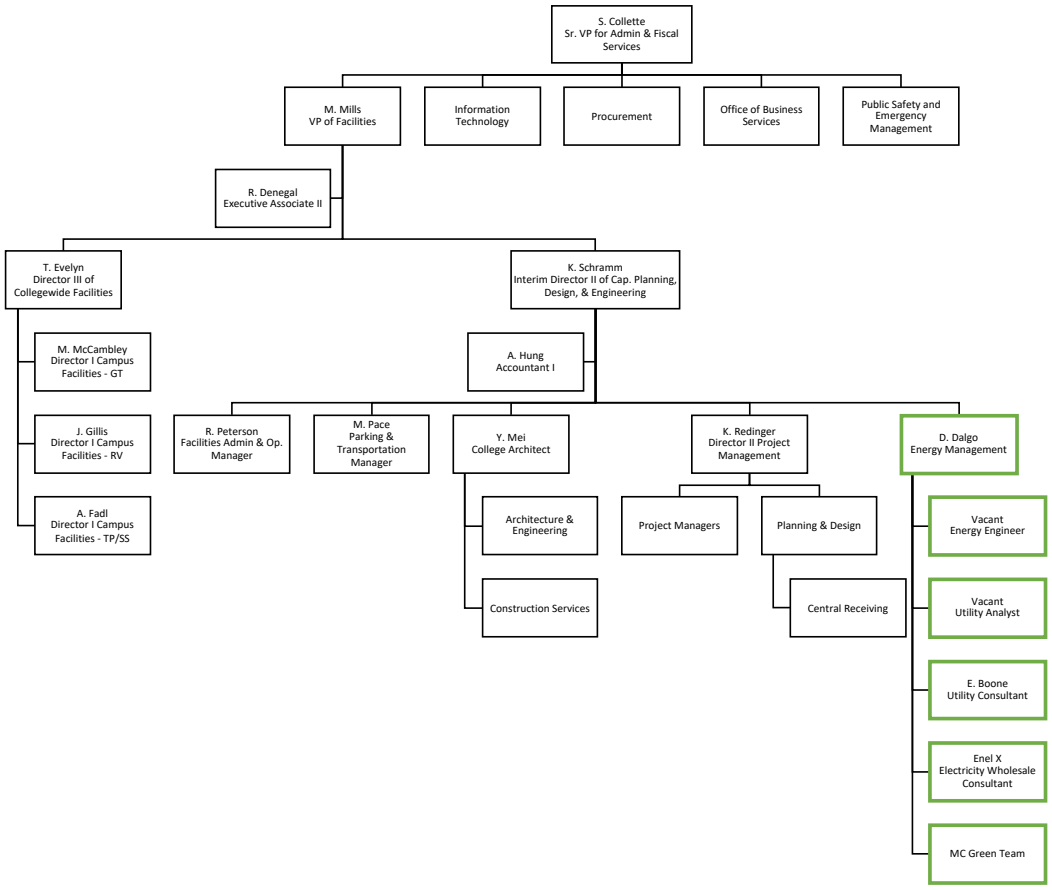
- Since FY17 The College individually benchmarks all its buildings

Montgomery County Climate Emergency workgroups (FY19)Building Energy Performance Standards (BEPS) (FY20) PJM Emergency Demand Response Program (FY18-Present)

Student Climate Town Hall by Montgomery County (FY21)Wholesale Electricity Procurement (FY22)

RESOURCE CONSERVATION PROGRAM ORGANIZATION

The Office of Central Facilities provides college-wide facilities management services for all three campuses and is responsible for managing resource conservation activities. The organization manages a highly developed integrated resource conservation and sustainability program through integrated planning, program management, and operations. The figure below details the organization chart and those individuals directly responsible for influencing the Resource Conservation Program and ensuring program success. The College's Energy Management Team is part of the Office of Facilities under Administrative and Fiscal Services. The Energy Management Team reports to the Interim Director of Capital Planning Design and Engineering.



ENERGY MANAGEMENT TEAM

Energy Manager

The Energy Manager is responsible for implementing the energy and sustainability components of the Resource Conservation Program and is the College's representative on ICEUM. His contact information is:

DANIEL DALGO, Ph.D.

Energy Manager

Office of Facilities

9221 Corporate Blvd,

Rockville, Maryland-20850

Phone No. (240) 567-9172

Email: daniel.dalgo@montgomerycollege.edu

The energy manager coordinates:

- Utility Master Plans
- Sustainable Design of new and renovated buildings
- Utility management
- Utility Procurement
- Oversees utility bills and utility accounting database
- Energy audits and retrofits
- Building Operations Data Management
- Outreach of the sustainability program
- Co-chair MC Green Team
- Represents The College on ICEUM and other committees on isues related to Resource Conservation and Sustainability

Energy Engineer

Vacant

The Energy Engineer, a capital position since FY20, provides engineering support to the Energy Manager and Utility Analyst; as well as projects related to Benchmarking. Specific projects associated with the new energy engineer position are the integration of building sub-metering with the building automation system and EnergyCAP, and building energy audits and retrofits that are critically needed infrastructure improvements. The engineer provides support for the development of College-wide Master Plans, Utility Master plans and data analytics for energy performance evaluation of buildings.

Utility Analyst

Vacant

The Utility Analyst, a capital position since FY 2015, is responsible for assisting the Energy Manager with utility management duties related to the capital energy program and assisting in implementing various legislatively mandated capital programs such as Benchmarking. Likewise, the utility analyst manages the College's utility accounting database, EnergyCAP. The utility analyst manages the benchmarking process through the College's utility database.

Utility Consultant

Mr. Charles E. Boone

The College contracts with Mr. Boone's consulting services to provide assistance with utility bill management, utility billing issues, and utility projection. Mr. Boone and the Energy Management Team have identified billing issues and recovered approximately $270,000 during FY21-22 that would have otherwise been paid to the utilities.

Utility Procurement Consultant

EnelX

The College contracts with EnelX to advise the College in its transition to electricity wholesale procurement and the procurement of natural gas.

MONTGOMERY COLLEGE

ENERGY MANAGEMENT TEAM
special recognition

Mr. J. Michael Whitcomb, P.E.

MONTGOMERY COLLEGE

Mr. Whitcomb served as the College's Energy Manager for 34 years before he retired in August 2021. During his tenure at the College, Whitcomb made enormous technical and administrative contributions. The college infrastructure increased by approximately 150% during his tenure, including the College's most recent LEED-certified buildings such as the Science Center complex and the Long Nguyen and Kimmy Duong Student Services Center on the Rockville campus, the Bioscience Education Center, and the SA renovation and addition on the Germantown campus. Mr. Whitcomb contributed to the College's sustainable and energy-efficient building design and construction, and his input on building operations has put the College on a path toward greater sustainability opportunities in the near and long run. The College, the Office of Facilities, and especially the Energy Management Team recognize Mr. Whitcomb's contributions as Energy Manager and his continuing role as a consultant for special projects.

MORE EXPERTS

The following are positions within the Office of Facilities that provide support to the Resource Conservation and Sustainability Program.

Director of Capital Planning Design and Engineering

Integrates planning and design to the College facilities to ensure that environmental measures are integrated into the life cycle of the College infrastructure.

Director of Project Management

Responsible for the construction of new and renovated facilities. Building performance is ensured through persistent quality supervision of building and infrastructure during construction.

Director of Facilities

Operate and maintain safe, reliable, and economical facilities, which contribute to the wellbeing of the College occupants. Likewise, managing the operations and maintenance aspects of their campus sustainability programs including energy-efficient operations of facilities and implementing best practices with respect to recycling, building cleaning, and landscape management. In addition, the Director of the Germantown campus coordinates the recycling program for the three campuses as well as the maintenance of the college's vehicle fleet.

Facilities Administrative and Operations Manager

Manages the facilities operating budget accounts including the college-wide Utility Operating budget. Utility bills are received, reviewed, and approved for payment. Utility bill data is entered automatically into EnergyCAP database through BillCAPture, an optical character recognition (OCR) program. Audit routines review the data and automatically identify inaccurate bills that need to be investigated and corrected by the utility analyst.

MONTGOMERY COLLEGE

Director of Public Safety

Ensures safety of the public and the College is prepared to respond to emergency events in order to safeguard the well-being of the College community, preserve College property, communicate promptly and clearly, and restore College operations after an emergency event.

Parking and Transportation Manager

Manages issues related to college-wide parking and transportation. Transportation management is tasked with providing sustainable transportation solutions for the College community.

Environmental Safety Manger

Manages the college-wide occupational and environmental safety issues, including Occupational Safety and Health Organization (OSHA), asbestos abatement, hazardous waste stream management, occupant awareness, and indoor environmental quality (IEQ). The College's environmental safety web page is https://www.montgomerycollege.edu/offices/facilities/occupational-and-environmental-safety/index.html

Based upon their expertise, members of the Facilities Office represent the College on national, regional, and local committees related to the College's Resource Conservation efforts.

Resource Conservation Activities

The following activities summarize the College's Conservation and Sustainability Program.

TAKOMA PARK/SILVER SPRING CAMPUS

Master Planning

Facility Master Planning is the legislatively mandated process of examining current and future academic programs to determine the space required for these programs and their support services. The master plan establishes the quantity and types of space, where it will be located, and the cost of converting existing or adding new space. Since facility master planning establishes the owner's project requirements (OPR) and is used to support capital budget funding, it is the ideal place to integrate resource conservation opportunities.

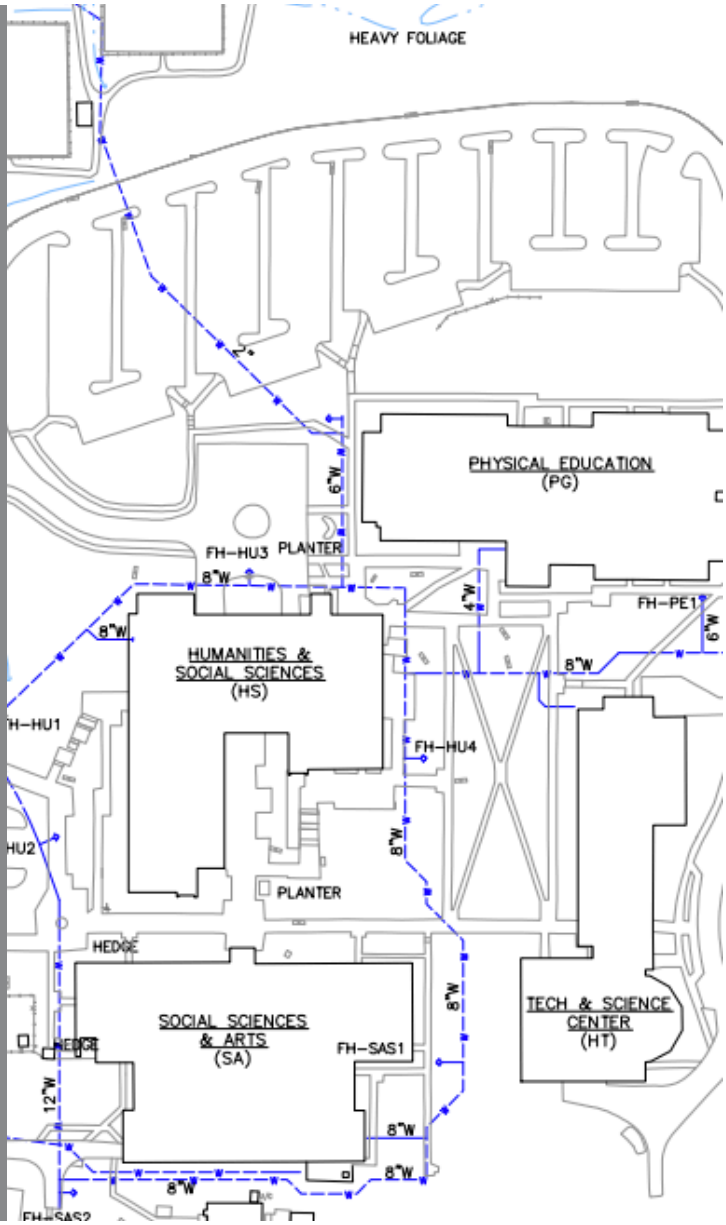
ROCKVILLE CAMPUS

MONTGOMERY COLLEGE

Utility Master Planning

Utility master planning is an extension of the facility master planning process, which examines, on a life cycle cost basis, the current and future requirements for utility infrastructure. The utility master planning process examines electrical, natural gas, central hot water and chilled water plants, water, sewer, stormwater, and telecommunications systems that are affected by campus buildings.

The current utility master plan is being updated to support the updated master plan. The college-wide Facility Planning CIP No. 886686 is the primary funding source for all College planning activities.



Current Utility Master Plan (UMP)

Germantown UMP

https://www.montgomerycollege.edu/-documents/offices/facilities/energymanagement/germantown-master-plan.pdf

Rockville UMP

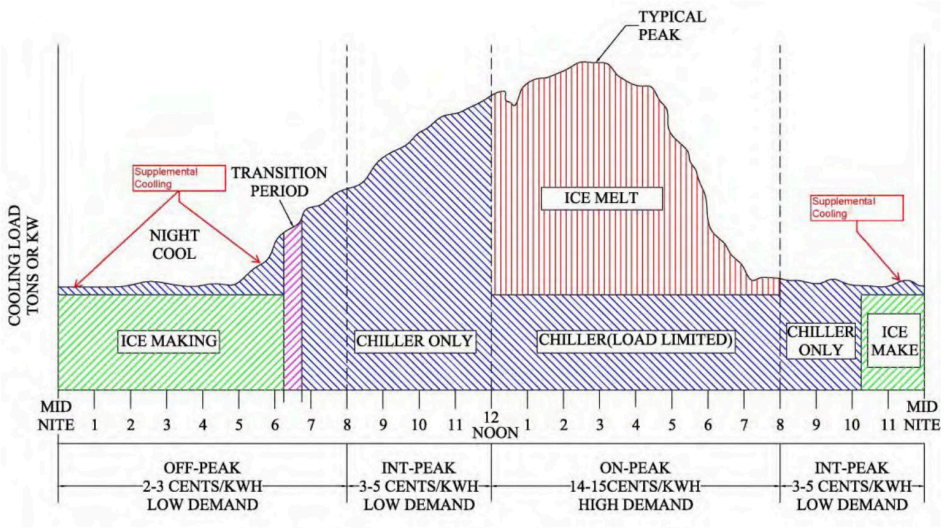
https://www.montgomerycollege.edu/-documents/offices/facilities/energymanagement/rockvillemasterplan.pdf

Takoma Park UMP

https://www.montgomerycollege.edu/-documents/officesfacilitiesenergymanagement/tpss-mast-plan.pdf

MONTGOMERY COLLEGE

COLLEGE CENTRAL PLANTS



Typical Central Plant Load Profile

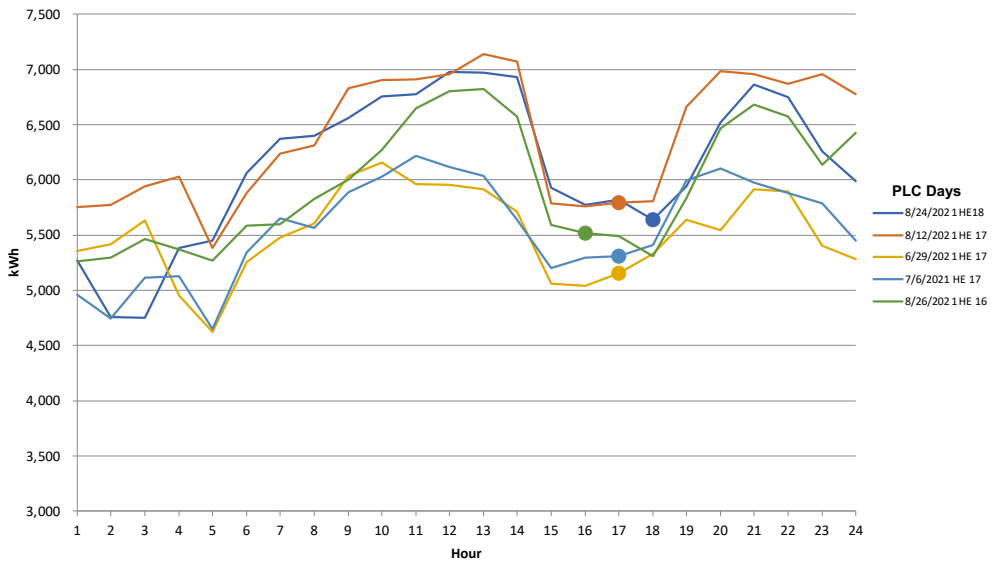
The College uses high efficiency, environmentally friendly central plant technology that allows the consolidation of major heating and cooling equipment into a more life cycle cost effective central plant rather than individual plants in each building Consolidation of equipment realizes economies of scale, allows higher diversity, which reduces total equipment costs, provides redundancy, and allows the use of smart-grid technologies such as ice thermal storage and co-generation. These environmentally friendly plants use high efficiency, variable speed open drive chillers. The chillers use Ammonia (R-717), a highly efficient, naturally occurring refrigerant that minimizes the Total Equivalent Warming Impact (TEWI) in that it has no Ozone Depletion Potential (ODP) and No Direct Global Warming Potential (GWP) The chiller and refrigerant cycle is enhanced by using high efficiency plate and frame heat exchangers, and ice thermal storage. The heat exchangers improve refrigerant heat transfer while the ice storage stores cold energy at night when the electricity rates are low for use during the day when electricity rates are high.

Electricity Demand Response Program

MONTGOMERY COLLEGE

Ice thermal storage also improves the overall electrical load profile and positions the College to participate in smart grid demand management activities. Ice thermal storage also reduces the quantity of active rotating mechanical and electrical equipment by half, produces colder water, which reduces the size of distribution system, pumping systems, and their associated operational costs.

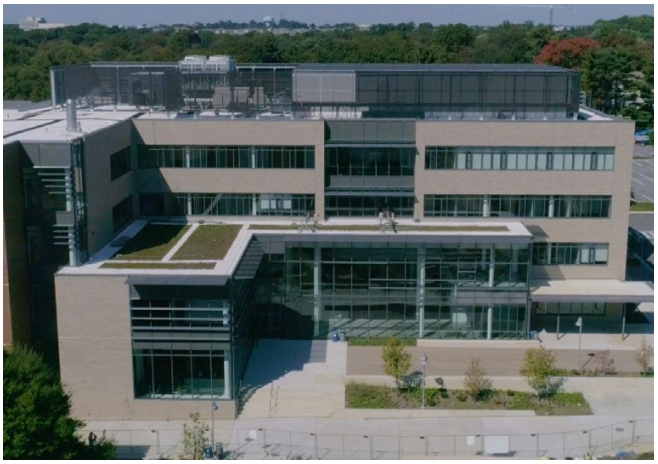
Montgomery College, Daily Load Profile 2021 PLC Days



The College participates in the PJM's Emergency Load Response Program. The objective of this program is to maintain a reliable grid during extreme weather events when the electric supply would otherwise not be sufficient to meet demand. During the summer of FY21, the college reduced its electricity demand by 18% during peak hours. In FY21, this program generated $18,239.66 in payments to the College from the electricity grid operator (PJM).

Building Design

The College follows the SEC 8-14.A Energy Performance Standards for County Buildings. As a result, Design Standards and Energy Design Guidelines (EDG) were developed, establishing performance, and equipment requirements, and distributed to the Architectural and Engineering (A/E) teams. Compliance, quality control, and sustainability have been and remain the responsibility of College staff. These standards have evolved to include requirements for indoor air quality, stormwater management, combined heat and power (CHP), commissioning, and controls.



The Long Nguyen and Kimmy Duong Student Services Center
Rockville Campus
Opened July 2020
LEED Gold

College Construction Codes

Year	Requirement	College Target
2007	**USGBC LEED Silver Rating**	**USGBC LEED Gold Rating**
2014	**Energy Benchmarking**	**Individually benchmark all the buildings**
2017	**IgCC 2012**	**Meet or exceed**
2021	**IgCC 2018**	**Meet or exceed**
2022 Proposed	**BEPS**	**Meet or exceed**

Design, construction, renovation, energy modeling, and enhanced commissioning

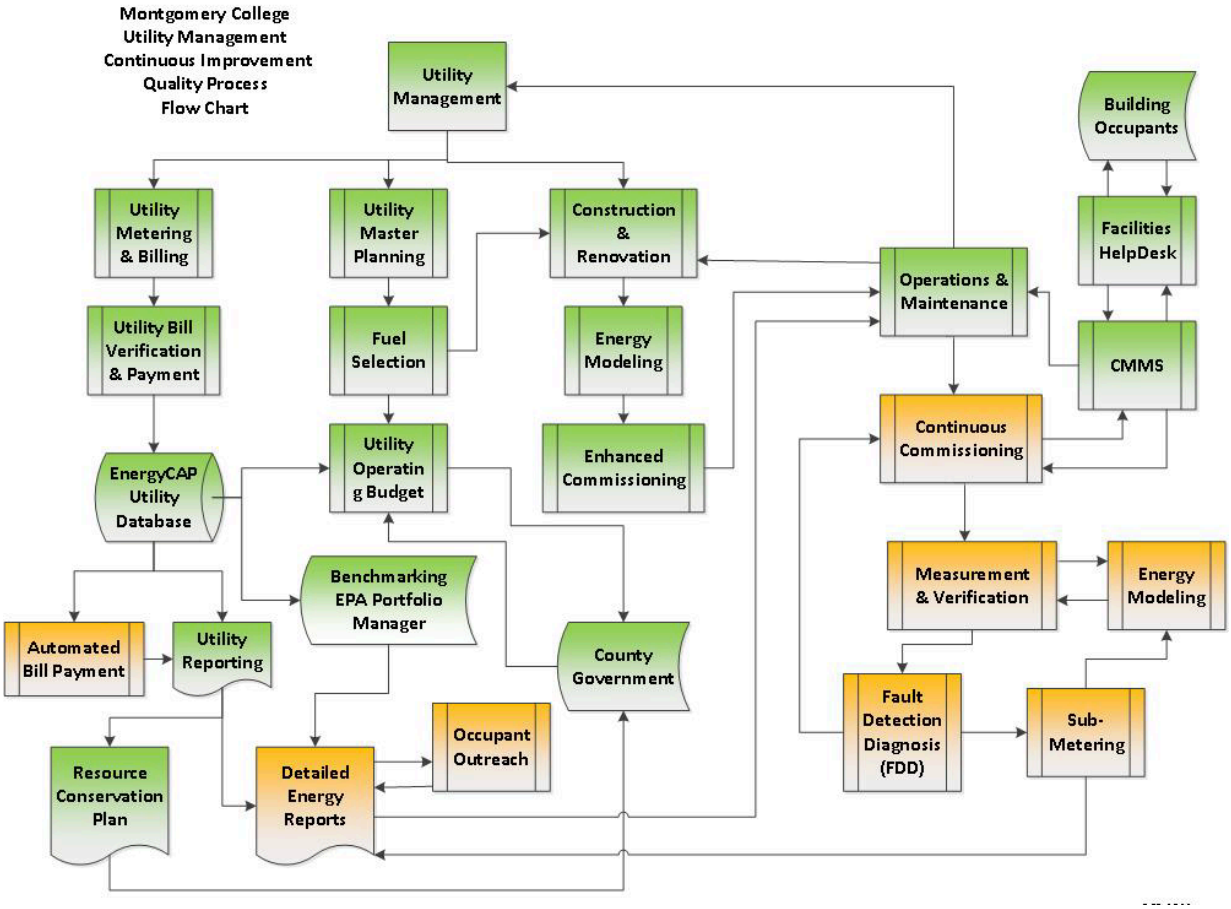
Year-round, the College looks for ways to improve efficiency and reduce utility and resource consumption during project design, construction, and renovations (retrofits and replacements).

Energy modeling and life cycle cost analysis are required on new buildings and major renovations to demonstrate compliance with codes, but it is also the opportunity to compare energy efficiency measures and justify costs.

Enhanced commissioning of all building systems and equipment is essential to ensuring that a high-quality building meets the owner's project requirements, code compliance, and obtains additional LEED certification credits.

Utility Management

Utility management is one of the fundamentals of energy management and resource conservation and is influenced by all aspects of college operations. The figure below shows the activities that contribute to utility management. Boxes in green are established activities while boxes in orange are partially established or future activities. Energy data management is a priority to the College in the near term future to enhance its annual energy benchmarking. In FY21, the College installed thermal energy sub-meters on every building connected to the campuses distribution loops. The sub-meting project will allow the college to optimize building performance using real-time data.



Energy and Fuel Selection

Energy and fuel selection influences our utility distribution systems, building design, and type of equipment we select, and impacts both first and operating cost. The College obtains LEED certification credits based upon energy cost savings and credits onsite renewable energy generation and offsite purchase of RECs. The College has eliminated fuel oil heating applications and all underground fuel oil tanks have been removed.

The College's Energy Team and Utility Consultant participate in aggregated procurement with other County agencies and coordinate the periodic renewal of utility supply contracts for Natural Gas, and Renewable Energy Credits (RECs). In FY22 The College entered the wholesale electricity market as a strategy to enhance reliability, mitigate higher prices, explore new and more efficient generation technologies, and avoid cost using smart grid demand management technologies. The College mitigates commodity market risks associated with the wholesale market by working with an experienced consultant, EnelX. During the FY22 fiscal year, the College procure blocks of electricity supply to fulfill its electric load using a hedging strategy developed with EnelX.

- **ELECTRICITY**
- **NATURAL GAS**
- **PROPANE**
- **WATER**
- **SEWER**
- **RECs**

MONTGOMERY COLLEGE

Montgomery College Energy Supply Contracts

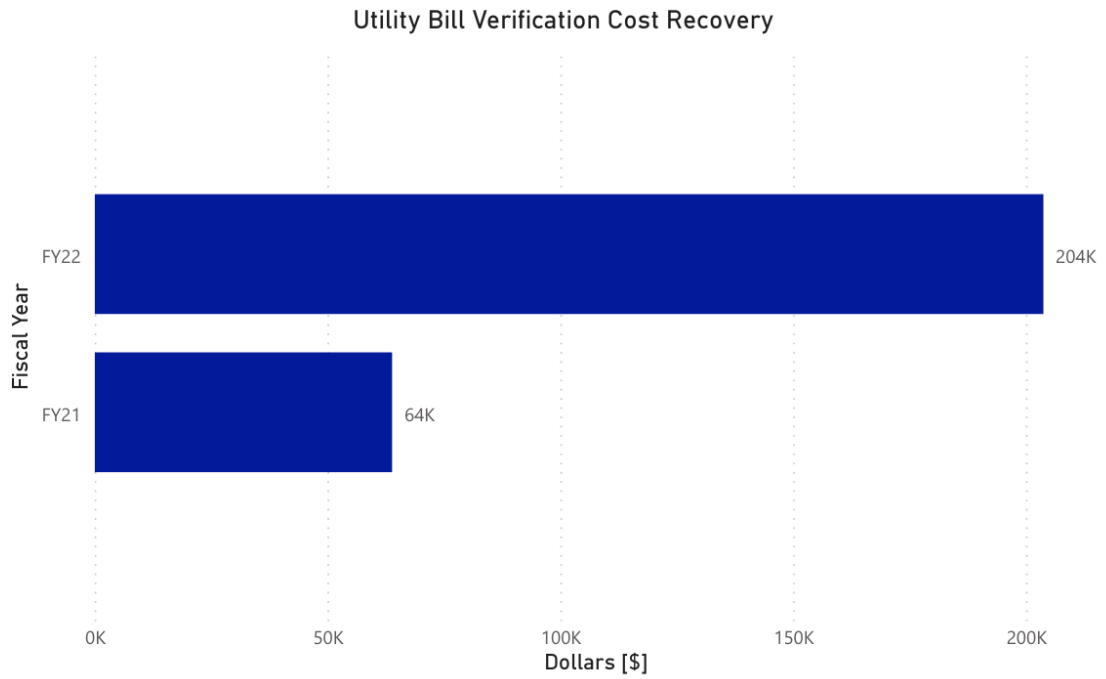
Utility Supply	Vendor	Signed	Start	End	Unit Cost	Contract
Electricity	WGL Energy	01/28/2016	06/2017	06/2019	0.07114/ kWh	DGS
Electricity	WGL Energy	09/28/2016	06/2019	06/2020	0.0603/kWh	DGS
Electricity	WGL Energy	10/03/2018	06/2020	06/2021	0.0603/kWh	DGS
Electricity (Wholesale)	WGL Energy	10/08/2020	07/2021	12/2024	Market Rate	DGS
N. Gas (Firm)	WGL Energy	09/28/2016	6/2018	05/2020	0.418/therm	FCG
N. Gas (Firm)	WGL Energy	10/03/2018	06/2020	06/2021	0.348/therm	FCG
N. Gas (Firm)	WGL Energy	05/08/2020	07/2021	06/2022	0.339/therm	UMD
N. Gas (Firm)	WGL Energy	03/17/2021	07/2022	06/2025	0.323/therm	UMD
Wind (RECs)	Scheneider Electric	08/20/2019	07/2019	06/2020	0.89/MWh	MCG
Wind (RECs)	Scheneider Electric	08/20/2019	7/2020	06/2021	0.89/MWh	MCG
Wind (RECs)	TBD	TBD	TBD	TBD	5.15/MWh	MCG

Electricity is purchased from a deregulated supplier who generates and transmits power via PJM, the regional transmission organization (RTO) to Potomac Electric Power Company (PEPCO), the regulated public utility and local distribution company (LDC). The College also generates a small portion of its electricity from College owned and operated onsite solar photovoltaics (PV). The College consumes fossil fuels in the form of deregulated natural gas and propane. High efficiency central plants on the Rockville, Germantown, and Takoma Park/Silver Spring campuses generate and distribute hot and cold water to the buildings for heating and cooling of the occupied spaces.

High Performance Hot Water Heating Plant
Student Services Center
Rockville Campus

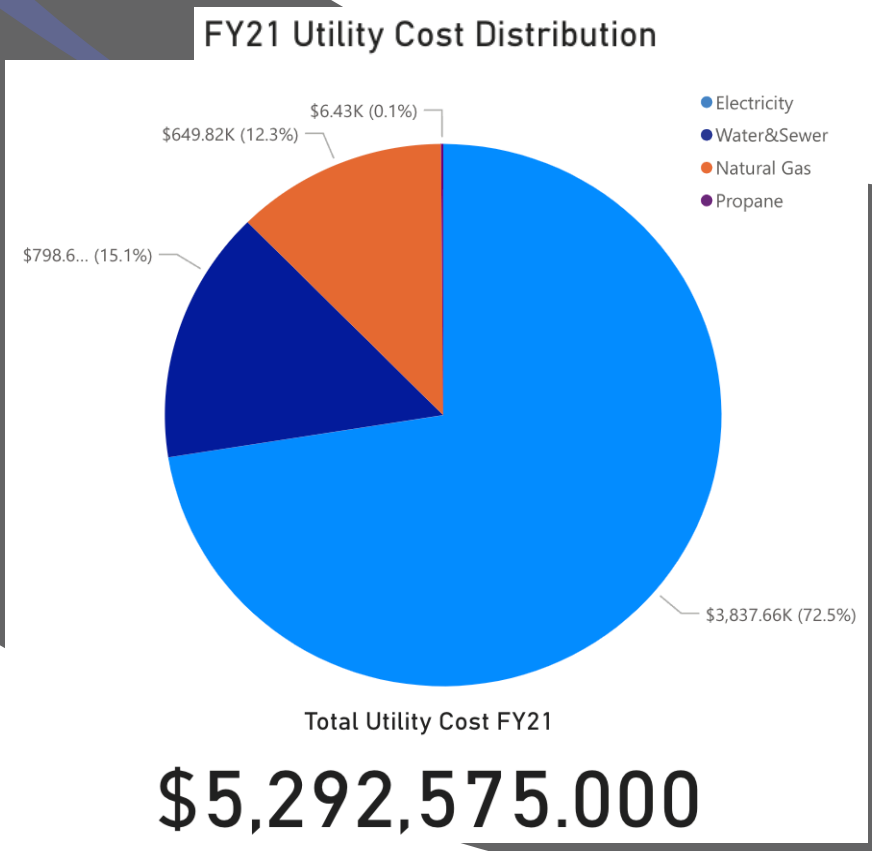
Utility Metering-Billing Process

Utility bills are digitally received on a monthly basis for electricity, natural gas, water-sewer, and quarterly for propane. Utility bills are automatically entered into the EnergyCAP database, verified, paid on time, errors corrected, and cost and consumption recorded. The Utility Analyst and Utility Consultant assists in bill verification and correcting billing errors with each utility.



The utility bill verification process has identified billing issues worth $63,861in FY21 and $203,738 in FY22. The College's billing verification process has proven to be an essential factor in the conservation and management of resources.

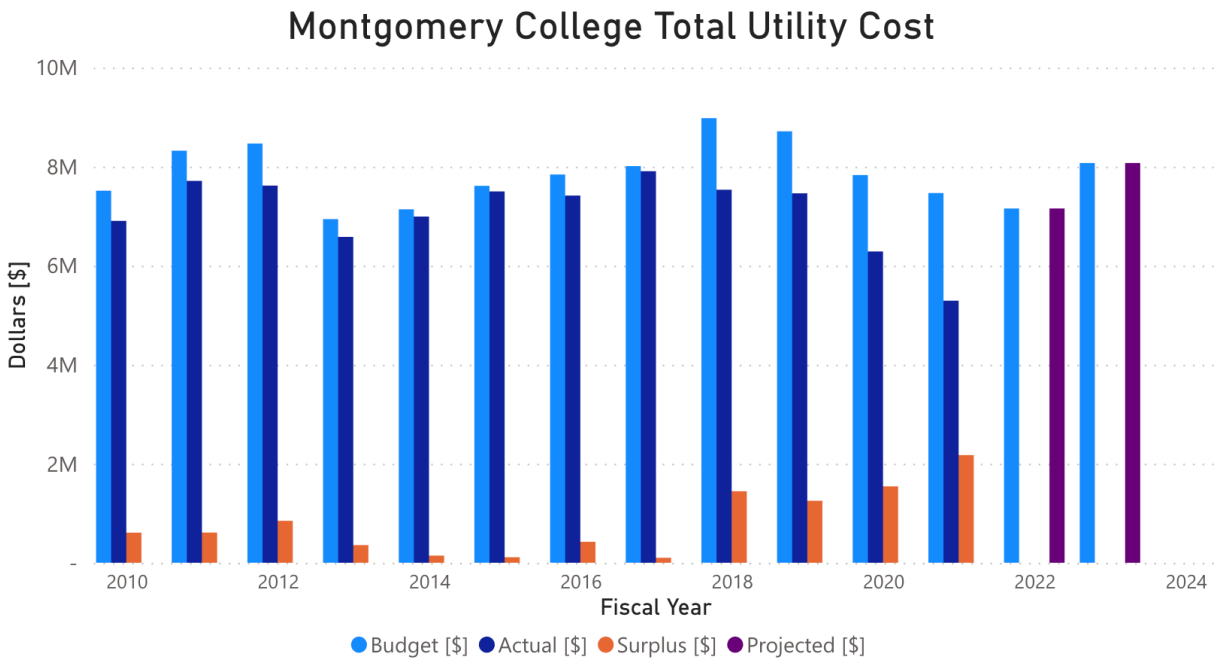
Utility Cost Distribution FY21



The breakdown of the utility cost distribution for FY21 is shown in the figure above. A comparison between the total utility cost of FY20 and FY21 shows a reduction of approximately $1,000,000. The cost decrease is driven by low occupancy in the College's buildings due to the COVID-19 pandemic.

The college's priorities are improvements in efficiency in electricity since it represents nearly 73% of the total utility consumption. Proper lighting design is an important tool in ensuring that electricity consumption is minimized as well as the proper use of lighting and daylighting controls and the ice-storage plant for cooling electric peak load shifting.

Montgomery College Utility Cost by Fiscal Year



The figure above compares the utility budget to the actual utility cost by fiscal year for the College. The college's overall utility costs have not significantly changed over the past 10 years, despite its increased infrastructure, academic programs, and students. The stable utility cost is attributed to market prices and more importantly the application of the resource conservation program throughout each campus by the College's staff. For the past 10 years, the college has maintained a surplus in its utility budget due to its constant effort in resource and utility management.

ELECTRICITY
72.5%

NATURAL GAS
12.3%

PROPANE
0.1%

WATER & SEWER
15.1%

More details on the data for this table are located in the Utility Projection Report in Appendix A.

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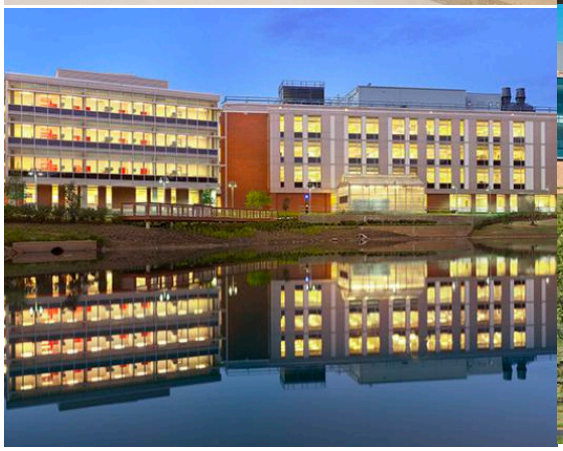
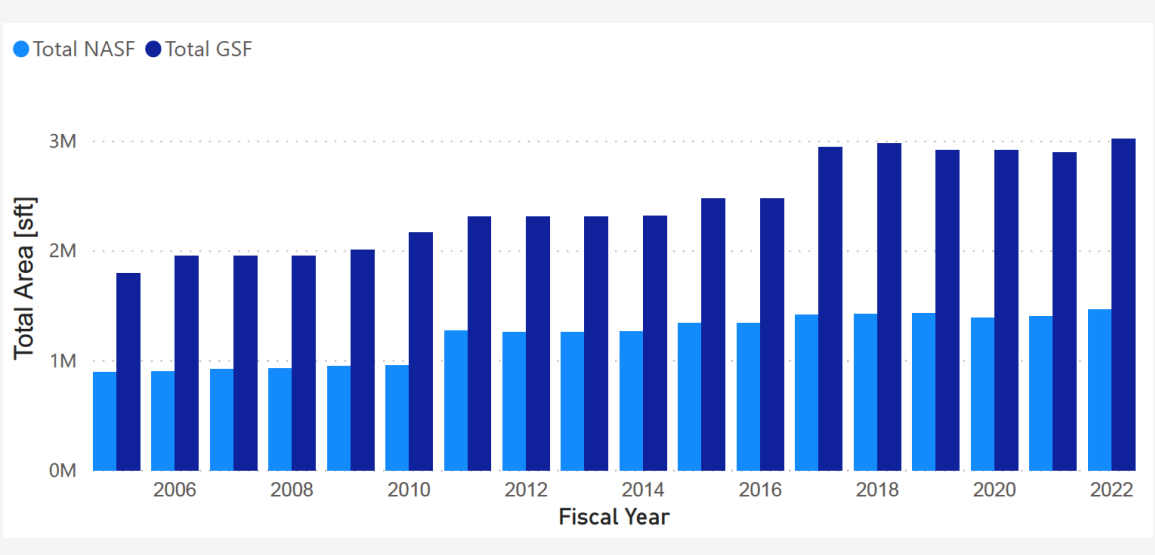
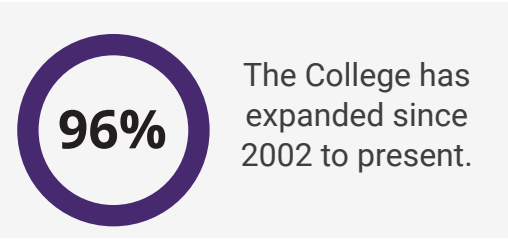
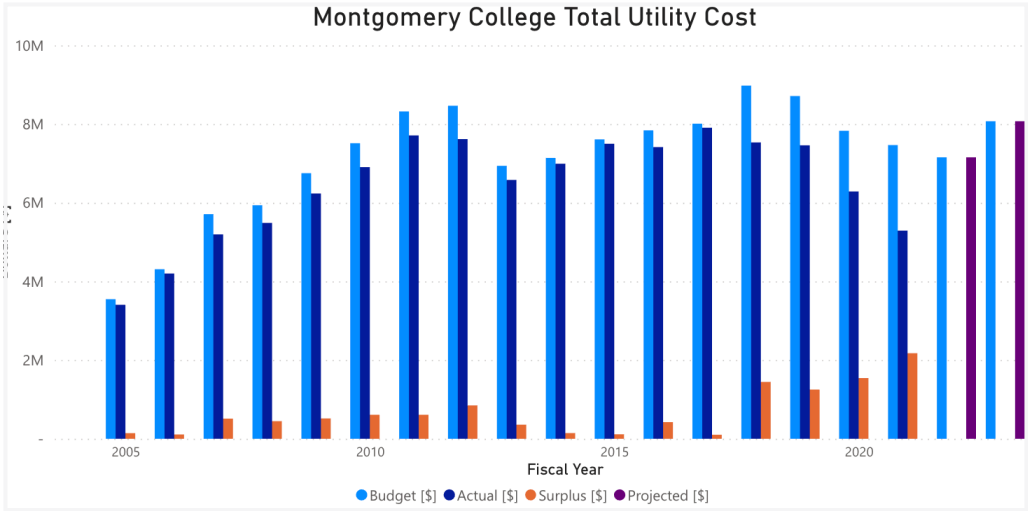


COLLEGE EXPANSION

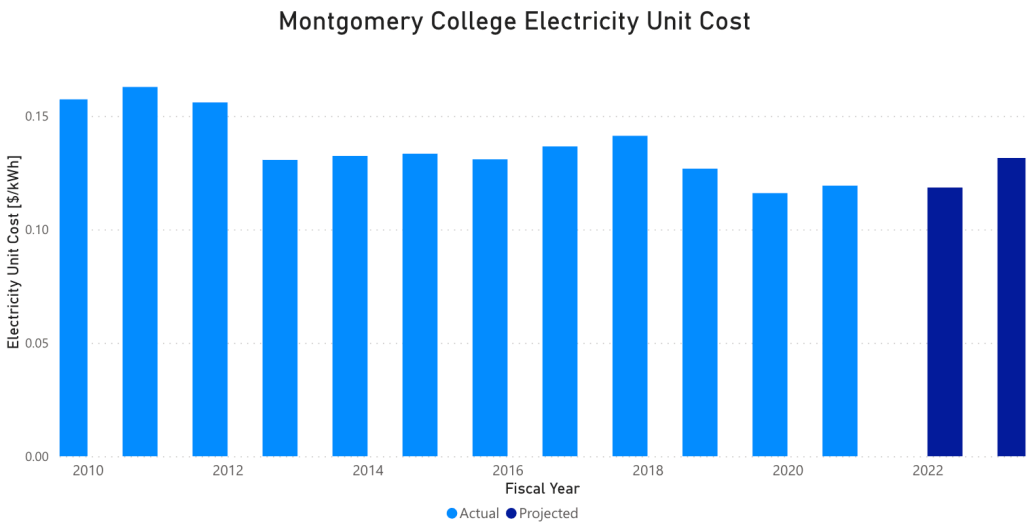
Two factors that influence changes in utility expenses are the addition of new buildings and changes in unit costs for each utility. The addition of building space increases energy consumption and therefore cost of utilities. A Gross Square Feet comparison indicates the College has increased 96% from 2002 to 2022 with a new Student Services Building in the Rockville Campus open in FY21 and late FY23 the college will have a new Math and Science building in the Takoma Park Silver Spring Campus. As the College expands its infrastructure, the utility consumption and cost have maintained relatively constant for the past 10 years.







UNIT COST



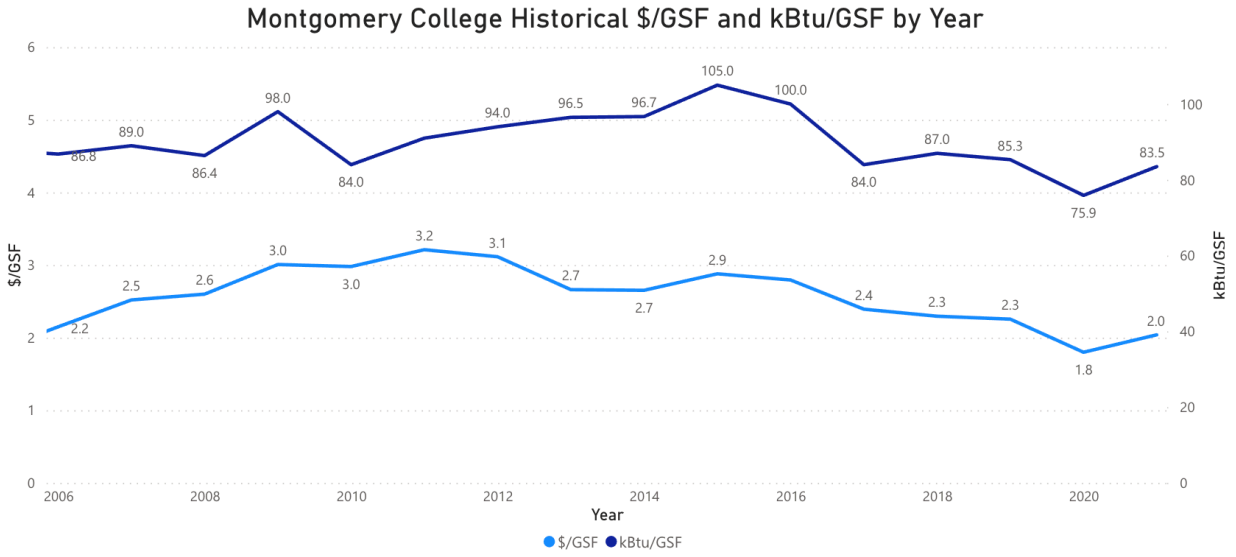
After deregulation, standard offer price caps were removed and prices steadily increased until the 2007-2008 market recession. Commitments to multi-year supply contracts delayed unit cost reductions until after FY12 when the College's unit cost decreased approximately by 3 cents/kWh. From FY19 and FY20 the electricity unit cost trended down due to a favorable market; however, the electricity unit cost for FY21 and projections for FY22 and FY23 will likely increase due to the development of the COVID19 pandemic, the worldwide events happening as this report was written, as well as weather changes that drive prices in the power market.

Variations in units cost, particularly electricity, significantly influence the total cost of utilities each year.

MONTGOMERY COLLEGE

BENCHMARKING

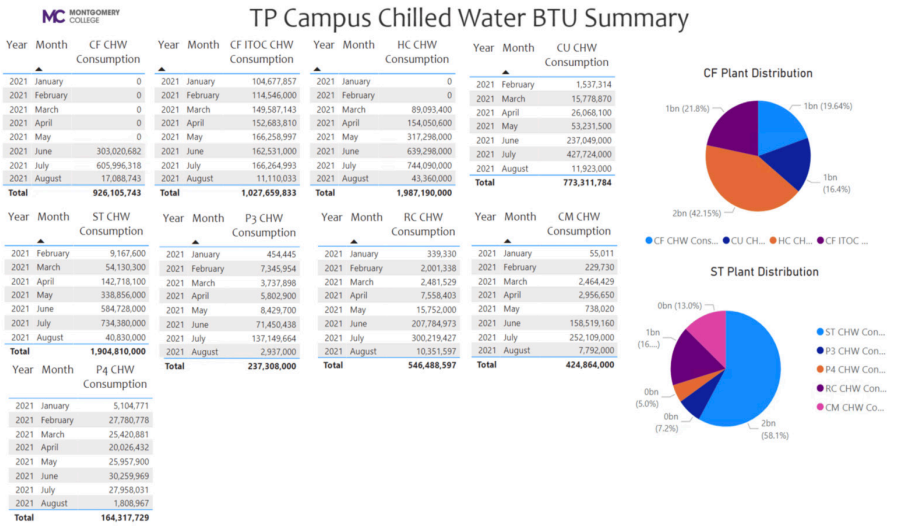
Benchmarking became a legislatively mandated requirement with the passage of Benchmarking Bill 2-14 in May 2014. The College was recognized as an Early Bird Benchmarker, reporting the Campuses' energy use and cost a year earlier than legislatively mandated. Benchmarking is the presentation of energy consumption and cost data in the form of Energy Use Index (EUI), expressed in kBtu/GSF, and as Energy Cost Index (ECI), expressed in $/GSF. These metrics of simplify the comparison among other/similar buildings by converting all energy consumed into common unit of Kilo British Thermal Units (kBtu) and to a cost unit of Dollars ($) and normalizing it by the total area of the building.



The EUI trend indicates that even as the College expanded, the site EUI and the ECI are maintained with low variability. The sharp decrease from FY16-17 can be attributed to the addition of buildings such, Science-West, and Central Services which opened mid-year and contributed 18% of the total GSF. From FY17 to FY19 the EUI and ECI show a constant trend, while in FY20 there is a sharp decrease due to the Covid-19 pandemic and the limited occupancy of buildings. In FY21 the college activities remained remote with a few exceptions including staff on campus and COVID-19 testing and vaccination clinics that significantly increased the consumption of electricity.

SUB-METERING & SMART GRID

Detailed monthly utility billing verification is warranted and benchmarking has become a legislative mandate. Implementation of Smart Electrical meters may improve monthly electrical meter data verification and provide more detailed hourly consumption data. Sub-metering for Chilled and Hot water as well as net metering will also prove valuable as smart grid and demand response practices are introduced.



TP Campus Chilled Water BTU Summary

Year	Month	CF CHW Consumption
2021	January	0
2021	February	0
2021	March	0
2021	April	0
2021	May	0
2021	June	303,020,682
2021	July	605,996,318
2021	August	17,088,743
Total		926,105,743

Year	Month	CF ITOC CHW Consumption
2021	January	104,677,857
2021	February	114,546,000
2021	March	149,587,143
2021	April	152,683,810
2021	May	166,258,997
2021	June	162,531,000
2021	July	166,264,993
2021	August	11,110,033
Total		1,027,659,833

Year	Month	HC CHW Consumption
2021	January	0
2021	February	0
2021	March	89,093,400
2021	April	154,050,600
2021	May	317,298,000
2021	June	639,298,000
2021	July	744,090,000
2021	August	43,360,000
Total		1,987,190,000

Year	Month	CU CHW Consumption
2021	February	1,537,314
2021	March	15,778,870
2021	April	26,068,100
2021	May	53,231,500
2021	June	237,049,000
2021	July	427,724,000
2021	August	11,923,000
Total		773,311,784

Year	Month	ST CHW Consumption
2021	February	9,167,600
2021	March	54,130,300
2021	April	142,718,100
2021	May	338,856,000
2021	June	584,728,000
2021	July	734,380,000
2021	August	40,830,000
Total		1,904,810,000

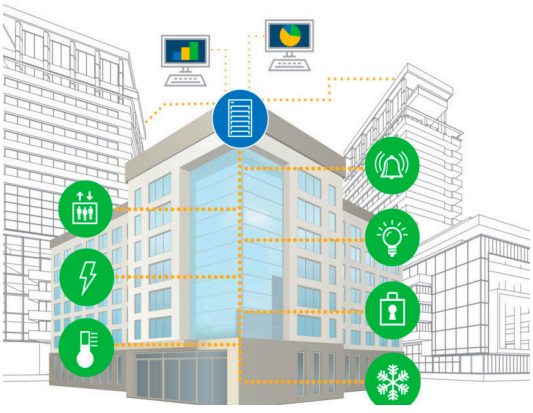
Year	Month	P3 CHW Consumption
2021	January	454,445
2021	February	7,345,954
2021	March	3,737,898
2021	April	5,802,900
2021	May	8,429,700
2021	June	71,450,438
2021	July	137,149,664
2021	August	2,937,000
Total		237,308,000

Year	Month	RC CHW Consumption
2021	January	339,330
2021	February	2,001,338
2021	March	2,481,529
2021	April	7,558,403
2021	May	15,752,000
2021	June	207,784,973
2021	July	300,219,427
2021	August	10,351,597
Total		546,488,597

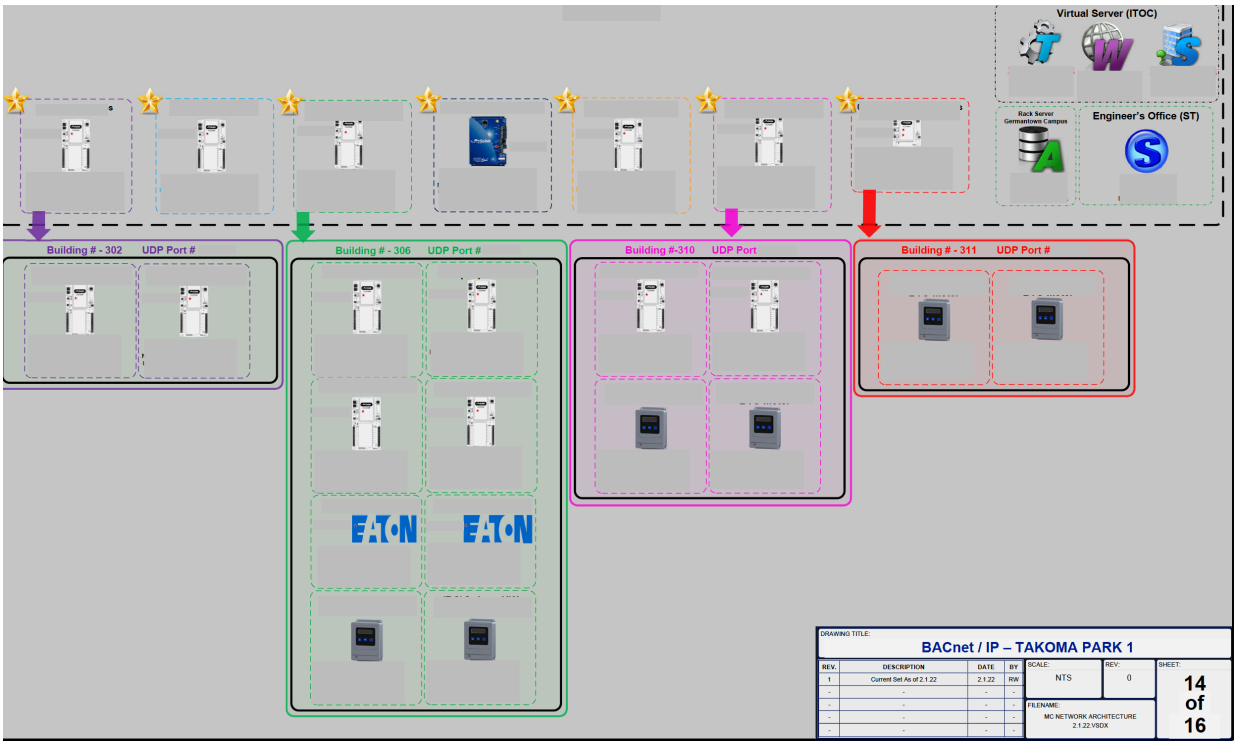
Year	Month	CM CHW Consumption
2021	January	55,011
2021	February	229,730
2021	March	2,464,429
2021	April	2,956,650
2021	May	738,020
2021	June	158,519,160
2021	July	252,109,000
2021	August	7,792,000
Total		424,864,000

Year	Month	P4 CHW Consumption
2021	January	5,104,771
2021	February	27,780,778
2021	March	25,420,881
2021	April	20,026,432
2021	May	25,957,900
2021	June	30,259,969
2021	July	27,958,031
2021	August	1,808,967
Total		164,317,729

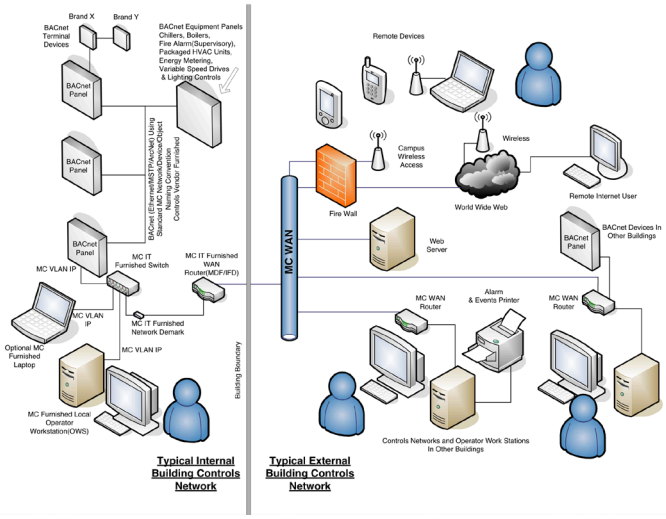
The College uses Direct Digital Controls (DDC) and Building Automation Controls (BAC) with the ASHRAE BACnet communication protocol to enhance the building controls integration. DDC devices orchestrate the operations of the Heating, Refrigeration and Air Conditioning (HVAC) systems, controls the chilled and hot water plants, occupancy sensing, lighting, and daylighting control provide the building operator with a user interface to monitor all systems. These systems also provide sub-metering that supports the College's Benchmarking efforts.



BACnet Network



The College invested in re-organizing its Building Automation System Network. The objective of this project is to enhance the controls and operations of buildings by providing the operator with a secure, and reliable network. This project also allows the College to implement a standardization process to add Building Automation Systems to the network during future projects. Enhancing the architecture of the BAS system will allow our buildings to efficiently and effectively serve the College's community.



MONTGOMERY COLLEGE SOLAR ENERGY

148 KW Solar Capacity

$37k Annual cost avoidance

The table below shows the historical and current site generated renewable energy systems, where the greay-out rows indicate decommissioned solar capacity. Currently, Science West and Science Center buildings at the Rockville campus have current solar power capacity with space and infrastructure to add more solar photovoltaic panels in the future. Likewise, the SA building in the GT campus has roof supports capable of adding PV in the future

Rockville Campus Science West Photovoltaic Array

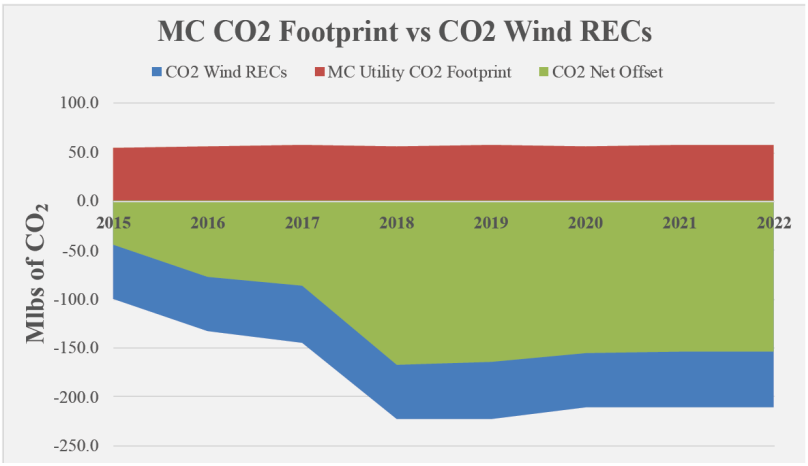
Rockville Campus Science Center Photovoltaic Array

Campus	Building	Year Installed	Solar Array Type	Building Load	Status	Comments
Germantown	Science and Applied Studies	1978	224 Flat Plate Thermal Panels	Thermal Source for WSHP & DHW	Decommissioned 1998	See 1998 Comment
Germantown	Humanities & Social Sciences	1978	282 Flat Plate Thermal Panels	Thermal Source for WSHP, DHW, & Swimming Pool	Decommissioned 2000	See 2000 Comment
Germantown	Science and Applied Studies	1998	26 kW Photovoltaic	Building Electrical Grid	Original thermal array replaced by 26 kW PV	See 2016 Comment
Germantown	Humanities & Social Sciences	2000	24 kW Photovoltaic & 900 Evacuated Tube Thermal	Building Electrical Grid, Thermal Source for WSHP, DHW, & Swimming Pool	PV System and Thermal System have reached end of useful life and are out of service.	Currently evaluating replacement options as part of the utility master plan.
Takoma Park /Silver Spring	Heath Sciences	2004	33 kW Photovoltaic	Building Electrical Grid	Operational	
Rockville	Science Center	2012	25 kW Photovoltaic	Building Electrical Grid	Operational	Represents less than 1% of building electrical. LEED Gold Building
Rockville	Science East	2013	20 kW Photovoltaic	Building Electrical Grid	Operational	Represents approximately 2% of the building electrical.
Germantown	Biosciences Education Center	2014	35 kW Potovoltaic	Building Electrical Grid	Operational	Represents approximately 1% of the building electrical.
Rockville	Science West	2017	35 kW Photovoltaic	Building Electrical Grid	Operational	Represents approximately 2% of the building electrical.
Germantown	Science and Applied Studies	2016	26 kW Photovoltaic	Building Electrical Grid	Decommissioned 2016	Buidling under renovation/construction. Building has structure for new PV installation. Evaluating new PV installation.
Total KW			148.00			
Annual kWh			290,276.00			
Annual Saving [$]			$ 37,735.88			

MONTGOMERY COLLEGE

MONTGOMERY COLLEGE WIND ENERGY PROCUREMENT

While Montgomery County Council mandates county-owned buildings to procure 100% of their electricity from renewable sources, other county agencies are encouraged to follow the mandate voluntarily. The College collaborates with other County agencies and procures all of its electricity from renewables as legislatively mandated by Montgomery County. In FY20 and FY21, the College purchased 208% and 203%, respectively, of its electricity in the form of wind RECs exceeding the county's goal of 100%. Similarly, in FY22 the College will enter into the wholesale market for its electricity and will work with EnelX to make sure we continue this environmental stewardship. For FY22 and FY23 the College has not procured wind RECs yet due to their significant price escalation. The College is still evaluating options to continue its environmental effort as well as fulfilling the County's goal.



The figure above shows a comparison of the College's CO2 footprint (red), the CO2 offset from wind RECs, and the College's CO2 Net Offset (green). The College maintains a stable CO2 footprint due to efficient energy management, efficient operations, and efficient equipment. The College's CO2 net offset, represented in the green area, is the difference between the CO2 footprint and CO2 wind RECs offset. As shown in the figure the College has been able to net offset more than double its CO2 footprint in the past three FYs, MC is showing its commitment towards a carbon-neutral environment and to comply with County's greenhouse gas goal (GHG).

UTILITY OPERATING BUDGET

Utility Operating budget preparation generally begins a year in advance of budget approval taking into account the following:

- Historical records
- Current supply contracts
- Rate increases or fee adjustments
- Space adjustments
- Assumptions of unknown factors
- Energy Market trends

Utility projections may be adjusted periodically as assumptions change or budget discussions influence them. The final utility operating budget is approved by County Council by May of the current fiscal year. The FY 2022-FY 2023 Utility Rate sheet is located in Appendix A and shows the unit costs and assumptions. The table below shows the budget information for FY21, FY22, and FY23. The utility operating budget request for FY22 is 4.2% less than the utility operating budget request for FY21. The utility operating budget request for FY23 is 12.8% higher than the utility projection budget request for FY21. The increase in utility budget is due to increases in utility rates, the addition of the Math and Science Building at the Takoma Park Silver Spring campus, and the return of normal operations at the College following the COVID-19 pandemic.

CATERGORY	FY 2021	FY 2022	FY 2023	Consumption Change FY22-23	Unit Change FY22-23	Budget Percent Inc./(Decr)
Budget	7,467,066	7,155,720	8,073,607	–		FY21-22 (4.17)
Actual	5,384,544	–	–	–		
Projected	–	7,446,876	8,073,607	460,872	218,516	FY22-23 12.8
Surplus	2,082,522	(291,156)	–	–		

MONTGOMERY COLLEGE

OPERATION & MAINTENANCE

Operations and maintenance is the period during which buildings are occupied and it is the longest and most expensive period in a building's lifecycle. Building occupants contact the facilities service desk to report various building issues, sometimes serving as the initial indication that the building may not be operating as intended. A computerized maintenance management system (CMMS) is an automated work order database that tracks occupant issues and tracks periodic equipment service requirements.

Operations and Maintenance (O&M) is responsible for operating and maintaining the College's resources in a safe, reliable, and economical manner. Consumption of chemicals is reduced by using environmentally friendly cleaning products and minimizing concentrations. Since FY 2010, the Takoma Park Silver Spring O&M management and staff adopted the Green Seal GS42 (see more below) cleaning program and became certified instructors in order to share their knowledge with the other campus O&M staff. Although not Green Seal certified the other campuses do embrace green cleaning practices.

Montgomery College Takoma Park/Silver Spring became the first community college in the country to be awarded the Green Seal Certification (GS-42) for Cleaning services in August of 2015. The College continues to be at the forefront of sustainability by following a science-based standard through GS-42.

Capital Improvement Projects and Operating Budget Sources of Funding

Energy Conservation CIP, No. 816611
$300,000

The College Resource Conservation Program is funded by various capital improvement projects (CIP) and operating budget sources. The Energy Conservation CIP, No.816611 is the original capital program for which the College is requesting $300,000. Other CIPs such as Planned Lifecycle Asset Replacement (PLAR), No. 926659 and College Capital Renewal, No. 096600, also contribute to increased efficiency during equipment and infrastructure replacements. CIP PDFs are shown in Appendix A.

Operating budget funds are also used to replace older less efficient equipment with newer more efficient equipment during routine equipment replacement.

Other sources of funding or fund reimbursement such as grants and utility rebates are also used when they become available. The table in Appendix A lists existing, new & planned improvement measures and estimated costs related to the Energy Conservation CIP.

The College's operating budget includes funding for one Energy Manager Staff position, while the Energy CIP includes funding for the Utility Analyst and Energy Engineer positions.

MONTGOMERY COLLEGE PRINTING

The College's print management committee has implemented a pay for print program, reducing the quantity, and cost of print and mailing of material. Other efforts such as digital distribution of materials have reduced paper, distribution cost, and postage. Waste stream reduction is also part of the College's occupant awareness and outreach programs with the availability of recycling bins throughout each campus.

MC TRANSPORTATION

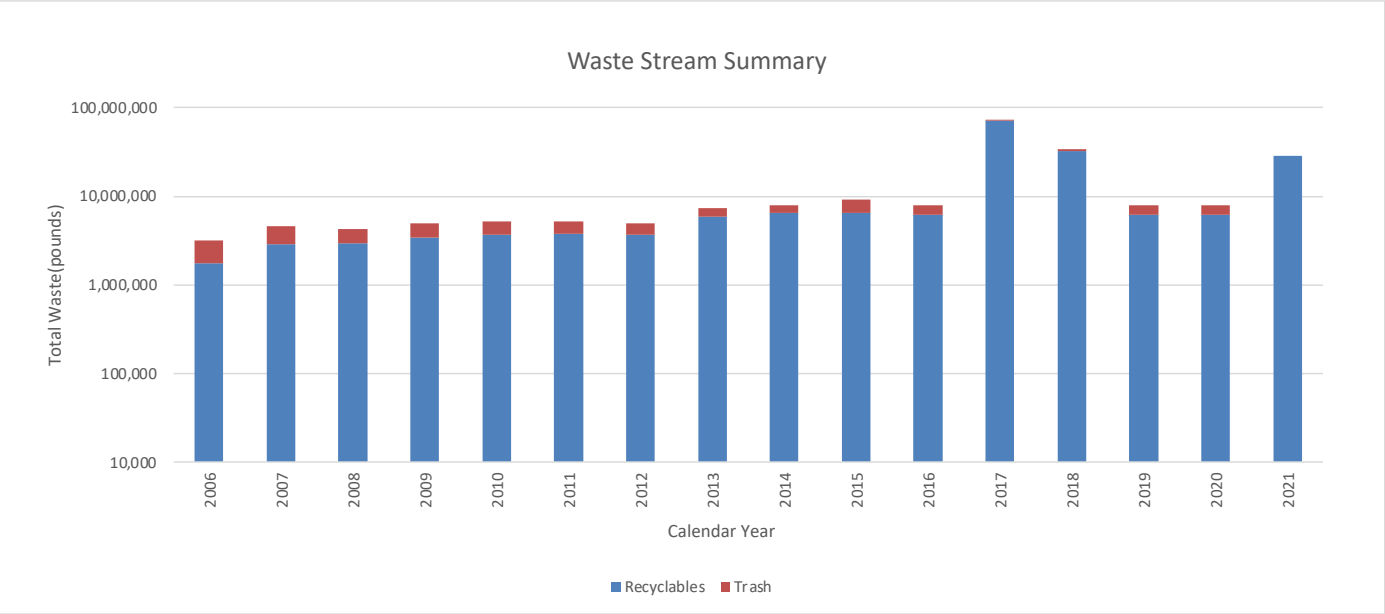
Montgomery College manages parking and transportation to support its students, faculty, and staff. Each campus provides parking and public transportation facilities; parking regulations are enforced by campus Security.

The College subsides free Montgomery Ride-on Bus access for College students and participated in the bike share program and installed bike share stations on the Rockville and Takoma Park/Silver Spring Campuses.

Since August of 2014, the College has had its own shuttle buses that travel between campuses to allow students, faculty, and staff direct access to all campuses.

RECYCING & HAZARDOUS WASTE DISPOSAL

The College has a long-standing, proactive recycling and hazardous waste disposal program. The College has received numerous Smart Organizations Reduce and Recycle Tons (SORRT) awards from the Montgomery County Government for exceeding the 70% recycling goal. The following chart shows the historical progression and the summary table show the categories and quantities of the College's waste stream management. As shown in the figure below the College has continuously increased its recyclables, while reducing its overall waste.



CY 2017 saw a significant increase in recyclables, and an approximate one million ton decrease in trash. The increase in recyclables is due to construction data for the renovations of the SA building in the Germantown campus. Similarly in FY21 the increase in recyclables and waste is due to the construction of The Catherine and Isiah Leggett Math and Science Building.

Hazardous waste is managed by the Environmental Safety team who ensure that hazardous chemicals are minimized and hazardous waste is properly disposed. The College attempts to reduce the chemical stream by reducing or eliminating chemical inventories. For example, volatile organic compounds used to clean automotive parts, printing equipment, or art equipment have been eliminated and replaced with natural citrus cleaners.

INFORMATION TECHNOLOGY

Similar to other agencies, the College continues to expand its information technology (IT) capabilities. Classrooms have been retrofitted with Smart Instructor Work-Stations (SIWS) that include computers to control electronic audio and video multi-media presentation devices. Many traditional multi-purpose classrooms are being retrofitted with computer workstations to meet the “high tech” demands of educational programs. The College continues to respond to this growth by purchasing new computer equipment that is more efficient and complies with the EPA’s Energy Star requirements. IT infrastructure supports telecommuting which allows faculty, staff, and students to work and study remotely, both reducing commuting miles and allowing sharing of space, potentially reducing the need for additional building space. Furthermore, IT is currently examining opportunities to share network resources with other county agencies.

IT's Equipment Replacement

Laptop **65 Watts** vs Desktop **290 Watts**

Currently IT has 320 desktops replaced through work orders and our administrative replacement project.

Information Technology Operations Center (ITOC) is located in the Cafritz Foundation Arts Center (CF) on the Takoma Park/Silver Spring Campus. This 4,000 GSF facility provides needed expansion space for the central network computer equipment, and provides space for operations and the IT Help Desk activities. Primary cooling of the equipment is provided by chilled water from the high efficiency West Campus Central Plant. Redundant cooling is provided by high efficiency cooling systems which are supported by standby emergency generators.

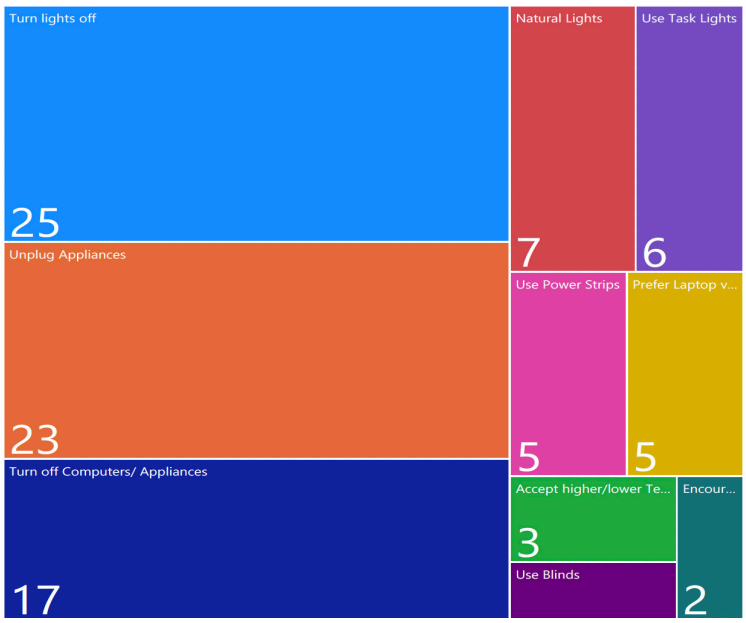
MONTGOMERY COLLEGE

ENERGY EFFICIENCY CAMPAIGN

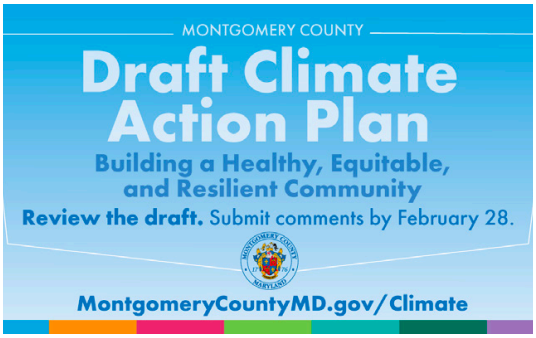
Light your ideas with an ENERGY EFFICIENT desk lamp

& Power your devices using a SMART POWER STRIP.

The Energy Management Team distributed 100 energy kits among college employees during FY21. College employees were asked to share actions they take to save energy in their offices or buildings. The figure below shows some of the answers shared by the college employes.



MONTGOMERY COLLEGE OUTREACH



In FY20&21 the College participated in the Climate Change Innitiavite Workgroups organized to prioritize actions and develop strategies and attempt to meet the County's GHG zero emissions by 2035.

Climate Change Innitiative Workgroups	Montgomery College Staff
Buildings	Eric Koh, Mike Whitcomb
Clean Energy	Crissie Manfre, Mike Whitcomb
Transportation	Mark Pace, Tim McWhirter (RV Faculty)
Public Engagement & Education	Steve Greenfield (Dean WDCE)
Climate Adaptation & Sequestration	Mike Whitcomb

The College continues to promote occupant energy awareness. The Office of Facilities publishes content on its public website detailing current activities, programs, energy breakdown of its three campuses, and information about energy management and resource conservation programs. For example, the latest earnings from the PJM Emergency Demand Response Program (https://www.montgomerycollege.edu/documents/offices/facilities/energy-management/edrp-program-analysis.pdf).

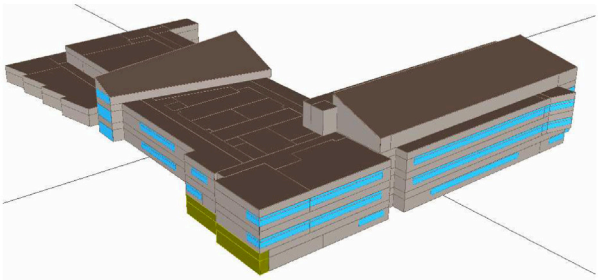
The College's sustainability committee, MC Green Team, with College faculty, students, and staff provides support and promotes energy related programs and developments. Members of MC GreenTeam meet monthly to discuss and update on their efforts to promote sustainability. Updates from MC Green Team can be found at https://www.montgomerycollege.edu/offices/facilities/energy-conservation/mcgreen/index.html#greenbuildingdesign.

CONCLUSION

The FY2023 Montgomery College Resource Conservation Program is a well-balanced, environmentally friendly, low risk, high return on investment program, based upon results of Master Planning and Best Practice Resource/Energy Conservation efforts. All investments are selected based upon their life cycle cost-effectiveness and on their high probability for success. Utility consumption figures indicate that energy conservation measures implemented have had a positive, cost-effective impact. This report identifies the potential for savings in lighting, controls, and good design.

All new or renovated buildings undergo rigorous analysis to determine the optimum life cycle cost-effective systems and meet or exceed the requirements of the Montgomery County Green Buildings Law. It is the College's goal to comply with current construction codes such as IgCC 2018 in Montgomery County in all our current and future building designs. In addition, the College is closely monitoring the development of BEPS and CAP to determine the College's path towards meeting environmental goals.

To ensure that the Resource Conservation Program is proceeding as predicted, various databases have been developed to provide accountability for the energy dollars spent. Montgomery College is confident that during FY23 our Resource Conservation Program will meet the goal of providing safe, reliable, environmentally friendly, and economical facilities which enhance the learning environment at Montgomery College and contribute to student success and excellent stewardship.



Bioscience Education Center

Germantwon - Campus

MONTGOMERY COLLEGE

APPENDIX

The Catherine and Isiah Leggett Math and Science Building

Takoma Park Silver Spring Campus

Open Fall 2023

- Summary of New Buildings and Renovations Energy
- Conservation CIP, No. 816611
- Planned Lifecycle Asset Replacement CIP, No. 926659
- College Capital Renewal CIP, No. 096600
- Facility Planning CIP, No. 886686
- Collegewide Central Plant and Distribution Systems, CIP No. P662001
- Existing, New & Planned Measure Tables
- Montgomery College FY 2022, Utility Projection Report
- Utility Rates, FY22-FY23
- Space Summaries & Campus Maps

Summary of New Buildings, Renovations & Projects - RCP FY23

Year	Campus	Building Name	Gross Square Feet	Green Building Certification (1)	Features
2021-2022	CW	CW	N/A	N/A	CHW and HW sub-metering project for accurate energy benchmarking
2022	CW	CW	N/A	N/A	Utility bill verification process
2022	CW	CW	N/A	N/A	PJM Emergency Load Response Program
2022	CW	CW	N/A	N/A	Utility bill verification process
2022	GT	HT	75,542	N/A	Building Automation System controls upgrade
2022	GT	HS	75,700	IgCC 2018/BEPS	HVAC upgrade
2022	GT	PG	36,770	N/A	Building Automation System controls upgrade
2022	GT	PG	36,700	N/A	Electricity sub-meter
2022	RV	TA	35,302	IgCC 2012/BEPS	HVAC upgrade
2022	RV	CC	74,302	IgCC 2012/BEPS	Roof replacement
2022	RV	GU	64,000	IgCC 2012/BEPS	HVAC upgrade
2022	RV	TC	55,908	IgCC 2012/BEPS	HVAC upgrade
2022	RV	MU	21,050	IgCC 2012/BEPS	HVAC upgrade
2022	RV	MT	117,282	IgCC 2012/BEPS	HVAC upgrade
2022	TP/SS	P1/P2	14,772	IgCC 2018/BEPS	HVAC upgrade
2022	TP/SS	RC	44,906	IgCC 2018/BEPS	Library renovations
2022	CW	CW	N/A	N/A	Utility Master Plan
2022	CW	CW	N/A	N/A	Energy Design Guidelines
2022	GT	N/A	N/A	N/A	Install EV charging stations
2023	TP	The Catherine and Isiah Leggett Math and Science Building	108,238	LEED Silver	New Building

Energy Conservation CIP, No. 816611

Energy Conservation: College
(P816611)

Category	Montgomery College	**Date Last Modified**	09/20/21
SubCategory	Higher Education	**Administering Agency**	Montgomery College
Planning Area	Countywide	**Status**	Ongoing

	Total	Thru FY21	Est FY22	Total 6 Years	FY 23	FY 24	FY 25	FY 26	FY 27	FY 28	Beyond 6 Years
EXPENDITURE SCHEDULE ($000s)											
Planning, Design and Supervision	3,966	2,756	130	1,080	180	180	180	180	180	180	-
Site Improvements and Utilities	26	26	-	-	-	-	-	-	-	-	-
Construction	3,563	2,702	141	720	120	120	120	120	120	120	-
Other	163	163	-	-	-	-	-	-	-	-	-
TOTAL EXPENDITURES	**7,718**	**5,647**	**271**	**1,800**	**300**	**300**	**300**	**300**	**300**	**300**	**-**
FUNDING SCHEDULE ($000s)											
Current Revenue: General	3,102	2,276	130	696	116	116	116	116	116	116	-
Federal Aid	49	49	-	-	-	-	-	-	-	-	-
G.O. Bonds	4,516	3,271	141	1,104	184	184	184	184	184	184	-
State Aid	51	51	-	-	-	-	-	-	-	-	-
TOTAL FUNDING SOURCES	**7,718**	**5,647**	**271**	**1,800**	**300**	**300**	**300**	**300**	**300**	**300**	**-**

OPERATING BUDGET IMPACT ($000s)							
Maintenance	(3,100)	(500)	(520)	(520)	(520)	(520)	(520)
Energy	(8,110)	(1,310)	(1,360)	(1,360)	(1,360)	(1,360)	(1,360)
NET IMPACT	**(11,210)**	**(1,810)**	**(1,880)**	**(1,880)**	**(1,880)**	**(1,880)**	**(1,880)**
FULL TIME EQUIVALENT (FTE)		**2**	**2**	**2**	**2**	**-**	**-**

APPROPRIATION AND EXPENDITURE DATA ($000s)

Appropriation FY 23 Request	300	Year First Appropriation	FY81
Appropriation FY 24 Request	300	Last FY's Cost Estimate	7,118
Cumulative Appropriation	5,918		
Expenditure / Encumbrances	5,652		
Unencumbered Balance	266		

PROJECT DESCRIPTION

This project provides funding to (1) continue development of a Collegewide energy management program, (2) implement life-cycle cost effective energy conservation measures based upon energy audits, and (3) review new building/renovation designs for compliance with Montgomery County Code, Ch. 8 Building Energy Performance Standards. Typical project activities include retrofits and modifications of lighting, controls, and HVAC equipment; building envelope modifications; solar energy retrofits; computer equipment for equipment control and energy-use monitoring; HVAC system evaluation/balancing studies; long-range energy/utility planning studies; central plant design plans (Germantown, Rockville, Takoma Park/Silver Spring); and waste management studies. Typical payback on lighting, controls, HVAC and solar energy modifications is five to six years. This project includes two staff positions for a utility analyst, and mechanical engineer, which is in response to increased workload associated with the energy and utility functions, but also the design reviews of major projects, planned lifecycle asset replacements, and capital renewals, as well as complying with laws.

LOCATION

Collegewide

COST CHANGE

Increase due to addition of FY27 and FY28.

PROJECT JUSTIFICATION

As mandated by Ch. 8 of the County Code and supported by the College, County Council, the Interagency Committee on Energy & Utility Management (ICEUM), and the Citizens Energy Conservation Advisory Committee (ECAC), an energy cost reduction program has been developed. This program consists of energy audits performed by College staff to identify life cycle cost effective retrofits, including a lighting retrofit program, LEED certification, etc.

OTHER

FY23 Appropriation: Total - $300,000; $184,000 (G.O. Bonds), and $116,000 (Current Revenue: General). FY24 Appropriation: Total - $300,000; $184,000

Planned Lifecycle Asset Replacement CIP, No. P926659

Planned Lifecycle Asset Replacement: College
(P926659)

Category	Montgomery College	**Date Last Modified**	09/20/21
SubCategory	Higher Education	**Administering Agency**	Montgomery College
Planning Area	Countywide	**Status**	Ongoing

	Total	Thru FY21	Est FY22	Total 6 Years	FY 23	FY 24	FY 25	FY 26	FY 27	FY 28	Beyond 6 Years
EXPENDITURE SCHEDULE ($000s)											
Planning, Design and Supervision	9,902	6,153	1,349	2,400	400	400	400	400	400	400	-
Construction	78,133	52,763	2,233	23,137	3,600	5,137	3,600	3,600	3,600	3,600	-
Other	635	534	101	-	-	-	-	-	-	-	-
TOTAL EXPENDITURES	**88,670**	**59,450**	**3,683**	**25,537**	**4,000**	**5,537**	**4,000**	**4,000**	**4,000**	**4,000**	**-**
FUNDING SCHEDULE ($000s)											
Current Revenue: General	1,940	1,940	-	-	-	-	-	-	-	-	-
G.O. Bonds	86,730	57,510	3,683	25,537	4,000	5,537	4,000	4,000	4,000	4,000	-
TOTAL FUNDING SOURCES	**88,670**	**59,450**	**3,683**	**25,537**	**4,000**	**5,537**	**4,000**	**4,000**	**4,000**	**4,000**	**-**

APPROPRIATION AND EXPENDITURE DATA ($000s)

Appropriation FY 23 Request	4,000	Year First Appropriation	FY93
Appropriation FY 24 Request	5,537	Last FY's Cost Estimate	79,687
Cumulative Appropriation	63,133		
Expenditure / Encumbrances	59,913		
Unencumbered Balance	3,220		

PROJECT DESCRIPTION

This project provides funding for a comprehensive lifecycle renewal and replacement program to protect the investment in College facilities and equipment and to meet current safety and environmental requirements. Funding also provides for project management contract services. This collegewide project is targeted at deteriorating facilities and deferred maintenance of major building systems. This project includes: (1) HVAC system renovation/replacement; (2) major mechanical/plumbing equipment renovation/replacement; (3) interior and exterior lighting system renovation/replacements; (4) electrical service/switchgear renovation/replacement; (5) building structural and exterior envelope refurbishment; (6) asbestos removals not tied to building renovations; (7) major carpet replacement; (8) underground petroleum tank upgrades; and (9) site utility, and site infrastructure replacement/ improvements. Note: The Life Safety Systems project, (CIP No. P046601), has been merged into this project. This project also provides design and construction funding for the correction of life safety and fire code deficiencies identified in the Collegewide Facilities Condition Audit. The scope of this project includes the installation and/or replacement of fire alarm systems, fire sprinkler systems, smoke control systems, emergency power systems, emergency lighting systems, public address systems, and similar equipment and operations.

LOCATION

Collegewide

COST CHANGE

FY23 increased to level of effort. Additional increase due to addition of FY27 and FY28.

PROJECT JUSTIFICATION

In November 2007 (December 2013 update), the College updated a comprehensive building system/equipment assessment, including site utilities and improvements, that identified deficiencies, prioritized replacements and upgrades, and provided the framework for implementing a systematic capital renewal program to complement on-going preventive maintenance efforts. The College continues to have a significant backlog of major building systems and equipment renovations and/or replacements due to the age of the Campuses and deferral of major equipment replacement. Key components of the HVAC, mechanical and electrical systems are outdated, energy inefficient, and costly to continue to repair. The renovation and/or replacement of major building systems, building components and equipment, and site improvements will significantly extend the useful life of the College's buildings and correct safety and environmental problems. The Collegewide Facilities Condition Assessment Update (12/13) identified a $188 million deferred maintenance backlog for the three campuses. If additional financial resources are not directed at this problem, facilities will continue to deteriorate leading to higher cost renovations or building replacements. The Collegewide Facilities Condition Audit identified various life safety concerns on all three campuses. This project allows the College to address the concerns, replacing and/or installing appropriate life safety or fire code measures, and ensuring compliance with applicable life safety, fire, and building codes. Other relevant plans and studies include the Montgomery College 2025 Strategic Plan, Collegewide Facilities Master Plan Update (2/21), and the County Council Report of the Infrastructure Maintenance Task Force (3/16).

College Capital Renewal CIP, No. 096600

Capital Renewal: College
(P096600)

Category	Montgomery College	**Date Last Modified**	09/20/21
SubCategory	Higher Education	**Administering Agency**	Montgomery College
Planning Area	Countywide	**Status**	Ongoing

	Total	Thru FY21	Est FY22	Total 6 Years	FY 23	FY 24	FY 25	FY 26	FY 27	FY 28	Beyond 6 Years
EXPENDITURE SCHEDULE ($000s)											
Planning, Design and Supervision	5,486	1,867	1,819	1,800	300	300	300	300	300	300	-
Construction	27,772	13,152	3,920	10,700	700	3,200	1,700	1,700	1,700	1,700	-
Other	1,688	1,641	47	-	-	-	-	-	-	-	-
TOTAL EXPENDITURES	**34,946**	**16,660**	**5,786**	**12,500**	**1,000**	**3,500**	**2,000**	**2,000**	**2,000**	**2,000**	**-**
FUNDING SCHEDULE ($000s)											
G.O. Bonds	34,946	16,660	5,786	12,500	1,000	3,500	2,000	2,000	2,000	2,000	-
TOTAL FUNDING SOURCES	**34,946**	**16,660**	**5,786**	**12,500**	**1,000**	**3,500**	**2,000**	**2,000**	**2,000**	**2,000**	**-**

APPROPRIATION AND EXPENDITURE DATA ($000s)

Appropriation FY 23 Request	1,000	Year First Appropriation	FY09
Appropriation FY 24 Request	3,500	Last FY's Cost Estimate	29,946
Cumulative Appropriation	22,446		
Expenditure / Encumbrances	17,463		
Unencumbered Balance	4,983		

PROJECT DESCRIPTION

This project provides funding for the capital renewal and major renovation of College facilities for new and changing College academic programs and student service operations. The major focus of this project is to support programmatic changes to College facilities and operations by allowing the College to continue an on-going building modernization effort where State aid is lacking. With this project, the College will selectively focus State aid requests on high cost projects utilizing these County funds to support an on-going renovation effort on each campus. In conjunction with programmatic improvements and modifications, this project will replace aging building systems, such as heating, air conditioning, electrical, plumbing, etc., provide furniture, fixtures, and equipment; and update facilities to current building codes and regulations.

LOCATION

Collegewide

COST CHANGE

Increase due to addition of FY27 and FY28.

PROJECT JUSTIFICATION

Starting FY2009, the County approved funding several renovation projects from the Capital Renewal project. These renovation projects were less likely to receive funding from the State, and as a result five projects at that time were merged into the Capital Renewal project. In November 2007, the College updated a comprehensive building system/equipment assessment, including site utilities and improvements, that identified deficiencies, prioritized replacements and upgrades, and provides the framework for implementing a systematic capital renewal program to complement on-going preventive maintenance efforts. The College continues to have a significant backlog of major building systems and equipment renovations and/or replacements due to the age of the Campuses and deferral of major equipment replacement. Key components of the HVAC, mechanical and electrical systems are outdated, energy inefficient, and costly to continue to repair. The renovation and/or replacement of major building systems, building components and equipment, and site improvements will significantly extend the useful life of the College's buildings and correct safety and environmental problems. The Collegewide Facilities Condition Assessment identified a $188 million deferred maintenance backlog for the three campuses. If additional financial resources are not directed at this problem, College facilities will continue to deteriorate leading to higher cost renovations or building replacements. Related studies include the Montgomery College 2025 Strategic Plan, Collegewide Facilities Condition Assessment Update (12/13), and Collegewide Facilities Master Plan Update (2/21), and Collegewide Utilities Master Plan (Pending 2021).

OTHER

FY23 Appropriation: $1,000,000 (G.O. Bonds). FY24 Appropriation: $3,500,000 (G.O. Bonds).

FISCAL NOTE

FY21 supplemental for $1 million in GO Bonds

Facility Planning CIP, No. 886686

Facility Planning: College
(P886686)

Category	Montgomery College	**Date Last Modified**	09/20/21
SubCategory	Higher Education	**Administering Agency**	Montgomery College
Planning Area	Countywide	**Status**	Ongoing

	Total	Thru FY21	Est FY22	Total 6 Years	FY 23	FY 24	FY 25	FY 26	FY 27	FY 28	Beyond 6 Years
EXPENDITURE SCHEDULE ($000s)											
Planning, Design and Supervision	8,977	6,257	1,100	1,620	270	270	270	270	270	270	-
TOTAL EXPENDITURES	**8,977**	**6,257**	**1,100**	**1,620**	**270**	**270**	**270**	**270**	**270**	**270**	**-**
FUNDING SCHEDULE ($000s)											
Current Revenue: General	8,977	6,257	1,100	1,620	270	270	270	270	270	270	-
TOTAL FUNDING SOURCES	**8,977**	**6,257**	**1,100**	**1,620**	**270**	**270**	**270**	**270**	**270**	**270**	**-**

APPROPRIATION AND EXPENDITURE DATA ($000s)

Appropriation FY 23 Request	270	Year First Appropriation	FY88
Appropriation FY 24 Request	270	Last FY's Cost Estimate	8,437
Cumulative Appropriation	7,357		
Expenditure / Encumbrances	6,450		
Unencumbered Balance	907		

PROJECT DESCRIPTION

This project provides funding for campus master plans, and facility planning studies for projects being considered for possible inclusion in the CIP. In addition, facility planning serves as a transition stage for a project between the master plan or conceptual stage, and its inclusion as a stand-alone project, or subproject, in the CIP. Prior to the establishment of a stand-alone project, the College develops a Facility Program/Program of Requirements (POR) that outlines the general facility purpose and need and specific features required on the project. Facility planning is a decision-making process to determine the purpose and need of a candidate project through a rigorous investigation of the following critical project elements: usage forecasts; academic requirements; investigation of non-County sources of funding; and detailed project cost estimates. This project provides for project planning and preliminary design, and allows for the development of a program of requirements in advance of the full programming of a project in the CIP, including the preparation of Part I and II documentation to meet State requirements. Depending upon the results of a facility planning determination of purpose and need, a project may or may not proceed to construction.

COST CHANGE

Increase due to addition of FY27 and FY28.

PROJECT JUSTIFICATION

There is a continuing need for the development of accurate cost estimates and an exploration of alternatives for proposed projects. Facility planning costs for all projects which ultimately become stand-alone PDFs are included here. These costs will not be reflected in the resulting individual project. Future individual CIP projects which result from facility planning may each reflect reduced planning and design costs. Relevant studies include the Montgomery College 2025 Strategic Plan, Collegewide Facilities Condition Assessment Update (12/13), and the Collegewide Facilities Master Plan Update(2/21). The East County Feasibility study was completed June 2021.

OTHER

FY23 Appropriation: $270,000 (Current Revenue: General). FY24 Appropriation: $270,000 (Current Revenue: General). The following fund transfers have been made from this project: $25,000 to the Information Technology: College project (CIP No. P856509) (BOT Resol. #91-56 - 5/20/91); $7,000 to Planning, Design & Construction (CIP No. P906605) (BOT Resol. #01-153 - 10/15/01); $25,000 to Planning, Design and Construction (CIP No. P804064) (BOT Resol. #02-62 - 5/17/02). The following fund transfer has been made to this project: $28,000 from the South Silver Spring Property Acquisition (CIP No. P016602) (BOT Resol. # 03-28 - 4/21/03). By County Council Resol. No. 12-6333, the cumulative project appropriation was reduced by $187,500 in FY92. By County Council Resolution No. 16-1261, the cumulative appropriation was reduced by $171,000 (Current Revenue: General) as part of the FY10 savings plan.

DISCLOSURES

Expenditures will continue indefinitely.

COORDINATION

Collegewide Facilities Master Plan Update, FY22 - Utilities Master Plan Update, FY22 -Facilities Condition Assessment, FY22 - Theatre Arts Building

Collegewide Central Plant and Distribution Systems, No. P662001

Collegewide Central Plant and Distribution Systems
(P662001)

Category	Montgomery College	**Date Last Modified**	09/20/21
SubCategory	Higher Education	**Administering Agency**	Montgomery College
Planning Area	Countywide	**Status**	Preliminary Design Stage

	Total	Thru FY21	Est FY22	Total 6 Years	FY 23	FY 24	FY 25	FY 26	FY 27	FY 28	Beyond 6 Years
EXPENDITURE SCHEDULE ($000s)											
Planning, Design and Supervision	900	100	200	600	100	100	100	100	100	100	-
Construction	9,575	1,237	1,438	6,900	900	1,400	900	1,400	900	1,400	-
TOTAL EXPENDITURES	**10,475**	**1,337**	**1,638**	**7,500**	**1,000**	**1,500**	**1,000**	**1,500**	**1,000**	**1,500**	**-**
FUNDING SCHEDULE ($000s)											
G.O. Bonds	8,001	837	1,164	6,000	1,000	1,000	1,000	1,000	1,000	1,000	-
State Aid	2,474	500	474	1,500	-	500	-	500	-	500	-
TOTAL FUNDING SOURCES	**10,475**	**1,337**	**1,638**	**7,500**	**1,000**	**1,500**	**1,000**	**1,500**	**1,000**	**1,500**	**-**

APPROPRIATION AND EXPENDITURE DATA ($000s)

Appropriation FY 23 Request	1,000	Year First Appropriation	FY20
Appropriation FY 24 Request	1,500	Last FY's Cost Estimate	7,975
Cumulative Appropriation	2,975		
Expenditure / Encumbrances	1,337		
Unencumbered Balance	1,638		

PROJECT DESCRIPTION

This project provides for the design and construction of new and renovation and expansion of existing central heating and cooling plants on the College's three campuses as recommended in the College's campus utilities master plan (12/12, and 2/13). The plan for a campus central plant, and distribution systems was included in the campus facilities master plan update (6/18). The project includes installation of boilers and chillers with associated equipment, the provision of natural gas service, and the construction of a hot water and chilled water distribution piping system to new and existing campus buildings.

LOCATION

Collegewide

COST CHANGE

Increase due to addition of FY27 and FY28. FY22 state aid reduced by $26,000 to align with state approval.

PROJECT JUSTIFICATION

This project implements the recommendations of the campus utilities master plan (12/12, and 2/13) and campus facilities master plan update (6/18). The campus' existing heating and cooling equipment is typically 20-30 years old and beyond its useful economic life. Due to the age of the equipment and increasing maintenance problems and costs, each campus is experiencing a significant increase in mechanical system problems and heating/cooling outages. Based on a life cycle cost analysis, the installation of a central heating/cooling plant offers significant equipment replacement, energy and maintenance savings to the College. Collegewide Utilities Master Plan (Pending 2021), Montgomery College 2025 Strategic Plan, Collegewide Facilities Master Plan Update (6/18), VFA Facilities Condition Assessment (12/13).

OTHER

FY23 Appropriation: $1,000,000 (G.O. Bonds). FY24 Appropriation: $1,500,000; ($1,000,0000 (G.O. Bonds), and $500,000 (State Aid)). The need to provide new systems for heating and cooling campus buildings was articulated in the utilities master plan and satisfying this requirement is critical to new building construction and the planned renovation of the existing campus buildings.

DISCLOSURES

Montgomery College asserts that this project conforms to the requirement of relevant local plans, as required by the Maryland Economic Growth, Resource Protection and Planning Act.

MONTGOMERY COLLEGE

Existing Energy Measures

Resource conservation measures implemented prior to FY 2022

(FY 1998 TO FY 2021)

Measures	Date Implemented (mo/yr)	Cumulative Cost ($)	Annual Net Impact On Maintenance Cost ($)	Fuel Type Affected And Units	Units Saved Per Year	Annual Cumulative Cost Savings ($)
Lighting	Various	411,000	(14,000)	Electricity	1,438,423 kWh Maint.	221,668 14,000
HVAC & Controls	Various	1,268,000	(35,200)	Elect. & N. Gas	917,307 kWh 85,787 therms (Th) Maint.	89,867 97,220 35,200
New Building Design	Various	2,244,000	(29,835)	Elect. & N. Gas	2,160,156 kWh 72,803 Th Maint.	287,777 68,544 29,835
Central Plant Technology	Various	918,000	(32,640)	Elect. & N. Gas	983,155 kWh 20,267 Th Maint.	129,284 19,457 32,640
Total		4,841,000	(111,675)		5,499,041 kWh 178,857 Th	1,025,492 Av.Payback 4.7 yrs
Existing measures consist of Lighting, HVAC & Controls, New Building and Renovated Building Design and Central Plant Technologies that reduce energy cost, reduce energy consumption and reduce maintenance costs.						

New Energy Measures

Resource conservation measures implemented during FY 2022

(July 1, 2021 through June 30, 2022)

Measures	Date Implemented (mo/yr)	Cumulative Cost ($)	Annual Net Impact On Maintenance Cost ($)	Fuel Type Affected And Units	Units Saved Per Year	Annual Cumulative Cost Savings ($)
Lighting	Various	18,000	(1,000)	Elect.	32,000 kWh	4,480 1,000
HVAC	Various	18,000	(1,500)	Elect. & N. Gas	10,000 kWh, 16,000 Th Maint.	 1,400 5,600 1,500
Controls	Various	9,000	(1,700)	Elect. & N. Gas	10,000 kWh 800 Th Maint.	 1,400 720 1,700
Total		45,000	(4,200)			17,800
Simple Payback						2.5 yrs

Planned Energy Measures

Resource conservation measures implemented during FY 2023

(July 1, 2022 through June 30, 2023)

Measures	Date Implemented (mo/yr)	Cumulative Cost ($)	Annual Net Impact On Maintenance Cost ($)	Fuel Type Affected And Units	Units Saved Per Year	Annual Cumulative Cost Savings ($)
Capital Improvement Projects:						
Lighting	Summer 2020	20,000	(1,000)	Elect., 	50,000 kWh 1,000 Th Maint.	 7,000 1,500 2,000
HVAC	Summer 2020	45,000	(2,000)	Elect. & N. Gas 	10,000 kWh 14,000 Th Maint.	 1,400 4,900 2,000
Controls	Fall 2020	10,000	(1,500)	Elect. & N. Gas 	8,500 kWh 600 Th Maint.	 1,190 210 1,500
Total		75,000	0			22,690
Simple Payback						3.3 yrs

Utility Projection Report RCP FY2023

Montgomery College

	ACTUAL FY2015	ACTUAL FY2016	ACTUAL FY2017	ACTUAL FY2018	ACTUAL FY2019	ACTUAL FY2020	ACTUAL FY2021	PROJECTED FY2022 (1)	CONS.CHNG. FY22-23	UNIT.CHNG. FY22-23	Budget FY2023
ELECTRICITY											
kWh	45,311,646	43,841,396	45,666,695	45,591,123	44,840,029	39,813,319	32,171,696	46,608,988	2,517,525	46,608,988	49,126,513
Cost($)	6,043,713	5,851,152	6,145,907	5,818,653	5,825,722	4,643,061	$3,837,661	$5,523,165	305,879	116,522	$5,968,871
UNIT($/kWh)	0.1334	0.1335	0.1346	0.1276	0.1299	0.1166	0.1193	0.1185	0.1215	0.003	0.1215
N.GAS(Firm)											
Therms(thm)	623,522	578,337	901,391	984,484	978,263	966,161	742,274	1,050,843	61,950	1,050,843	1,112,793
Cost($)	634,288	595,355	841,973	878,158	803,071	865,624	$649,815	$896,933	52,657	(3,993)	$945,874
Unit($/therm)	1.02	1.03	0.93	0.89	0.82	0.90	0.88	$0.85	0.85	(0.004)	0.85
N.GAS(Irate)											
Therms(thm)	406,849	349,637	0	0	0	0	0	0	0	0	0
Cost($)	348,925	296,594	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unit($/therm)	0.86	0.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WATER											
kilogallons	31,565	39,857	51,634	44,572	41,442	36,762	35,972	45,782	1,802	45,782	47,584
Cost($)	253,787	373,231	524,694	454,548	449,454	398,076	$445,320	$558,188	23,768	22,891	$627,633
Unit($/kgal)	8.04	9.36	10.16	10.20	10.85	10.83	12.38	12.19	13.19	1	13.19
SEWER											
kilogallons	22,488	30,708	38,081	33,308	32,734	31,190	29,640	35,616	1,856	35,616	37,472
Cost($)	208,906	293,011	390,213	368,591	375,309	375,831	$445,320	$460,470	25,910	36,729	$523,109
Unit($/kgal)	9.29	9.54	10.25	11.07	11.47	12.05	15.02	12.93	13.96	1.03	13.96
NO.2 FUEL OIL											
Gallons(gal)	0.00	0	0	0	0	0	0	0	0	0	0
Cost($)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unit($/gal)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PROPANE											
Gallons(gal)	3,495	2,597	1,465	3,365	1,980	1277.9	1722.2	2,000	0	2,000	2,000
Cost($)	10,558	7,137	4,661	13,197	7,829	5,190	6,428	8,120	0	0	8,120
Unit($/gal)	3.02	2.75	3.18	3.92	3.95	4.06	3.73	4.06	4.06	0.00	4.06
TOTAL COST($)	7,500,177	7,416,480	7,907,448	7,533,147	7,461,385	6,287,782	5,384,544	7,446,876	460,872	172,150	8,073,607
Wind Power	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	N/A	N/A	(16)
Total Cost	7,500,177	7,416,480	7,907,448	7,533,147	7,461,385	6,287,782	5,384,544	7,446,876	460,872	172,150	**8,073,607**
Approved Budget	7,613,648	7,840,755	8,009,945	8,978,960	8,714,025	7,830,311	7,467,066	**$7,155,720**			8,073,607
Suplus/(Deficit)	113,471	424,275	102,497	1,445,813	1,252,640	1,542,529	2,082,522	-291,156			

9. FY2015 Electrical includes $55,350 for 100% Wind Power Purchase @ $0.123 cents/kWh
10. FY2016 Electrical includes $60,000 for 131% Wind Power Purchase @ 0.067 cents/kWh
11. FY2017 Electical includes $65,000 for 136% Wind Power Purchase @0.071 cents/kWh
12. FY2018 Electical includes $48,000 for 207% Wind Power Purchase @0.048 cents/kWh
13. FY2019 Electical includes $48,000 for 200% Wind Power Purchase @0.048 cents/kWh
14. FY2020 Electical includes $84,550 for 208% Wind Power Purchase @0.089 cents/kWh
15. FY2021 Electical includes $84,550 for 208% Wind Power Purchase @0.089 cents/kWh
16. FY2022 No Current Contract

MONTGOMERY COLLEGE

UTILITY RATES RCP2023

Montgomery College

UTILITY RATES - MONTGOMERY COLLEGE

March 1, 2022

FY2022-FY2023

Utilities	**Actual** FY20	**Actual** FY21	**Budget** FY22	**Projected** FY22	**Projected** FY23
Electricity	0.1168 per kWh	0.1193 per kWh	0.1164 per kWh	0.1185 per kWh	0.1315 per kWh
Natural Gas	0.9 per Therm	0.86 per Therm	0.85 per Therm	0.85 per Therm	0.85 per Therm
Propane	4.06 per gallon	3.0 per gallon	4.06 per gallon	4.06 per gallon	4.06 per gallon
#2 Fuel Oil	no usage	no usage	no usage	no usage	no usage
Water	10.83 per kgal	12.38 per kgal	12.21 per kgal	12.19 per kgal	13.19 per kgal
Sewer	12.05 per kgal	12.10 per kgal	12.51 per kgal	12.93 per kgal	13.96 per kgal
Notes:	FY20 Covid-19	FY21 - remote due to Covid-19		FY22 - Full in-person	FY22 - Full in-person

1. All utilities except w/s: Unit Cost Includes Energy Tax rates set by Montgomery County Council on 5/22/14 and left uchanged May 2015 through May 2020.

2. Build-in the budget is a 2.5% increase (in electricity) to cover charges such as:
   a. WGL Energy - PJM - FERC Bal Cong charge - eff 6/1/17; TEC resettletment eff 6/1/18
   b. PEPCO - Distribution - rate decreases
   c. Water and Sewer - rate increases
   d. Empower for PEPCO and WG rate increases
3. 211% Renewable Energy Certificates (RECs) wind energy in FY2020 and FY2021, No decision has been made for FY2022.

Space Summaries & Campus Maps Revisions

SUMMARY SPACE SUMMARY
TOTAL COLLEGE
For FY 2023 RCP
332.8 Acres
50 Buildings
4 Leased Buildings

Campus	Gross Square Feet (GSF)	Net Assignable Square Feet (NASF)	Bldg
Germantown	514,219	328,731	11
Rockville	992,821	645,466	22
Takoma Park/Silver Spring	575,284	363,314	13
Total	2,082,324	1,337,510	46
TP East Garage	224,310	1,815	1
TP West Garage	159,795	1,369	1
RV North Garage	308,400	2,508	1
Total w/garages	2,774,829	1,343,202	49
Off Campus Space (CT)	126,801	61,833	1
Leased Space	107,394	34,809	4
Total	**3,009,024**	**1,439,844**	**54**

MONTGOMERY COLLEGE

Takoma Park/Silver Spring Campus

SPACE SUMMARY
TAKOMA PARK/SILVER SPRING CAMPUS
For FY 2023 RCP
19.5 Acres
15 Buildings
1,656 Parking Spaces

without East and West Garage: 575,284 GSF 363,314 NASF

with East and West Garage: 959,389 GSF NASF

Building	Gross Square Feet (GSF)	Net Assignable Square Feet (NASF)
CATHERINE F. SCOTT COMMONS	30,354	16,606
CHARLENE R. NUNLEY STUDENT SERVICES CENTER	110,504	65,497
CULTURAL ARTS CENTER	57,243	28,389
HEALTH SCIENCES CENTER	98,038	63,689
MATHEMATICS PAVILION	6,942	4,255
MORRIS & GWENDOLYN CAFRITZ FOUNDATION ARTS CENTER	134,748	90,721
NORTH PAVILION	6,942	4,337
PAVILION FOUR	15,873	8,549
PAVILION ONE	7,386	4,468
PAVILION THREE	15,013	10,901
PAVILION TWO	7,385	4,767
RESOURCE CENTER	44,906	34,650
SCIENCE NORTH	39,950	26,484
Subtotal	**575,284**	**363,314**
WEST GARAGE	159,795	1,369
EAST GARAGE	224,310	1,815
Total	**959,389**	**366,498**

Notes:

Leggett Building will open in Fall 2023

Proposed New Buildings

CATHERINE AND ISIAH LEGGETT MATH AND SCIENCE BUILDING	108,238	68,318

Special Facilities/Systems

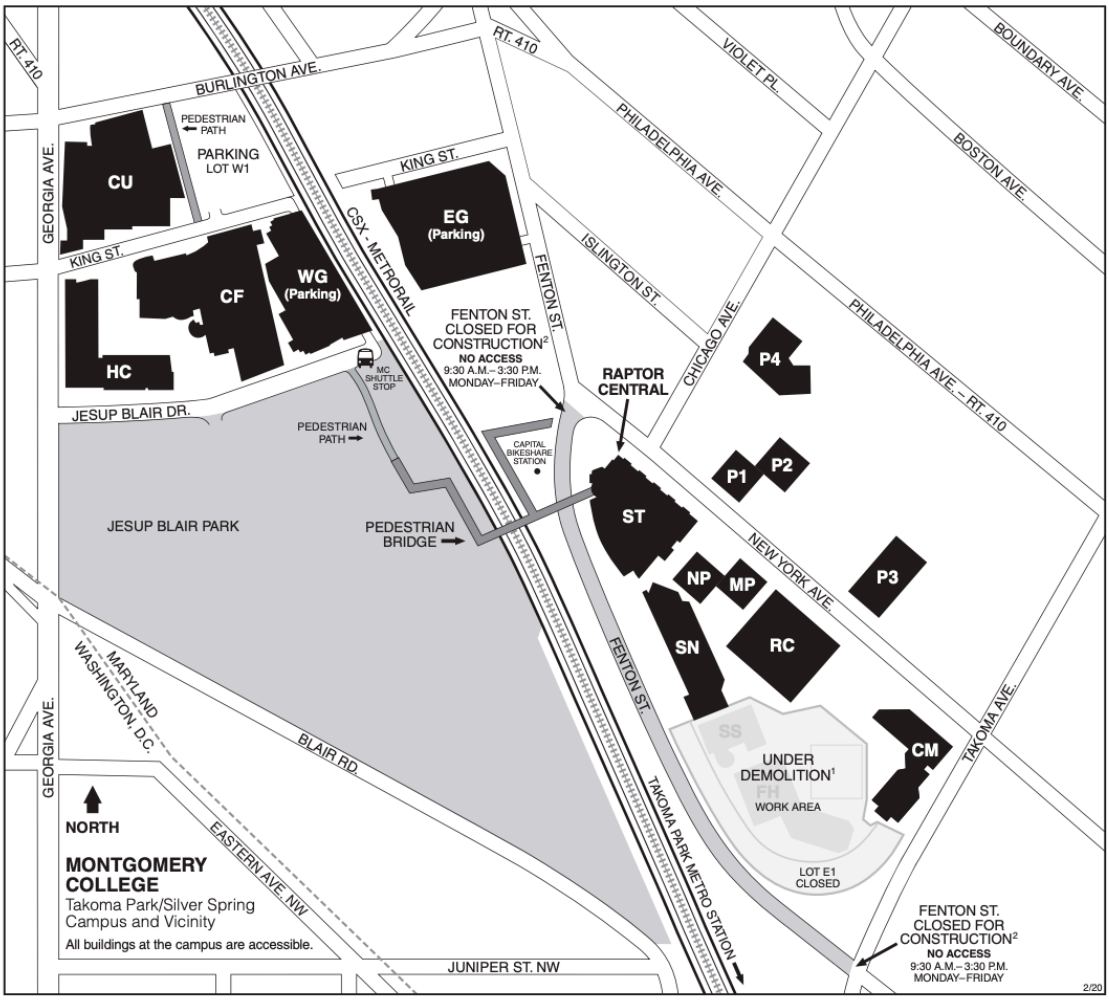
Central Heating and Cooling Plant with ice thermal storage and co-generation system Solar Photovoltaic System for electric power generation

Energy Utilities
Electricity, Wind Energy Purchase
Natural Gas
Solar Energy

Takoma Park/Silver Spring Campus

MONTGOMERY COLLEGE

Takoma Park/Silver Spring Campus and Vicinity



MONTGOMERY COLLEGE

Takoma Park/Silver Spring Campus

7600 Takoma Avenue
Takoma Park, MD 20912
240-567-1300; TTY 301-587-7207

Public Safety: 240-567-3333 (24/7)
montgomerycollege.edu/safety

montgomerycollege.edu/maps

Legend of Campus Buildings

(as of February 2020)

- **CF** The Morris and Gwendolyn Cafritz Foundation Arts Center
  - *Refugee Training Center*
  - *Workforce Development and Continuing Education (WDCE)*
- **CM** Catherine F. Scott Commons
- **CU** Cultural Arts Center
- **EG** East Garage (parking)
- **HC** Health Sciences Center
- **MP** Mathematics Pavilion
- **NP** North Pavilion
- **P1** Pavilion One
- **P2** Pavilion Two
- **P3** Pavilion Three
- **P4** Pavilion Four
- **RC** Resource Center
  - *Library*
- **SN** Science North Building
- **ST** Charlene R. Nunley Student Services Center
  - *Bookstore*
  - *Cafeteria*
  - *Counseling and Advising*
  - *Records and Registration Office*
  - *Financial Aid Office*
  - *Public Safety Office*
  - *Raptor Central (Admissions, Enrollment, Visitor Services)*
  - *Student Life Office*
- **WG** West Garage (parking)

[1] Falcon Hall (FH), Science South Building (SS), the tennis courts, and parking lot E1 are closed for demolition as of June 2019; site is slated for construction of the Catherine and Isiah Leggett Math and Science Building. For details, visit montgomerycollege.edu/tpss-design.

[2] Fenton Street will be closed for construction from 9:30 a.m. to 3:30 p.m., Monday through Friday. The sidewalk will remain open.

MONTGOMERY COLLEGE

Rockville Campus

SPACE SUMMARY
ROCKVILLE CAMPUS
For FY 2023 RCP
84.6 Acres
23 Buildings
4,096 Parking Spaces

without North Garage: 1,110,333 GSF 709,052 NASF

with North Garage: 1,418,733 GSF 711,560 NASF

Building	Gross Square Feet (GSF)	Net Assignable Square Feet (NASF)
CAMPUS CENTER	74,302	50,735
CANOE TRAILER SHED	420	377
CHILD CARE CENTER	2,498	2,350
COMPUTER SCIENCE	20,862	14,581
COUNSELING AND ADVISING BUILDING	17,696	9,890
GORDON AND MARILYN MACKLIN TOWER	117,282	80,064
HOMER S. GUDELSKY INSTITUTE FOR TECHNICAL EDUCATION	64,000	41,635
HUMANITIES BUILDING	73,912	48,822
INTERIM TECHNICAL TRAINING CENTER	9,360	7,871
MAINTENANCE SHOP	4,720	4,220
MANNAKEE BUILDING	42,102	33,880
MUSIC BUILDING	21,050	10,526
PAUL PECK ART BUILDING	25,594	15,809
PHYSICAL EDUCATION CENTER	84,949	62,444
ROBERT E. PARILLA PERFORMING ARTS CENTER	28,000	16,493
SCIENCE CENTER	143,266	84,592
SCIENCE CENTER EAST	61,011	33,427
SCIENCE CENTER WEST	70,508	42,153
SOUTH CAMPUS INSTRUCTION BUILDING	29,900	18,059
TECHNICAL CENTER	55,908	39,012
THEATRE ARTS BUILDING	35,032	21,150
LONG NGUYEN KIMMY DUONG STUDENT SERVICI	127,960	70,960
SOCCER FIELD CONCESSION BUILDING	2,675	0
Subtotal	**1,110,333**	**709,052**
NORTH GARAGE	308,400	2,508
Total	**1,418,733**	**711,560**

Notes:

Science Center now connected to the renovated Science Ceneter West by a covered bridge.
Science East was connected to Science Center in 2011.

Demolition

STUDENT SERVICES BUILDING	10,448	7,374

Special Facilities/Systems

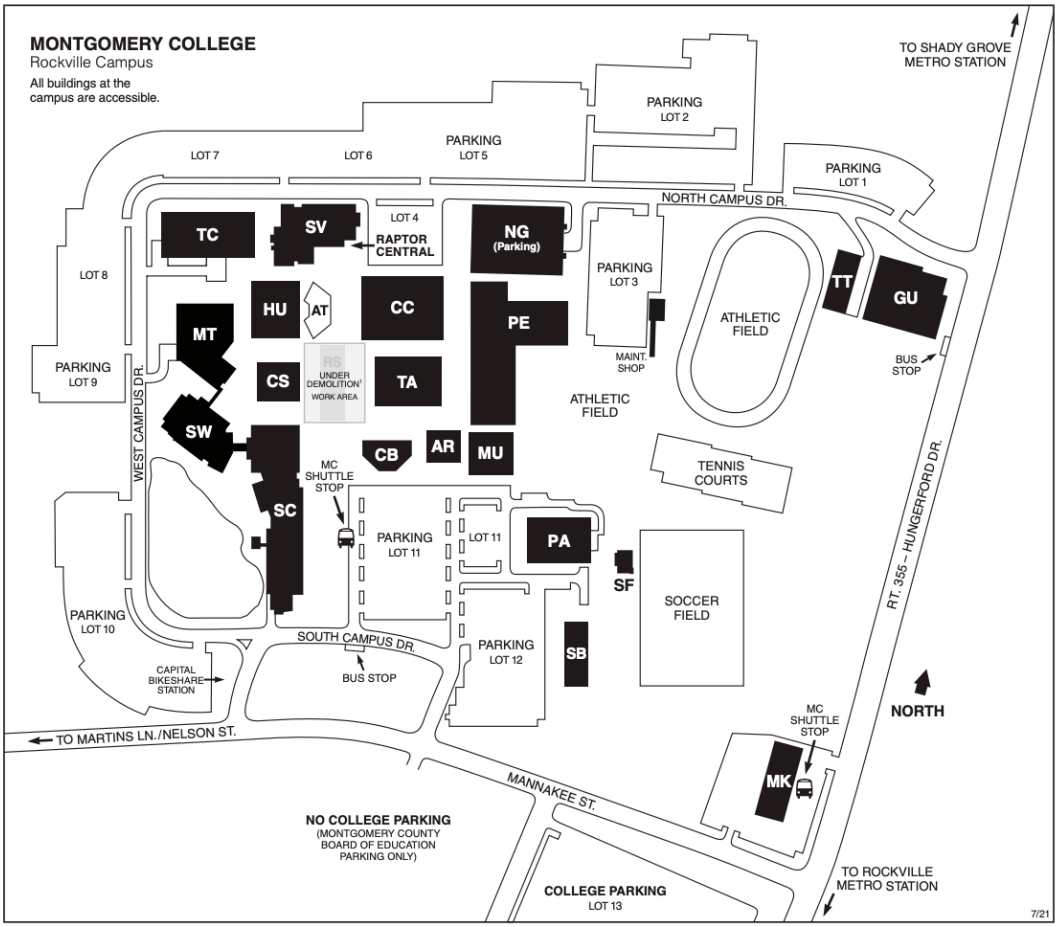
Indoor Swimming Pool
Central Heating and Cooling Plant with ice thermal storage and co-generation system Solar Photovoltaic System for electric power generation

Energy Utilities

Electricity, Wind Energy Purchase
Natural Gas
Solar Energy
Propane

Rockville Campus

MONTGOMERY COLLEGE
Rockville Campus



MONTGOMERY COLLEGE

Rockville Campus

51 Mannakee Street
Rockville, MD 20850
240-567-5000; TTY 301-294-9672

Public Safety: 240-567-3333 (24/7)
montgomerycollege.edu/safety

montgomerycollege.edu/maps

Legend of Campus Buildings
(as of July 2021)

- **AR** Paul Peck Art Building
- **AT** Amphitheatre
- **CB** Counseling and Advising Building
- **CC** Campus Center
  - *Bookstore*
  - *Cafeteria*
  - *Workforce Development and Continuing Education (WDCE)*
- **CS** Computer Science Building
- **GU** Homer S. Gudelsky Institute for Technical Education
- **HU** Humanities Building
- **MK** Mannakee Building
  - *Center for Training Excellence*
- **MT** Gordon and Marilyn Macklin Tower
  - *Library*
- **MU** Music Building
- **NG** North Garage (parking)
- **PA** Robert E. Parilla Performing Arts Center
- **PE** Physical Education Center
- **SB** South Campus Instruction Building
- **SC** Science Center
- **SF** Soccer Field Concession Building
- **SV** Long Nguyen and Kimmy Duong Student Services Center
  - *Counseling and Advising*
  - *Disability Support Services*
  - *Financial Aid Office*
  - *Public Safety Office*
  - *Raptor Central (Admissions, Enrollment, Visitor Services)*
  - *Records and Registration Office*
  - *Student Life Office*
- **SW** Science Center West
- **TA** Theatre Arts Building
- **TC** Technical Center
- **TT** Interim Technical Training Center

[1] Former Student Services Building (RS) under demolition

MONTGOMERY COLLEGE

Germantown Campus

SPACE SUMMARY
GERMANTOWN CAMPUS
For FY 2023 RCP
228.7 Acres (Includes 20271 Goldenrod Lane Property)
11 Buildings
1,656 Parking Spaces

Toal: 514,219 GSF 328,739 NASF

Building	Gross Square Feet (GSF)	Net Assignable Square Feet (NASF)
BASEBALL SHED	210	170
BIOSCIENCE EDUCATION CENTER	139,985	80,658
CHILD CARE CENTER	5,535	3,565
GREENHOUSE	4,562	4,390
GROUNDS AND AUTO STORAGE	7,201	6,977
HIGH TECHNOLOGY AND SCIENCE CENTI	75,542	42,673
HUMANITIES AND SOCIAL SCIENCES BUI	75,700	52,234
PAUL PECK BUILDING ACADEMIC AND INNOVATION BUILDING	68,826	52,534
PHYSICAL EDUCATION BUILDING	36,770	29,338
STUDENT AFFAIRS AND SCIENCE	99,648	55,991
TENNIS STORAGE SHED	240	201
Total	**514,219**	**328,731**

Notes:

Proposed New Buildings

Student Services Center	153,660	87,586

Special Facilities/Systems

Indoor Swimming Pool
Central Heating and Cooling Plant with ice thermal storage and co-generation system Solar Photovoltaic System for electric power generation

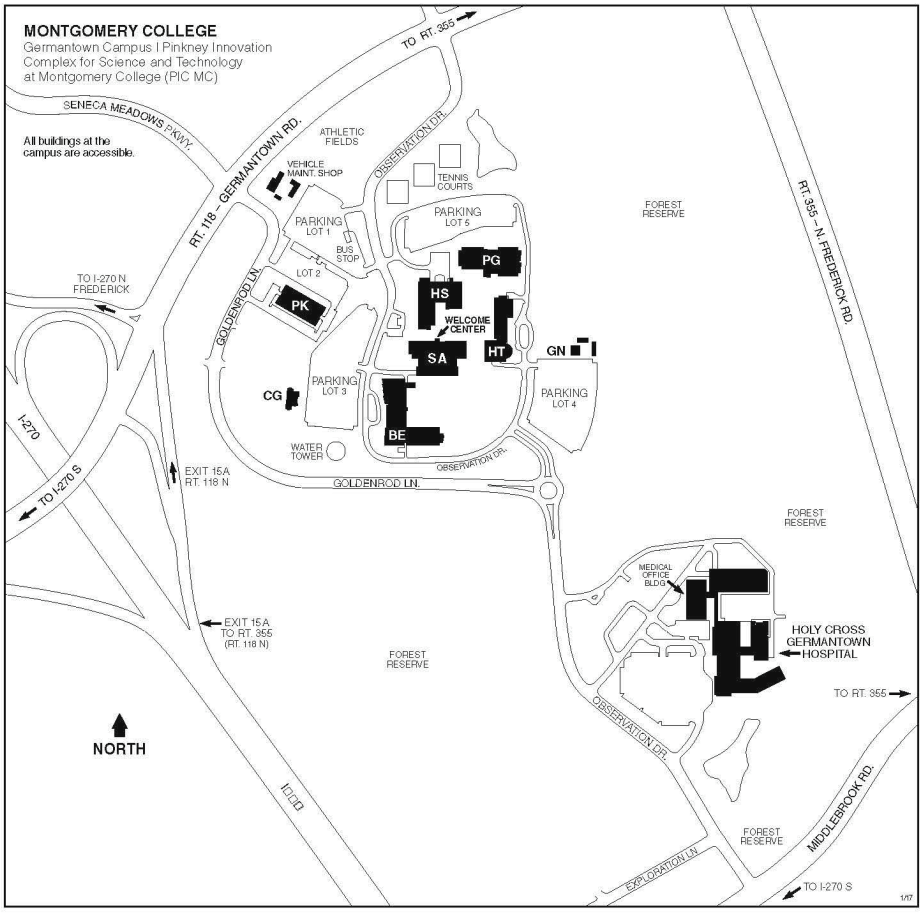
Energy Utilities

Electricity, Wind Energy Purchase
Natural Gas
Solar Energy
Propane

Germantown Campus

MONTGOMERY COLLEGE

Germantown Campus | Pinkney Innovation Complex for Science and Technology (PIC MC)



MONTGOMERY COLLEGE

Germantown Campus | Pinkney Innovation Complex for Science and Technology at Montgomery College (PIC MC)

20200 Observation Drive
Germantown, MD 20876
240-567-7700

montgomerycollege.edu

For updates to campus maps, visit montgomerycollege.edu/maps

Legend of Campus Buildings

(as of January 2017)

- **BE** Bioscience Education Center
  - *Conference Center*
- **CG** Child Care Center
  - *Center for Early Education (CEE)*
- **GN** Greenhouse
- **HS** Humanities and Social Sciences Building
  - *Cafeteria*
  - *Library*
  - *School Stores*
  - *Workforce Development & Continuing Education (WD&CE)*
- **HT** High Technology and Science Center
  - *Globe Hall*
- **PG** Physical Education Building
- **PK** Paul Peck Academic and Innovation Building
  - *Germantown Innovation Center*
- **SA** Science and Applied Studies Building
  - *Counseling and Advising*
  - *Enrollment Services*
  - *Financial Aid Office*
  - *Public Safety Office*
  - *Student Life Office*
  - *Welcome Center*

MONTGOMERY COLLEGE

Off-Campus

SPACE SUMMARY
LEASED AND OFF-CAMPUS SITES
For FY 2023 RCP

Total: 992,821 GSF 645,465 NASF

Building	Gross Square Feet (GSF)	Net Assignable Square Feet (NASF)	User	Original Occ Date	Leased Term	Expiration Date
Wesflied South 11002 Vers Mill Rd. Silver Spring, MD 20902	13,678	9,886	WDCE	36,373	24 years	44,610
Gaithesburg Business Trainning Ctr. 12 S. Summit Ave., Gaithesburg, MD 20877	14,747	11,293	WDCE	37,104	18 years	43,677
Central Warehouse 7602 Standish Pl., Rockville, MD 20877	10,866	9,766	Procurement, IT, Facilities	39,845	10 years	tbd
Training) 14 Firstfield Road, Gaithesburg, MD 20878	64,273	0	WDCE	37,391	12 years	tbd
Central Services 9221 Corporate Blvd, Rockville, MD 20850	126,801	61,833	Central Services	42,794	N/A	Owned by College
Total	**230,365**	**92,778**				

Notes:

WDCE = Workforce Development & Continuing Education
CT has 360 Parking Space

Energy Utilities
Electricity, Wind Energy Purchase
Natural Gas