

Montgomery County's Climate Protection Plan, Part 1

Overview: In January 2009 – after about a year's work by staff, consultants, and civic volunteers constituting a sustainability working group – Montgomery County, MD produced a Climate Protection Plan (CPP) with 58 recommendations in six categories:¹ (1) land use and agriculture, (2) education and outreach, (3) renewable resources, (4) transportation, (5) residential energy efficiency, and (6) multifamily dwellings and business energy efficiency.

Regular updates on actions taken to implement the plan were proposed; while more are being worked on, only 2010 and 2011 updates are available online.² Momentum is gradually increasing after the passage of nine environmental bills on Earth Day 2014 (all but two of bills 2-14 to 12-14)³. For example, in June 2014 an Office of Sustainability was established after passage of county bill 6-14.⁴ Department of Environmental Protection (DEP) staffer Stan Edwards, one of the staff who supported the development of the CPP,⁵ was named to head that office; while he estimates a need for six additional staff members, only 2.5 were authorized, and only one was hired before the county froze hiring in December 2014. Mr. Edwards notes that the Policy section of DEP's Division of Environmental Policy & Compliance did function as an office of sustainability before the official establishment of one.

In addition, in late 2013 the Department of General Services (DGS) set up an Office of Energy and Sustainability,⁶ headed by Eric Coffman, formerly of DEP. The Department of Permitting Services also has relatively new green management responsibilities due to county standards set for new buildings.⁷ The Montgomery County Public Schools (MCPS) have an ongoing program of building green schools and adding green aspects (e.g., solar panels) to existing school facilities.⁸

Focus. In this factsheet the LWVMC Natural Resources Committee has chosen to focus on the following three sections of the CPP: (1) renewable resources, (2) residential energy efficiency, and (3) energy efficiency of large buildings (multifamily dwellings, government buildings, and businesses). We will give a summary of each section's outlook and recommendations with an emphasis on relevant actions taken since 2009.

I. Renewable (Energy) Resources:

CPP recommendations concerning renewable energy include maintaining the commitment of the county government and its agencies to purchase a percentage of annual electricity consumption from clean energy sources; establishing energy policy criteria that recognize the benefits, and prioritize the purchase, of various clean energy options; adopting building design guidelines for all county buildings requiring the use of the most effective system available as the primary heating and cooling energy source; supporting the installation of solar photovoltaic systems through the use of power purchase agreements in public facilities; providing revolving and low-interest loans for onsite renewable energy installations; facilitating customer aggregation of renewable energy, including voluntary purchases of electricity from renewable sources or renewable energy certificates and renewable energy installations; establishing a public-private, non-profit entity to promote, facilitate, develop and invest in clean energy sources for the benefit of county agencies, businesses and residents; and investigating the feasibility of adding sustainable energy biogas/combined heat and power (CHP) facilities to WSSC Seneca and Piscataway wastewater treatment sites.

Montgomery County renewable energy projects. The county is now required by ordinance (bill 9-14) to purchase 50% of its energy from renewable sources by the end of fiscal year 2015 and 100 % renewable energy by the end of FY2016. Implementing solar projects on public buildings is a top priority of DGS. A construction contractor has been selected from among 10 bids received for 12 installations that will be dispersed through the county on recreation centers,

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libraries, etc. The specific locations are still being selected and will depend on the capability of the structures to support the installations for 20 years. The county will buy the power generated from the installers under long-term contracts. The power will have a favorable rate because of federal support programs to private companies that do these installations. [See related information in section III. Energy Efficiency in Large Buildings.]

Phase 2 of the solar project will be to solicit bids from local small businesses. Phase 3 will entail finding additional sites and partners for leasing land. Phase 4 will be to search out more regional suppliers of solar energy. MCPS already has both geo-exchange and solar projects on multiple school buildings.

Some earlier actions. Montgomery County Government (MCG), along with Nonprofit Roundtable Montgomery and the Arts and Humanities Council, hosted a forum with competitive energy suppliers to explore options to purchase competitive energy supply, preferably clean energy, for non-profits in the county. Then, the county provided technical assistance to Nonprofit Roundtable Montgomery, the Arts and Humanities Council, and Greater Washington Interfaith Power and Light to create the Non-Profit Energy Alliance (NEA) to pool the purchasing power of the nonprofit community to secure competitive energy supply at a lower cost than the utilities' standard offer service. Nearly all participants opted for a 50% or 100% clean energy product. This approach continues to be used.

In 2011 Montgomery County hosted a summit (now held annually) of the Maryland Clean Energy Center (<http://mdcleanenergy.org/>). These summits focus on information and networking for businesses. WSSC's FY 10-15 approved Capital Improvement Plan included \$345,000 for a feasibility study to develop a comprehensive program for the engineering, design, and construction of sustainable energy equipment and systems to produce biogas at the Seneca and Piscataway Wastewater Treatment Plants. [Update and more details are included in section III.]

While MCG set up LEED⁹ guidelines (at least silver for new large public and private buildings), recently the county began a conversion to the International Green Construction Code (IGCC) for guidelines. Currently there is a controversy among environmental groups as to whether the County Council allowed too many exceptions when adopting use of the IGCC.

II. Residential Energy Efficiency:

Perspective and recommendations. Like several other sections of the CPP, the section on residential housing is mostly populated with nonspecific proposals for what amounts to public education on efficiency. No mention is made of strengthening the building code so that modernized homes or new construction units will have higher efficiency levels built into them, nor is attention paid to existing programs to encourage the installation of either rooftop solar panels or creating neighborhood energy production enclaves. Some of these efforts have become possible, however, through the actions of utilities in response to the EmPOWER Maryland program [which is covered in more detail in section III].

Six basic county program recommendations:

First, develop promotional giveaways and buy-downs of various energy-efficient devices, primarily efficient light bulbs and programmable thermostats. Some effort has been extended on these projects in cooperation with the utilities serving the county, including conducting limited energy-efficiency surveys of households by the utilities and providing customer with such items as CFL light bulbs and master-controlled power strips that can be controlled by the use of a single master unit.

Second, develop energy efficiency programs specifically designed to help low-income households improve their energy efficiency. So far, however, there seems to have been little if any effort made to require or even encourage landlords to provide improvement to low-income rental properties.

Third, create educational programs to increase consumer awareness of the advantages of improving energy efficiency as well as the value of in-home real-time energy consumption displays. The county has conducted several pilot programs, using grant funds to upgrade up to 40 townhouse units, and has requested additional funds to upgrade 50 or more residential properties. However, there has been some push-back from residents who find these devices intrusive on their privacy, and it is not clear what the county has done to overcome this reluctance -- although programs such as this have been successful elsewhere.

Fourth, develop low-cost loan programs to encourage residents to undertake efficiency improvements on their own. The Home Energy Loan Program (HELP) is intended to provide homeowner loans for this purpose, and the county has allocated \$1.5 million to support its development.

Fifth, create a residential energy education and outreach program to encourage homeowners to invest in energy use reduction actions. This seems to have considerable overlap with the goals of items 2, 3 and 4 above and will likely be subject to some degree of resistance on the part of those homeowners who see it either as an effort to force them to alter their lifestyle in ways they don't want to or as an invasion of their privacy.

The goal is to have 50% of the county's homeowners reduce their energy consumption by at least 25% by 2020. Given that most analysts in this arena believe that reductions of as much as 50% are readily achievable, this seems like a modest goal indeed. But educational programs are not likely to be terribly effective without wide dissemination and specific information on how these gains in efficiency can be made without having to make major lifestyle alterations or surrender personal privacy. One possible approach to this goal might be to recruit a number of households to participate, carefully measure the results, record any lifestyle changes resulting from the program (both voluntary and involuntary), and then publicize the results widely within the county.

Sixth, the final residential energy recommendation of the CPP is to promote the deployment of smart (distribution) grid technologies by utilities serving the county. By "smart grid technology" is meant giving the grid two-way communication between the utilities and the users. At present, communication is limited to one-way—that is, the consumer transmits energy demands to the utility (mostly by turning on switches on devices in residences), and the utility responds by providing the desired electricity (which may include having to purchase electricity from the power grid on the spot market, often at high cost).

One of the aims of the two-way communication would be to help the utility smooth its demand by enabling it to automatically shift some of the load from high-demand times to lower demand times (e.g., shifting the time of use of high-energy devices like dishwashers or clothes dryers from early evening use to after-midnight use). Of course, not all use can be shifted at the convenience of the utilities, but studies have shown that allowing this to happen -- while giving residents the option of overriding that utility capability when necessary -- can still result in significant smoothing to the demand for electricity (and also, to a lesser extent, natural gas and water), resulting in a significant saving to the utility.

This capability is the principal cause of consumers push-back on privacy grounds—the fear of intrusive control of their personal lives or of a revealing of personal information they would rather be kept private. To overcome the problem, there must be extensive privacy safeguards regarding the data collected by the utilities as a result of these programs, as well as the capability of residents to at least selectively opt-out of whatever aspects of the program they might object to, for whatever reason. Most of the objections can be overcome if programs are structured so that they do not impact directly on the residents' lives—that is, what the utilities are doing in the name of energy efficiency or demand smoothing is well below the threshold of perception by the residents.

Alternatives for utility revenues. An important issue that is not discussed at all in the CPP is the primary source of revenue for the utilities: this revenue source is of course the energy that they sell—electricity or gas or both. So long as increased sales continue to help their bottom lines, the utilities will be at best tepid supporters of efficiency. The CPP does not address this aspect – that the power companies do not necessarily have a vested interest in promoting efficiency since, by itself, that certainly affects their bottom line -- which may result in requiring them to raise their rates just to maintain a viable level of profit.

Decoupling. A solution to this problem is to decouple the power companies' profit margin from their electricity sales -- at least partially. In this business model a significant fraction of the utilities' income derives from promoting plans that actually result in lower electricity sales as a result of increased electrical efficiency.

Here are several steps that could be taken: first, eliminate discounts given to large customers for high usage (which has the dual effect of encouraging the large customers to improve their efficiency); second, allow the power companies to market efficiency-improving devices and equipment to their customers (with appropriate subsidies for low-income customers); third, encourage power companies to promote the use of electric vehicles (including plug-in hybrids), which will grow their sales horizon; fourth, allow the power companies to offer solar panel installation to customers at no cost to them but with a requirement that all output of the panels be the property of the power

company for resale to the customer where the panels are installed and the excess to come into the overall power distribution system, for a period of, say 5-7 years, or until the installation cost plus a small profit is recovered by the power company -- after which the panels revert to the custody of the property owner; and last, set the feed-in tariff for the power returned to the grid from solar panels installed at the expense of (or owned by) property owners at the wholesale rate that the power companies pay for the power they obtain commercially (ideally this should be tied to time-of-day pricing so the price paid for this power is the same as the power company is paying for whatever power it must buy from the power grid).

It is policies like decoupling that have enabled California to be a very effective promoter of efficiency and to keep the power companies in the efficiency camp (their per capita electricity usage has remained nearly flat since about 1970, while that of the rest of the country has increased by more than 50%).

With effective decoupling of revenue from electricity sales and a business model that allows them to profit from promoting efficiency (which profits can also derive from increased efficiency in their own operations, although this is outside the scope of this section), there remains no reason why utilities should not be willing to promote efficiency, and residential efficiency should be a large market for them to exploit.

Government interests. Of course the government, whether county or state, also profits, via increased tax revenues from increased energy sales, so it is in MCG's interest to create a situation where increasing household energy efficiency does not decrease its tax revenue. Hence, governments must also engage in a version of "decoupling" to avoid damaging loss of revenue.

Of course, improving governmental energy efficiency will offset at least some of the tax revenue by decreasing the expense of governing, and switching the government's motor fleet to electric vehicles will also decrease government expenses -- at the same time that it contributes to the revenues of the utilities.

Co-dependency. Recognition that the processes coupled to the residential electricity usage are also interlocked with the efficiency of corporate energy users, the utilities, and the government itself -- and keeping this co-dependency in mind when generating energy plans -- should allow all elements of society to prosper—the utilities by virtue of energy-revenue decoupling, the government by virtue of its own energy efficiency, home owners by virtue of their energy efficiency and the economies of renewable energy, and all citizens from the economic justice built into these plans.

III. Energy Efficiency of Large Buildings:

Improving the energy performance of public facilities through enhanced data acquisition and energy efficiency measures. DGS, MCPS, and Maryland National Capital Park and Planning Commission (M-NCPPC) are pursuing utility Demand Side Management incentives that provide substantial buy-downs of the costs of energy efficiency equipment.

Energy Efficiency and Conservation Block Grant (EECBG): Fully expended in 2012, here is how the \$7.6 million grant was spent on programs providing education on energy efficiency, workforce training, and a variety of building retrofits. For public facilities the county's EECBG program included \$2.5 million to improve energy efficiency including: \$1.624 million to MCPS, \$554,000 to DGS, \$111,000 to M-NCPPC, and \$211,000 to Montgomery College. Each agency was responsible for defining its own projects. Montgomery College has enabled enhanced data acquisition via its Building Automation Controls and is implementing enhanced measurement and verification protocols in all new College facilities.

MCPS requires enhanced commissioning on all new schools or modernizations; facility design guidelines have now set a goal of achieving a system-wide building energy use of 45 kBtu per square foot per year by 2024. MCPS has installed 18 acres of vegetated roof that will reduce the heat island effect, improve thermal insulation of buildings and retain and clean stormwater.

Additional energy efficiencies. Other MCPS programs include installation of LED technology for auditorium and parking lot lighting, control of the schedules and thermostat settings for HVAC at all relocatable classrooms via an internet interface, and power management protocols to turn off computers when not in use. MCPS has also implemented a systemwide retrofit of lighting systems with electronic ballasts and 25-watt T-8 lamps in existing buildings. It has retrofitted electronic astronomical time clocks to control parking lot lights, turning them on when

needed and off when not. Virtualization of servers to reduce the number of servers and associated power consumption and infrastructure needs is another efficiency measure implemented by MCPS.

County Executive's Cross-Agency Resource Sharing Initiative: The Utilities Committee's five key recommendations to improve facility energy management were to (1) issue an RFP for Energy Performance Services, (2) develop a budget mechanism that allows energy savings to be used to offset debt service payments, (3) implement tactical retrofits of lighting systems with low-wattage fluorescent lamps, (4) conduct an internal interagency education campaign, and (5) build operator certification to expand the skills of front line building operators.

To date, the first two recommendations have been implemented, but DGS's Office of Energy and Sustainability has since focused on priorities different from the remaining three. The county plans to spend \$81.5 million for energy performance improvements to county facilities over six years via its energy modernization initiative.

Three energy performance service companies have been chosen to work for the county. In accordance with the second recommendation, energy efficiency improvements are selected so that the debt service on the capital expenditures for the project can be covered by the savings wrought through the improvements. A large number of options may be available, but the selection is based upon the likely savings in energy consumption. The pilot program was the county office building at 401 Hungerford Drive: this yields an annual energy cost savings of \$250,000 through modification to lighting, converting to gas heat, weatherization, and replacement of mechanical systems. A project may cost from \$3M to \$5M, and after one project is completed, a different one of the energy performance services will be assigned the next project.

County Government Accomplishments. As part of the overall economic growth of the county and in response to the need for renovation of aged county-owned facilities, the County Executive established the Smart Growth Initiative for county facilities. Early participants include the Montgomery County Multi-Agency Service Park (MASP) and Public Safety Training Academy (PSTA) on a 131.5 acre parcel located on 8701 Snouffer School Road. The MCPS Food Distribution Relocation portion of the project will be followed by the Public Safety Training Academy (PSTA) and then the MCPS and M-NCPPC Facilities Maintenance Depot. The whole facility is to meet LEED silver standards.

By mid-2013, the county was scheduled to complete 14 new LEED silver certified facilities totaling a minimum of 390,000 square feet. MCG has incorporated geo-exchange and vegetative roof technology on two new recreation centers. The Equipment Maintenance and Transit Operations Center (EMTOC) at 16624 & 17000 Crabbs Branch Way in Rockville contains a pilot program to treat and reuse rain water harvested from the vegetated roof. This water is used for bathroom flushing as well as washing vehicles such as buses and for wall hydrants.

The county has contracted to have all utility bills audited and analyzed for county buildings on an ongoing basis using a sophisticated computer program. The software will also provide data to support county decision-making regarding savings obtained through commodity purchases, demand response initiatives, and performance contracting. Combining this analysis with the Energy Star tool will enable the county to identify problems in particular buildings and to monitor utilization. It will be possible to compare energy usage per square foot among county buildings as well as to make comparisons across the nation.

Benchmarking. Bill 2-14 requires that owners of large nonresidential buildings benchmark energy use on an annual basis. The ENERGY STAR Portfolio Manager Measurement Tool, introduced by EPA 10 years ago, is designated for the benchmarking exercise. Free to users, this tool allows meaningful comparisons of actual energy use among buildings. All county-owned nonresidential buildings must benchmark by June 1, 2015. Private, nonresidential buildings greater than or equal to 250,000 sq. ft. must comply with the law by December 1, 2016, while the deadline for private, nonresidential buildings greater than or equal to 50,000 sq. ft. is December 1, 2017. A licensed professional must verify benchmarking data before the first submission and every three years thereafter.

Auditing and retro-commissioning aspects of the proposed bill – as well as applicability to multifamily dwellings – were removed before the bill was approved. The council favored a more gradual entry into energy requirements. A Building Benchmarking Work Group will review the benchmarking process as applied to county-owned facilities and will also report to the County Council and County Executive with recommendations on the benchmarking process as applied to privately-owned facilities, including any proposed amendments to the county law.

Other programs for commercial properties. Bill 11-13 calls for the County Executive to define and establish criteria for a property-assessed clean energy (PACE) program for commercial properties to allow payment for energy improvements to be spread over time and repaid via an assessment added to the property's tax bill. The County Executive's office has been developing a proposal for implementing PACE that may be presented to the council for action in February 2015.

EECGB-Funded Programs for the commercial sector: The county's EECBG program included \$400,000 for a comprehensive analysis of the county's commercial building sector. The analysis was intended to identify a package of policies that can reduce the energy consumption of the commercial and multifamily sectors by 25% within 10 years. However, the study largely focused on benchmarking requirements.

The county's EECBG program also included \$1.7 million for a commercial/multifamily rebate program for energy efficiency improvements. The program began in spring 2011 and operated until funds were fully used.

Retro-commissioning: Retro-commissioning is a systematic process of evaluating a building's energy systems and retuning them to optimize energy efficiency. A retro-commissioning study of the Bethesda North Conference Center identified a range of energy efficiency measures that could result in significant energy savings with a relatively quick return on investment. The Conference Center Management Committee, in partnership with Marriott Corporation (which manages the county-owned facility), has develop priorities and a timeline for implementing recommendations, using funds from a special Conference Center reserve account.

To date, some components of the HVAC system have been replaced and action has been taken to make the hot water system more efficient. Tinting the windows in the grand foyer was done to prevent overheating and consequent use of too much power to cool that space.

Cost-effective utility-based energy efficiency and demand reduction programs in partnerships with local utilities.

In 2008, the Maryland General Assembly passed the EmPOWER Maryland Energy Efficiency Act. The legislation set a target reduction of 15 percent in per capita electricity consumption and demand by 2015 from a 2007 baseline. Since its inception through September 2012, EmPOWER Maryland (<http://energy.maryland.gov/facts/empower.html>) has helped fund measures that will reduce ratepayer energy usage by more than 2 million mWh per year and save \$250 million annually.

Utilities serving Montgomery County (Pepco, BG&E, and Potomac Edison) have implemented the EmPOWER Maryland programs, providing incentives to both residential and commercial entities for energy efficiency improvements. Cost incentives and technical assistance are provided for building projects that incorporate efficient technologies or exceed code requirements. Aspects of the program include energy-efficient lighting; variable-frequency drives regulating the speed and power of motors that drive heating and cooling systems; replacing heating, ventilating and air conditioning (HVAC) systems; and installing chillers and energy saving controls. Because of their high usage of energy, restaurants, cafeterias, and delis are provided an array of incentives for energy efficient food service equipment. Pepco offers a discount for buildings that install multiple measures simultaneously. The county's EECBG programs were designed to complement these utility programs.

Other energy efficiency incentives provided by Pepco include providing data on a building's current energy consumption, conducting energy audits (which are free for small businesses with less than 100 KW in annual demand), HVAC tune-ups, and incentives for continuous energy improvement commissioning. Training is subsidized for operations and maintenance personnel, and a subsidy is offered for programs to educate building occupants to become more energy conscious. The Energy Wise Rewards program enables businesses and master-metered accounts to save money by allowing Pepco to automatically lower their energy consumption during peak periods.

Peak pricing and tiered electricity rate structure. MCPS has developed a program to reduce peak electrical demands at facilities during the summer afternoon hours when the charges are most likely to be set. The program uses energy management systems to curtail central plant chillers and pumps to many facilities during the peak demand hour each weekday, while School Energy and Recycling Team (SERT) "energy sweepers" simultaneously walk the facility to turn off unnecessary lights and plug loads.

Peak load management (PLM) efforts were enhanced with the installation of advanced electric meters that record use in 15-minute intervals. MCPS personnel review the performance of schools at the critical hours on a weekly

basis for compliance with PLM directives. Where compliance was not achieved or other scheduling problems were observed, correctional measures were undertaken and tracked to completion in a database. Cost avoidance for the efforts during the summer of 2013 was \$1.7 million.

MCPS has established power purchase agreements (PPA) for onsite electric renewable energy generation. A PPA allows a government building owner to host the operation of a solar photovoltaic system on the roof of a building. A solar developer installs, owns, and maintains the solar array and sells power directly to the building owner. Unlike a government building owner, the developer is able to access significant cost offsets to solar projects available under state and federal tax incentives. The building owner benefits from electricity at below-market rates, with no upfront cost or risk. MCPS expects to deter a significant fraction of the peak load contribution for schools by hosting solar installations.

As part of the annual Operating Budget review process, the council reviews utility costs across all agencies and policy issues associated with utility costs. This review covers utility costs for electricity, natural gas, water & sewer, fuel oil, and propane for MCG, Montgomery College, MCPS, M-NCPPC, and the entire bi-county area of WSSC. Representatives of these bodies comprise the Interagency Committee on Energy and Utilities Management, which is evaluating options for PLM for county and agency facilities. WSSC is developing a 10-year Strategic Energy Plan that was due to be completed by July 2014 (not yet available on its website). MCPS has an Environmental Sustainability Management Plan with goals articulated for 2024.

Wind power, hydropower, and energy-efficient pumps are just a few of the technologies WSSC employs to efficiently use energy during the water and wastewater processes. Through a 10-year Wind Power Purchase Agreement that began in 2008, WSSC receives approximately 30 percent of its electrical power from wind. As part of WSSC's efforts to reduce the management costs of energy and biosolids at its wastewater plants, it is currently involved in a feasibility study examining the possible use of anaerobic digestion. This process could allow WSSC to lower its dependence on carbon-based fuels while reducing the amount of solids produced at the plants.

Members of the Natural Resources Committee contributing to this report include Margaret Chasson, Hugh Haskell, and Linda Silversmith (chair), assisted by Sylvia Diss, Iris Malloy, and Lorna Post.

¹ For a copy of the plan, see

<http://www.montgomerycountymd.gov/DEP/Resources/Files/ReportsandPublications/Sustainability/Working%20Group/Climate-Protection-Plan-Sustainable-Working-Group-09.pdf>. ES-2 in the CPP is the table summarizing the 58 recommendations.

² at

<http://www.montgomerycountymd.gov/DEP/Resources/Files/ReportsandPublications/Sustainability/Working%20Group/Annual-report-Sustainable-Working-Group-10.pdf> (2010);

<http://www.montgomerycountymd.gov/DEP/Resources/Files/downloads/outreach/sustainability/climate-protection-plan-update-2010.ppt> ; and <http://www.montgomerycountymd.gov/DEP/Resources/Files/downloads/outreach/sustainability/2011-update-on-climate-protection-plan.pdf> [in the reports and publications section of the Department of Environmental Protection (DEP) website]

<http://www.montgomerycountymd.gov/dep/> .

³ <http://www.montgomerycountymd.gov/council/leg/bill/2014.html> (see bills 2-14 to 12-14)

⁴ Details available in this index: <http://www.montgomerycountymd.gov/council/leg/bill/index.html> .

⁵ For a glossary of acronyms, see the last page of this factsheet.

⁶ <http://www.montgomerycountymd.gov/DGS-OES>

⁷ <http://permittingservices.montgomerycountymd.gov/DPS/general/Environment.aspx>

⁸ <http://www.montgomeryschoolsmd.org/departments/facilities/greenschoolsfocus/index.aspx>

⁹ <http://www.usgbc.org/leed>

Glossary of Acronyms

ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
CFL	Compact fluorescent (light bulbs)
CHP	Combined heat and power
CIP	Capital Improvement Plan
CPP	Climate Protection Plan
DEP	Department of Environmental Protection
DGS	Department of General Services
DPS	Department of Permitting Services
EEC	Energy Efficiency – Commercial
EECDBG	Energy Efficiency & Conservation Block Grant
HELP	Home Energy Loan Program
HHS	Health and Human Services Department
HVAC	Heating, ventilating and air conditioning
IGCC	International Green Construction Code
KW	Kilowatt
LED	Light-emitting diode
LEED	Leadership in Energy & Environmental Design
MCEC	Maryland Clean Energy Center
MCG	Montgomery County Government
MCPS	Montgomery County Public Schools
M-NCPPC	Maryland National Capital Park and Planning Commission
MWh	Megawatt-hour (= 1 million watt hours)
PACE	Property assessed clean energy
PPA	Power purchase agreements
PLM	Peak load management
PV	solar photovoltaic
RFP	Request for proposal
SERT	School Energy and Recycling Team
WSSC	Washington Suburban Sanitary Commission