

Chapter 6: Energy Conservation

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Energy Conservation

Chapter 6

Energy Conservation

Energy has become a key consideration for the county due its significant influence on an area's environmental performance, sustainability, and economic well-being. Energy ties in to each of the key components in comprehensive planning. Its cost and use affects income and budgets, land use patterns and the natural environment, including air quality and water quality.

The U.S. Department of Energy awarded Charles County an Energy Efficiency and Conservation Block Grant (EECBG) in 2009. The goals of the EECBG program are to:

- Reduce fossil fuel emissions;
- Reduce the total energy use of entities eligible for funding;
- Improve energy efficiency in the building sector, transportation sector, and other appropriate sectors; and
- Create and/or retain jobs.

Charles County used a portion of this grant to develop an energy efficiency and conservation strategy to be incorporated into the Comprehensive Plan. Accordingly, this Energy Conservation chapter describes the County's existing energy conditions and identifies its energy conservation efforts, initiatives, and management programs. The transportation sector, which is a large consumer of energy, is addressed in Chapter 8 and climate change, a common energy-related concern, is discussed in Chapter 5.

Goals and Objectives

- 6.1 Reduce County-wide energy consumption and improve efficiency as a component of growth, and reduce greenhouse gas (GHG) emissions in order to grow in a more sustainable manner in the future.
- 6.2 Develop and expand the use of local, sustainable sources of energy, such as Maryland Renewable Energy Portfolio Standard Tier I and Tier II renewable energy resources.(See page 6-9 for details)
- 6.3 Reduce County-wide energy expenditures.
- 6.4 Raise awareness of energy-saving County government operations and encourage adoption by other in-house departments and non-government organizations.
- 6.5 Educate Charles County residents and businesses about opportunities to participate in energy-saving programs.
- 6.6 Grow a green economy with an increased number of jobs in the clean energy and energy efficiency sector.
- 6.7 Reduce overall energy consumption and reduce fossil fuel combustion emissions in the County's transportation sector.

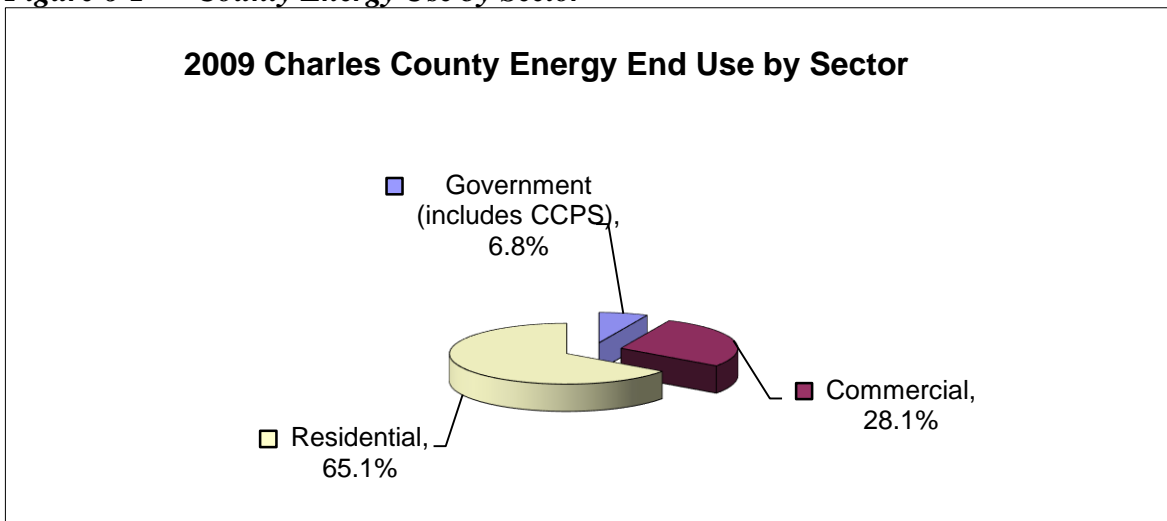
Energy Baseline

In order to develop an effective energy plan for the future, the County must first understand current energy conditions, including the amount of energy used by each sector within the County, the manner in which that energy is generated and what fuel source is used, and consumption trends. Commonly, an energy baseline is prepared to improve this understanding and against which to measure future energy reductions. In June 2012, the County completed a countywide energy baseline study (Baseline Study) for three key sectors: County government: commercial, which includes education facilities, retail, and industrial; and residential¹. The Baseline Study focuses mainly on energy use in buildings and structures but also provides a wealth of information useful for the County to develop energy strategies.

Energy Consumption

The Baseline Study reports that total energy use in 2009 was over 6,200,000 million British Thermal Units (MMBTUs) or approximately 40.3 MMBTU per capita. The largest share of total energy consumption (65 percent) is by the residential sector, and electricity accounted for a large majority (74 percent) of energy consumed across all sectors (see Figures 6-1 and 6-2).

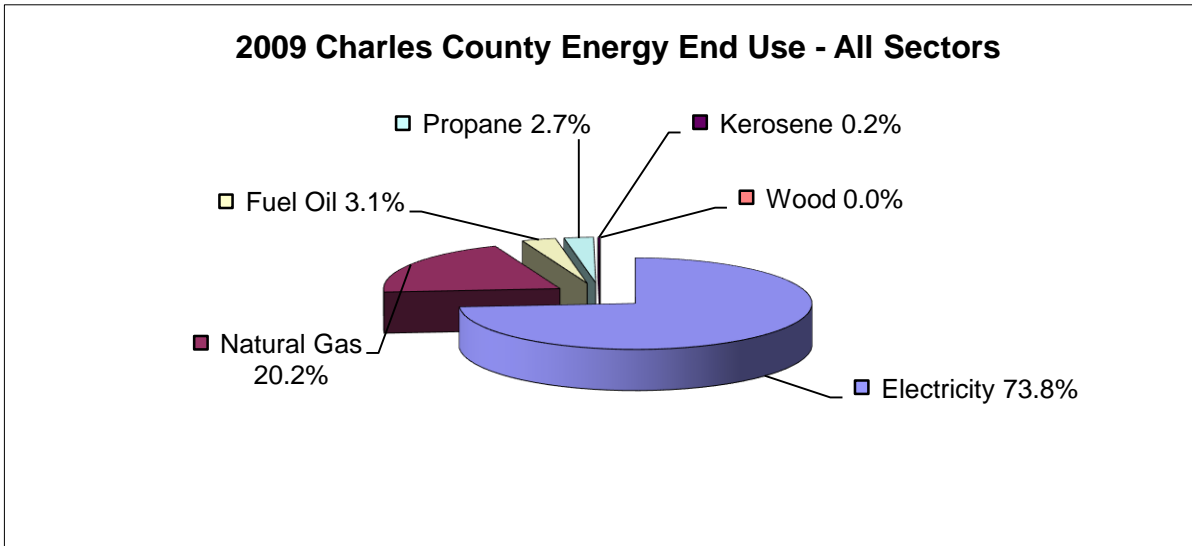
Figure 6-1 County Energy Use by Sector



Notes: CCPS = Charles County Public Schools
Source: Baseline Energy Consumption Inventory Study, June 2012.

¹ Baseline Energy Consumption Inventory Study”, prepared for Charles County, Maryland, June 2012, Meridian Ventures, Inc.

Figure 6-2 County Energy Use by Energy Source



Notes: CCG = Charles County Government; CCPS = Charles County Public Schools; IH = Town of Indian Head; LP = Town of La Plata.

Source: Baseline Energy Consumption Inventory Study, June 2012.

Table 6-1 shows a break-down of 2009 energy consumption for the Charles County’s government, commercial, and residential sectors. Energy consumption by the commercial and residential sectors far outweighs that of the government sector, accounting for over 90 percent of the County’s total energy consumption. Purchased electricity comprises the vast majority of energy consumption in each sector. Natural gas is the second largest source of energy consumed in the County, mainly in the commercial and residential sectors, which utilize natural gas for around 19 and 23 percent of total energy needs, respectively. Within the Government sector, purchased electricity accounts for 75 percent of total energy consumption, the majority of which is used to power government buildings. Of the 135 utility buildings and facilities that make up the government sector, the Mattawoman Wastewater Treatment Plant (WWTP) is both the largest facility and the single largest energy consumer in the County (37 percent of total energy consumed county-wide in 2009).

Table 6-1 Charles County Energy Use Baseline Inventory

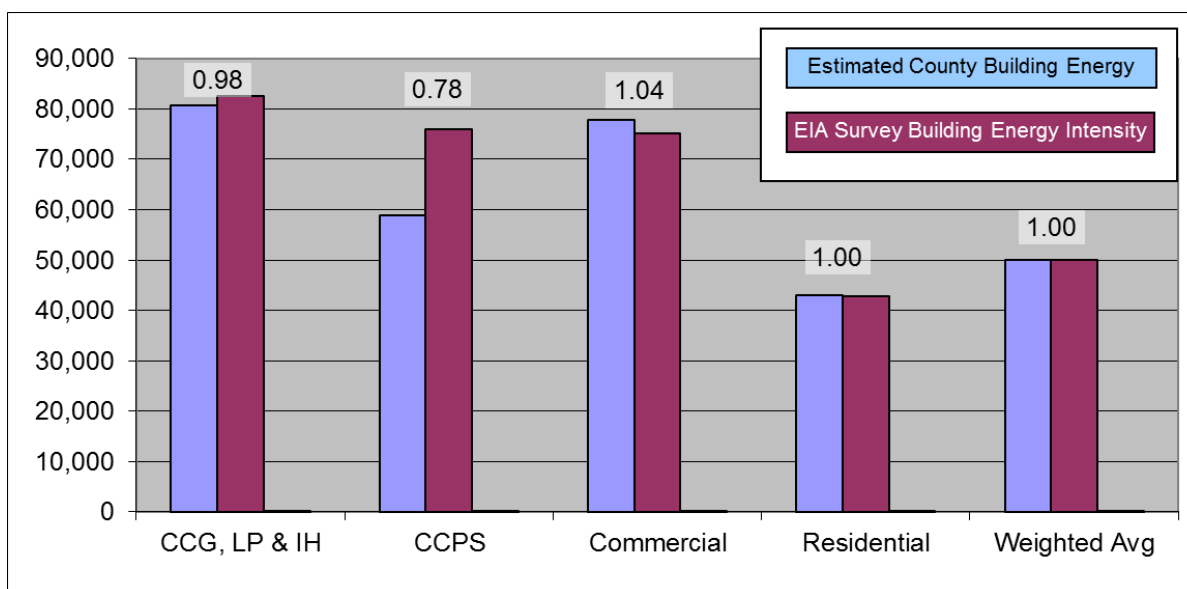
	Annual Energy Usage (2009)		
	BTU Equivalent ⁽¹⁾ (MMBTU)	% within Sector	% of all Uses
Government Sector			
Purchased Electric - Buildings	217,970	51%	3.5%
Purch Electr - CCG Utility Services	101,318	24%	1.6%
Natural Gas	11,056	2.6%	0.2%
Other	95,811	22%	1.5%
	426,156	100%	6.8%
Commercial Sector			
Purchased Electric - All except IH	1,319,444	75%	21%
Purch Electr - NSWC-IH	101,010	5.8%	1.6%
Natural Gas	324,675	19%	5.2%
Other (Fuel Oil)	7,316	0.4%	0.1%
	1,752,445	100%	28%
Residential Sector			
Purchased Electricity	2,858,584	70%	46%
Purch Electr - Res Util Svcs	8,350	0.2%	0.1%
Natural Gas	926,413	23%	15%
Other	272,049	6.7%	4.4%
	4,065,396	100%	65%
TOTAL ALL SECTORS			
Purchased Electric - Buildings	4,395,998	70%	70%
Purchased Electr - Utility Services	101,318	1.6%	1.6%
Purch Electr - NSWC-IH	101,010	1.6%	1.6%
Purch Electr - Res Util Svcs	8,350	0.1%	0.1%
Natural Gas	1,262,144	20%	20%
Other	375,176	6.0%	6.0%
	6,243,997	100%	100.0%

Source: Baseline Energy Consumption Inventory Study, Table 1.8, June 2012.

(1) Converted to BTU equivalent.

The Baseline Study also evaluated the performance of County buildings from an energy perspective as compared to regional averages. As shown in Figure 6-3, on a weighted average basis, buildings in Charles County use energy in a manner consistent with the U.S. Energy Information Agency's regional average for energy intensity (energy consumed per square foot, sf). Government buildings in the County performed 20 percent better than the regional average, largely as a result of the efficient operation of Charles County Public Schools' buildings. Commercial properties performed slightly less efficiently than the regional average. This is largely due to this sector in Charles County including many small properties with varying building ages that are managed individually and with wide-ranging end uses.

Figure 6-3 Annual Energy Performance of County Buildings (in BTU/sf)



Notes: BTU = British Thermal Unit; CCG = Charles County Government; LP = Town of La Plata; IH = Town of Indian Head; CCPS = Charles County Public Schools.

Source: Baseline Energy Consumption Inventory Study, June 2012.

County households, while performing similarly to the regional average on a total energy basis, consume around 47 percent more electricity than the national average.² This is because approximately 52 percent of the residences in Charles County use electricity as their primary energy source for heating over other sources, such as natural gas. Statewide and national averages for the electricity share are 29 and 33 percent, respectively.

The Baseline Study concluded that the County performs well compared to regional and national averages of energy consumption and building energy intensity, but also recognized that continued monitoring of energy use and the identification of opportunities to improve energy efficiency and reduce end user consumption would lead to cost savings across all sectors.

Electricity consumption is expected to increase state-wide and nationally for the foreseeable future if current practices are continued. Furthermore, energy-related costs are a continuing concern for the County. Over the last several years, the County government's budget for electricity, fuel oil, natural gas, propane, and water/sewer utilities has escalated due to rate increases and usage.³ Reducing or limiting these costs can free up funds for other County programs.

The Baseline Study did not address upstream energy process, such as fuel source recovery (e.g., mining of coal or extraction of natural gas), fuel transport to power plants, the conversion of fuel into electricity, and delivery of the electricity to buildings over power lines, as these processes are primarily outside Charles County's control. However, the study notes that this is an important consideration in sustainable energy planning from a life cycle

² Baseline Energy Consumption Inventory Study, June 2012.

³ Charles County Department of Public Facilities, "Energy Action Plan for County Facilities: Energy Conservation Plan for County Facilities", 2010.

perspective. Losses of energy during conversion from fuel to electricity and during transport from the energy generation source, such as a power plant, to the end user can amount to as much as 80 percent of the total energy available in the fuels. Energy conservation by the end user can reduce the impacts of this wasted energy. Furthermore, implementation of small-scale renewable energy systems, such as rooftop solar panels, can offset a significant portion of the electricity purchased from the grid.

In addition to the upstream energy processes, the Baseline Study also did not address Charles County's transportation sector. When considering energy use across all sectors in the State of Maryland, the generation of electricity accounts for 46 percent of the total energy consumed and transportation fuel use represents 31 percent.⁴ Transportation fuels consumed in the State include petroleum-derived fuels, such as gasoline and diesel, along with some natural gas, propane, biodiesel and ethanol. The Baseline Study acknowledges the importance of these factors and recommends they be considered in the future.

Energy Generation and Distribution

Charles County is home to two large electricity generating centers. The Morgantown Generating Station, owned by GenOn Energy, is a 1,477-megawatt (MW)⁵ capacity power plant located on the Potomac River near Newburg in southern Charles County. Constructed in 1970, this facility burns primarily coal and fuel oil to produce electricity. In 2010, the facility purchased over 2.6 million tons of coal, which was the second largest amount for a Maryland power plant that year.⁶

The Goddard Power Plant was a coal-fired cogeneration facility built in 1957 and located on the base at the Naval Support Facility Indian Head. The Naval Support Facility Indian Head recently replaced the coal powered Goddard Power Plant with a new natural gas cogeneration facility and infrastructure that will provide steam and 3.5 megawatts of electricity to meet the facility's on-site heating and process needs. The facility, which came on line in September 2015, was constructed to improve energy efficiency and meet clean air regulations.

Two additional generating stations are located just outside Charles County, namely GenOn Energy's Chalk Point power plant and Panda Energy's Brandywine power plant. Chalk Point is located along the Patuxent River in Prince George's County and is the state's largest power plant with a capacity of 2,563 MW. This facility is fueled by coal, fuel oil, and natural gas. The Brandywine facility is a 289-MW natural gas-fired facility located in southern Prince George's County. Since 1997, approximately 1.5 million gallons per day (MGD) of treated wastewater from the Mattawoman WWTP has been piped 17 miles to Brandywine for use as facility cooling water.⁷

A new natural gas-fired power plant is under construction and will be completed in 2016 by CPV Maryland, LLC for construction on a 76-acre site located in the Piney Reach Business

⁴ Maryland Energy Administration, "2010 Maryland Energy Outlook", <http://energy.maryland.gov/documents/MEOFINALREPORTJAN2010.pdf>

⁵ 1 MW is equal to 1 million watts, which is enough to power about 250 homes during the time of highest energy usage (i.e., simultaneous peak demand).

⁶ "Maryland Power Plants and the Environment: A review of the impacts of power plants and transmission lines on Maryland's natural resources," PPRP-CEIR-16, Maryland Power Plant Research Program (PPRP), January 2012, DNR Publication No. 12-1242012-546, page 14.

⁷ Argonne National Lab, "Use of Reclaimed Water for Power Plant Cooling", August 2007. http://www.fypower.org/pdf/ANL_reclaimedwater.pdf.

Park in St. Charles. The project was originally approved for a state Certificate of Public Convenience and Necessity (CPCN) in 2008. Once completed, the new facility will have a capacity of 725 MW and use up to 5 MGD of treated effluent from the Mattawoman WWTP for cooling.^{8 9} Other generation projects within the county include a 10-MW solar facility in St. Charles, a 5.5-MW solar facility in Hughesville, and some biomass, waste to energy, and landfill gas projects.¹⁰ The County is also currently (2016) negotiating Power Purchase Agreements for the use of several County owned properties to be used for solar electricity (including the County Government Complex) in order to offset governmental use of electricity generated by fossil fuels.

Once electricity is generated, it is fed onto the electrical grid. In Charles County it is delivered to end users by Southern Maryland Electric Cooperative (SMECO). An electric cooperative is a customer-owned, not-for-profit business that delivers electricity and maintains the transmission and distribution lines electricity travels through in its service territory. SMECO's service area, shown in Figure 6-4, covers all of Charles County.

In 2013, SMECO's supplied electricity fuel mix was approximately 44 percent coal and 35 percent nuclear, due to the proximity of the coal-fired power plants described above and the Calvert Cliffs Nuclear Power plant located in eastern Calvert County (Figure 6-5). As noted above, SMECO has recently completed two solar generation projects in Charles County. One is a 5.5-MW solar generation facility in Hughesville owned by SMECO Solar LLC, a wholly-owned subsidiary of SMECO. The other is a 10-MW solar facility in Waldorf. This facility is not owned by SMECO; SMECO purchases all the energy generated from the facility and provides it to their customer-members.

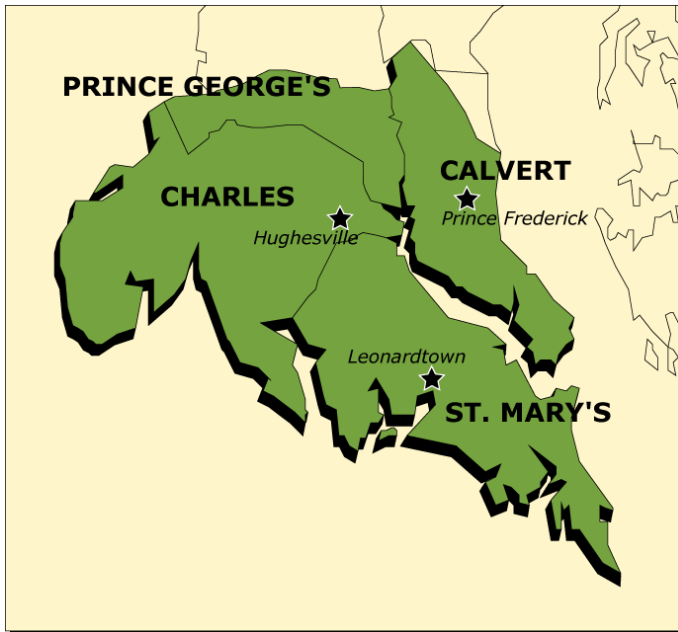
Since the passage of the Electric Customer Choice and Competition Act of 1999, electricity consumers in Maryland have the option to choose their energy supplier, which could be SMECO or another supplier, that could, for example, provide electricity generated by up to 100 percent renewable energy sources, such as wind or solar.

⁸ Maryland PPRP, "Draft Environmental Review of the Proposed CPV St. Charles Project", filed with the Public Service Commission (PSC) in July 2008, PSC Case 9129.

⁹ Maryland PPRP, "Environmental Review of the Proposed Modification to the CPV St. Charles Project", filed with the PSC in July 2012, PSC Case 9280.

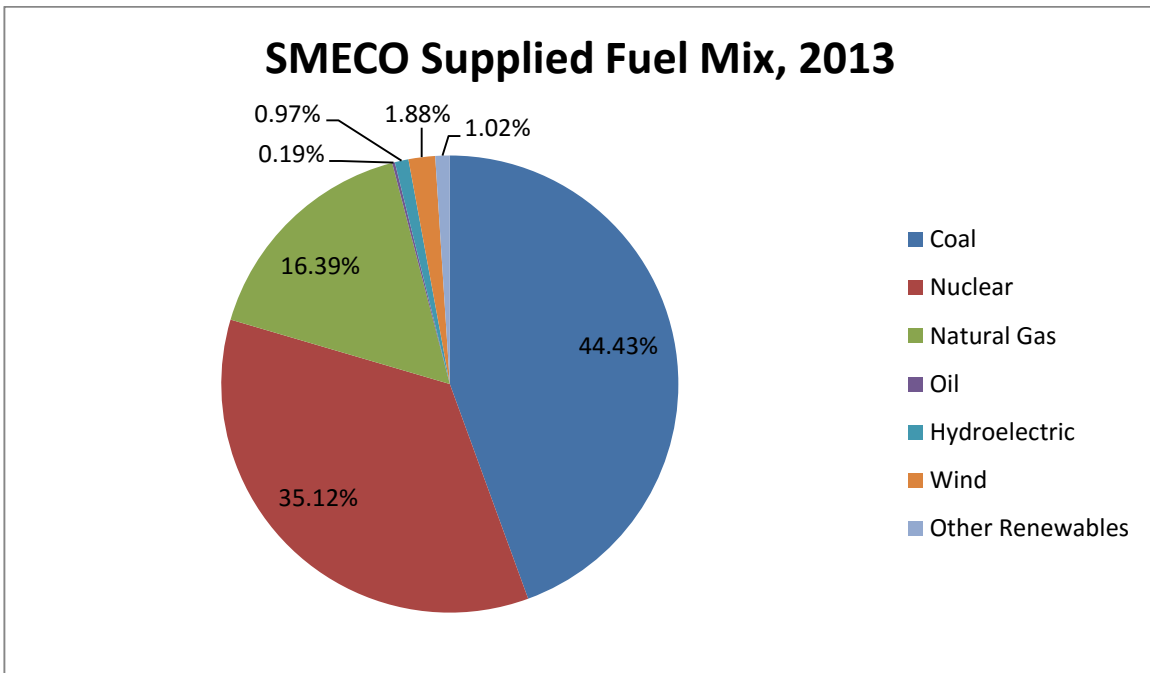
¹⁰ Baseline Energy Consumption Inventory Study, June 2012.

Figure 6-4 SMECO Service Territory, 2012



Source: SMECO website - <http://www.smeco.coop/yourCooperative/serviceArea.aspx>

Figure 6-5 SMECO's Supplied Electricity Fuel Mix, 2013



Source: SMECO website - <https://www.smeco.coop/about/environmental-info>

Current Policies, Programs, and Initiatives

The State of Maryland has enacted some of the strongest energy and environmental laws in the country. Two that focus specifically on energy are the Maryland Renewable Energy Portfolio Standard (RPS) and EmPOWER Maryland.

Maryland RPS

Several states have implemented an RPS to encourage renewable energy development and diversify their electricity generation mix. Maryland's RPS became law in 2004 and has been updated several times. The current standard mandates that electricity suppliers, such as SMECO, provide a minimum percentage of their electricity resources from Maryland-certified Tier 1 and Tier 2 renewable energy sources. Tier 1 sources include geothermal, hydroelectric facilities under 30 MW, methane, ocean, poultry litter-to-energy, qualifying biomass, solar, wind, waste-to-energy, refuse-derived fuel, and fuel cells that produce electricity from other Tier 1 renewable fuel resources. The Tier 1 RPS requirement began at 2 percent and increases annually to reach 20 percent by 2022. Also by 2022, two percent of Maryland's electricity supply must come from in-state solar facilities. Tier II sources, which include existing hydroelectric facilities over 30 MW, or additional Tier I sources must make up 2.5 percent of the state's electricity supply.¹¹ The Maryland RPS applies to utility-scale renewable energy, which improves the environmental performance of the conventional electricity mix. However, the implementation of renewable energy, especially small-scale residential or community systems, is also an important approach to effectively reduce traditionally produced electricity.

EmPOWER Maryland

The EmPOWER Maryland Energy Efficiency Act of 2008 established a statewide mandate for reducing per capita energy consumption and peak demand 15 percent from 2007 levels by 2015. The Act was designed to reduce taxpayers' energy expenses and reduce the state's Green House Gas (GHG) emissions associated with energy production and use. EmPOWER Maryland applies to all sectors and includes a low-income household energy efficiency program, utility-sponsored energy conservation initiatives (see below), and recommendations for ways residential, commercial, and government end users can reduce energy consumption. To meet the reduction targets EmPOWER Maryland identified seven priority steps, which Charles County used in its Energy Conservation Plan for County Facilities (see next section):¹²

1. Improve building operations to reduce energy consumption by 5 percent;
2. Expand the use of energy performance contracting (EPC), in which energy service companies are hired to develop, install, and finance energy efficiency projects;
3. Increase funding for the State Agency Loan Program (SALP), which may be used to fund portions of EPCs.

¹¹ Maryland Power Plant Research Program (PPRP), "Maryland Power Plants and the Environment: A review of the impacts of power plants and transmission lines on Maryland's natural resources," PPRP-CEIR-16, January 2012, DNR Publication No. 12-1242012-546, pages 167-168.

¹²Maryland Energy Administration, "EmPOWER Maryland" website, updated July 12, 2012. <http://energy.maryland.gov/facts/empower.html>.

4. Require all new state buildings over 20,000 square feet to be more energy efficient, such as constructing to the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) certification standard.
5. Purchase ENERGY STAR-qualified products where available, as well as environmentally friendly cleaning and maintenance products.
6. Expand the Community Energy Loan Program (CELP) to increase implementation of energy efficiency projects.
7. Ensure accountability by designating energy managers, conducting energy consumption analyses, and maintaining energy conservation plans.

Charles County Energy Action Policy and Plan

In response to the State's EmPOWER Maryland law, in 2010 the Charles County Department of Public Works completed an "Energy Conservation Policy for County Facilities"¹³ and an "Energy Conservation Plan for County Facilities"¹⁴. The County's Energy Conservation Policy was designed to ensure the County meets the objectives of the Energy Efficiency and Conservation Block Grant (EECBG) and EmPOWER Maryland. It identifies specific mandatory energy conservation practices, such as utilizing task lighting in lieu of overhead fluorescent lighting, turning off computer monitors when not in use, specifying building heating and cooling temperature settings, and prohibiting unnecessary personal appliances, such as warming plates and portable space heaters.

The Energy Conservation Plan is a companion to the Policy document, and is intended to introduce cost-effective and energy-efficient technologies and practices into County facilities to promote an energy conscious culture. The Plan identifies:

- The need for a robust energy baseline for all County-owned and leased facilities. With the Baseline Study that was finalized in 2012 as described above, the County now has a good initial baseline, although transportation as a key sector is missing.
- Energy efficiency measures that could be implemented immediately at little to no cost and those appropriate for short-term or long-term implementation.
- Future projects to promote energy conservation including a dedicated energy website, educational awareness for County staff and the community, educational brochures and pamphlets for visitors to County facilities, and County vehicle logo-wraps pertaining to energy conservation.

Green Codes and Standards Review

As part of the activities funded under the EECBG, Charles County commissioned a study to review and recommend amendments to the County's codes, ordinances, and guidance documents to support energy efficient and sustainable development. The Green Codes and Standards study was completed in June 2012 and includes reviews of the building code, plumbing code, fuel gas code, energy efficiency code, zoning and subdivision codes, road ordinance, Site Design and Architectural Guidelines and Standards, and others.¹⁵

¹³ Charles County Department of Public Facilities, "Energy Action Policy for County Facilities: Energy Conservation Policy for County Facilities", 2010.

¹⁴ Charles County Department of Public Facilities, "Energy Action Plan for County Facilities: Energy Conservation Plan for County Facilities", 2010.

¹⁵ exp U.S. Services, Inc., "Green Codes and Standards Study", prepared for the Charles County Department of Planning and Growth Management, June 18, 2012.

The study recommended numerous changes to codes and ordinances and consideration of several policy changes, including: requiring new County facilities to obtain LEED certification; pursuing ENERGY STAR certification for all existing County facilities; requiring LEED-accredited professionals as part of the County building inspection team; a County property tax credit incentive program to encourage residents to achieve a minimum level of green building certification; an expedited permitting process for LEED certified commercial and multi-family projects; changing the zoning ordinance to reduce the levels of required parking; and adding bicycle storage or giving preferential parking to carpools.

The County adopted several of the code amendments to implement the recommendations of the Green Codes study and will continue to work on new legislation to further implement this plan after its adoption in 2016.

Other programs and initiatives

St. Charles

St. Charles, one of the largest planned communities in the northeast U.S has a Green Initiative under which commercial and residential buildings have been constructed to high energy efficiency standards and existing homes and businesses are being evaluated for efficiency upgrades. The St. Charles Companies office in St. Charles achieved LEED Gold certification in 2012. The office uses 63 percent less water than a typical office due to low flow plumbing fixtures and a rainwater cistern for toilet flushing. The building earned a LEED innovation point for being used as an educational tool.

SMECO

Charles County's electricity supplier, SMECO, offers a wealth of energy conservation tips, programs, and rebates for commercial and residential customers on its website (<http://www.smeco.coop/saveEnergy/index.aspx>). Examples include:

- A free, one-hour Quick Home Energy Check-up of insulation, air tightness, heating and cooling systems, windows and doors, and lighting and appliances. During the check-up, at least three types of energy-saving devices, such as compact fluorescent lights (CFLs), faucet aerators, and hot and cold pipe insulation wraps, are professionally installed. Alternatively, SMECO offers for purchase a \$100 ENERGY STAR audit which uses advanced diagnostics and includes rebates of up to \$2,750 for energy efficiency improvements, such as HVAC equipment and insulation.
- Free pick-up and recycling for an old refrigerator or freezer in working order, plus a \$50 rebate.
- ENERGY STAR rebate applications for new appliances, ranging from \$25 to \$350 depending on the appliance.
- SMECO's CoolSentry Load Management Program¹⁶, which allows SMECO to cycle a user's A/C unit or heat pump on and off during times of increased demand. The program includes the installation of a free programmable thermostat, an annual \$50 bill credit.

¹⁶ <http://www.smecocoolsentry.com>

Energy conservation and renewable energy incentive programs

Energy conservation and renewable energy incentive programs abound at the local, state, and federal levels. A detailed summary is included in the Energy Baseline Study. (The Study is available through the County Department of Planning & Growth Management). State and federal tax credits or exemptions exist for buildings using biodiesel for space heating; for the production of electricity generated by wind, geothermal energy, solar energy, hydropower, small irrigation power, municipal solid waste, and biomass resources; construction or rehabilitation of buildings at least 20,000 square feet to U.S. Green Building Council standards; and qualified renewable energy systems (property and sales tax exemptions). Numerous State and federal loan, grant, and rebate programs currently apply to energy conservation and efficiency improvement projects, upgrading electrical equipment to more efficient models, and the installation of renewable energy systems, such as geothermal heat pumps, solar-electric panels, solar water heaters, and small-scale (1 to 100 kW) wind energy systems.

Geothermal Energy

The County used part of its Energy Efficiency and Conservation Block Grant to investigate opportunities for implementing geothermal energy systems in Charles County with particular focus on the Waldorf Urban Revitalization Corridor and Fieldside, a 625-unit subdivision within St. Charles, as case studies.¹⁷ Geothermal energy entails tapping into consistent underground temperatures to heat and cool above ground spaces. It is considered a renewable energy because the temperature remains relatively constant at 55°F; any dissipated heat is replenished by the Earth's core. Geothermal systems can be implemented at the residential, commercial, community, and utility-scale.

The Study concluded that Charles County is a good location for geothermal energy projects due to the available geothermal resource and favorable federal and state incentives. As it is generally more efficient and cost effective to implement a geothermal system as part of new building construction versus retrofitting existing buildings, these systems are best considered at the planning stages for new developments. Individual development projects or phasing of geothermal energy systems will be considered for the Waldorf Urban Redevelopment Corridor as it progresses.

Improved Energy Tracking

The County Energy Manager implemented a web-based Energy Watchdog program in 2009. This program became the first-ever means of recording and accurately benchmarking all utility usages and costs across the County. The program analyzed and tracked monthly and quarterly utility bill information for electricity, natural gas, water/sewer, fuel oil, telephone, propane, and trash, and is capable of identifying problematic information. The data received from this program helped to assist the County to better understand energy usage, costs, and performance tracking. After initial use of this program, the County is considering other methods for tracking energy use and associated costs.

Targeted Education & Promotional Programs

Charles County's targeted education and promotional programs include:

¹⁷ Golder Associates, "Community Geothermal Energy Study, Charles County, Maryland", January 2012.

- Employee Energy Awareness Program
- Community Outreach Programs such as Green Expos and Symposiums

Organizational Considerations

The Charles County Government has made energy conservation a priority in recent years. As identified in the Energy Conservation Policy¹⁸, the County's Department of Public Works, Division of Building and Trades serves as the County Energy Manager. The Energy Manager coordinates the energy conservation program for county-owned and leased facilities and manages the participation of the Energy Committee. This committee is made up of individuals appointed by each Department to serve as an Energy Steward and work collaboratively with the Energy Manager, County Commissioners, and the County Administrator to develop and institute energy goals and guidelines and disseminate information.

Policies and Actions

Policies

- 6.1 Continue to follow the Energy Conservation Policy for Charles County facilities. Use energy cost savings attributed to the Policy's conservation measures to promote and improve energy reduction within County facilities.
- 6.2 Develop a sense of ownership for the ways energy is consumed by integrating energy education and including County staff and other facility occupants in energy decisions that affect how individual sites operate.
- 6.3 Lead the entire Charles County community by exhibiting best practices of energy conservation within County Government.
- 6.4 Continue to examine energy data to identify new use and efficiency trends and opportunities within both the public and private sectors.

Actions

1. Continue to implement the recommendations in the Green Codes and Standards Study.
2. Expand upon the 2012 Energy Baseline Study to include the following:
 - a. Transportation sources and quantify transportation fuel consumption and related transportation system design metrics;
 - b. A breakdown of the commercial sector into sub-categories that separates industrial users, such as warehouses and factories, from less energy intensive commercial users, such as retail and office buildings; and
 - c. Include more details on upstream energy processes, such as energy sources, conversion processes, and transportation.

¹⁸ Charles County Department of Public Facilities, "Energy Action Policy for County Facilities: Energy Conservation Policy for County Facilities", written by Jeffrey Sheckels, Division Chief Buildings & Trades, 2010.

3. Continue to monitor energy usage intensities and trends and expand monitoring to all sectors, including transportation.
4. Investigate local, sustainable energy technologies, including solar and geothermal, for use in new construction and major renovations.
5. Continue to evaluate the feasibility of implementing renewable energy upgrades, such as solar water heaters and rooftop solar, at existing County facilities.
6. Implement the recommendations of the 2012 Energy Baseline Study, which include:
 - a. Consider applying the energy management program implemented by the Charles County Public School System to other government sectors and institutions.
 - b. Establish an Energy Conservation and Sustainability Working Group of energy suppliers, consumers, developers, and others to share information on a regular basis, update and help disseminate County energy data, establish and monitor benchmarks, and recommend changes to local policies and incentives.
 - c. Because of the Mattawoman WWTP's large energy consumption, conduct a follow-up study to determine the impact of nutrient reduction or other upgrades on energy use and identify operational adjustments that may result in future energy reductions.
7. Implement the conservation measures identified in the County's Energy Conservation Plan. The following are examples (see the Conservation Plan for complete list

Immediate and short-term implementation:

- a. Turning off lights in offices and common areas when not in use;
- b. Delamping (removing one or more lamps from multi-lamp fixtures or unneeded fixtures);
- c. Unplug electrical convenience items, such as cell phone chargers, radios, and coffee pots, to eliminate "vampire or phantom loads";
- d. Turn off monitors and completely shut down computers when not in use, especially during evening hours and over the weekends and holidays;
- e. Implement standard seasonal thermostat temperature settings;
- f. Implement energy saving methods for County vending machines;
- g. Develop comprehensive procedures for procuring and installing energy efficient (ENERGY STAR-rated) electrical products; and
- h. Provide energy conservation stewardship through the actions of the Energy Conservation Committee, including educating all County staff on the importance of the energy conservation program.

Long-term implementation

- a. Conduct an energy audit for all County buildings;
- b. Incorporate energy efficiency guidelines for all new and existing buildings;
- c. Purchase only ENERGY STAR equipment;
- d. Evaluate the replacement of lighting fixtures, windows, and heating and cooling systems with more energy efficient equipment; and
- e. Evaluate water conservation measures, such as low-flow toilets and faucets.

8. Evaluate the adoption of environmentally preferable purchasing policies for products and services.

Acknowledgment:

This material (Chapter 6, Energy Conservation) is based upon work supported by the U.S. Department of Energy under Award Number DE-SC0003420).