



Justifying Sustainability Through Cost Savings

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Maryland's Green Purchasing Program

- Established in 2010 by the **Green Maryland Act**
- Created an Inter-Agency **Green Purchasing Committee (GPC)**
- The GPC is tasked with:
 - Integrating Green Purchasing Across Procurements
 - Developing Specifications and Resources
 - Reporting Annually to the Legislature



Maryland's Annual Report for FY2020!



<https://dgs.maryland.gov/Annual%20Reports/2020MarylandGreenPurchasingAnnualReport.pdf>




Maryland Green Purchasing Committee

DGS.buygreen@maryland.gov

dgs.maryland.gov/Pages/GreenPurchasing/Index.aspx







Quantifying Benefits: Yes, Cost Savings Do Exist!

Benefits From Maryland's Green Purchasing Program in FY 2020!

| Total Environmental Benefits | | | | | | |
|------------------------------|-------------------------|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|--------------------------|
| Product Category | Environmental Attribute | CO2e Emissions Reductions (Metric Tons) | Equivalent To: | | | Cost Savings |
| | | | Removing Cars Off the Road  | Carbon Sequestered by US Forests in Acres  | Electricity Usage of Homes  | |
| Electronic and IT Products | EPEAT Silver and Gold | 2,612 | 564 | 3,411 | 442 | \$759,494 |
| Lighting | Energy Efficiency | 519 | 112 | 678 | 87.9 | \$61,685.30 ⁸ |
| Copy Paper | Recycled Content | 420 | 90.7 | 548 | 71.1 | NA |
| Solar and Wind Energy | Renewable Resource | 154,608 | 33,402 | 201,911 | 26,176 | NA |
| Total | | 158,159 | 34,168.7 | 206,548 | 26,777 | \$ 821,179.30 |

Counting the Benefits - Electronic and IT Products

Benefits of Buying Green Electronic and IT Products

| GHG Emission Reductions: 2,612 metric tons of CO ₂ e | | | Reduction in Non-Hazardous Solid Waste Generated | Toxics Reduction | Material Usage Reduction |
|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| <i>Equivalent To:</i> | | | <i>Equivalent To:</i> | | |
|  |  |  |  |  |  |
| Removing 564 cars from the road for 1 year. | Carbon sequestered by 3,411 acres of US forests in 1 year. | Electricity usage of 442 Homes for 1 year. | Eliminating 112 US Households' waste per year | 444 Fewer Bricks of Hazardous Waste | Saving 37 18- Wheelers worth of material |

Cost Savings: \$759,494

The State of Maryland is required by law to buy EPEAT Silver and Gold Products.

How were these calculations made?

1. **EPEAT Benefits Calculators:**
 - a. Mobile Phones, Servers, Computers and Displays:
<https://greenelectronicscouncil.org/epeat-benefits-calculator/>
 - b. Imaging Equipment:
<http://app2.erg.com/EEBC-Imagingv1/ebcCalculator.do>
2. Plug the Greenhouse Gas Emission Reduction Values Into **EPA's Greenhouse Gas Equivalencies Calculator:**
 - a. <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>

Counting the Benefits - Lighting Products

Benefits of Buying LEDs
10,643 LEDs purchased

GHG Emission Reductions: 519 metric tons of CO₂e

Equivalent To:



Removing **112** cars from
the road for **1** year.

Carbon
sequestered by
678 acres of US
forests in **1** year.

Electricity usage of **87.9** Homes
for **1** year.

Cost Savings: \$61,685.30

How were these calculations made?

1. Use **LED Lighting Calculators** to calculate **annual** cost savings and energy savings.
 - a. Note: The values are for annual usage. Typically LEDs may have a lifespan of 5-10 years (but can be higher).
 - b. Calculated values can be multiplied by the expected lifecycle of bulb in to calculate cost savings for total lifespan.
2. Plug the kWh savings into **EPA's Greenhouse Gas Equivalencies Calculator**:
 - a. <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>


Closer Look at Calculating Lighting Benefits

Benefits can be calculated using the following table. An example has been provided in row 3 and formulas included in row 4.

| A | B | C | D | E | F | G | H | I | J |
|------------------|----------------------|------------------------|--------------------------------------|---------------------|---------------------------|--------------------------|---------------------------------------------------|---------------------------|----------------------------------|
| Lighting Product | # of Units Purchased | Wattage of LED Product | Wattage of Product That LED Replaces | Difference in Watts | Watts Saved for all units | # of Hours Lights Are On | # of kWhs of Electricity Saved With This Purchase | Electricity Cost (\$/kWh) | Annual Total Electricity Savings |
| LED 1 | 20 | 38 | 100 | 62 | 1240 | 2080 | 2579 | \$.084 | \$216.65 |
| | | | | D-C | B*E | | (F*G)/1000 | | H*I |

Closer Look at Calculating Lighting Benefits

1. **Energy Star Qualified Lighting Calculator:**
https://www.energystar.gov/ia/partners/promotions/change_light/downloads/fixture.html
2. **Energy Star Qualified Lighting Calculator -- Excel Sheet:**



Google lighting calculator energy star

About 55,100,000 results (0.55 seconds)

www.energystar.gov > change_light > downloads > fixt...
Lighting Fixture Calculator - Energy Star
Update any fields to evaluate another scenario. Light fixture type. Ceiling/ Wall Lamps, Outdoor Fixtures, Torchiere, Desk Lamps. Standard light fixture wattage.

www.energystar.gov > document > light_bulb_calculator > XLS
Light Bulbs Calculations for the ENERGY STAR
This calculator was developed by U.S. EPA and DOE to estimate the energy consumption and operating costs of light bulbs and the savings with ENERGY STAR.

Savings Calculator for ENERGY STAR Qualified Light Bulbs

This calculator was developed by U.S. EPA and DOE to estimate the energy consumption and operating costs of light bulbs and the savings with ENERGY STAR. New ENERGY STAR qualified compact fluorescent lighting is compared to the average available new conventional light bulbs. Actual savings may vary based on use and other factors. [See www.energystar.gov](http://www.energystar.gov) for information on other ENERGY STAR products.

Where will your lighting be used?






Commercial or residential use:
Location: U.S. average commercial electric rate is \$0.103/kWh. If you know your own rate, enter it below.
Electric Rate (\$/kWh):

What light bulbs are you planning to purchase? Enter quantities below, then either fill in product information or use the defaults.

| General Purpose CFL/LED (Omnidirectional) | Quantity | Comparable incandescent or halogen bulb | | ENERGY STAR bulb | Average daily use (hours) | Additional cost per unit for ENERGY STAR bulb | Rated lifetime of ENERGY STAR bulb (hours) | Optional: | |
|-------------------------------------------|--------------------------------|---------------------------------------------------|---------------------------------------------------|---------------------------------------------------|----------------------------------|-----------------------------------------------|----------------------------------------------------|-------------------------------------|---------------------------------------|
| | | | | | | | | Labor cost per bulb replacement | Incentive or discount amount per bulb |
| Bulb 1 | <input type="text" value="0"/> | <input type="text" value="Please select a bulb"/> | <input type="text" value="Please select a bulb"/> | <input type="text" value="Please select a bulb"/> | <input type="text" value="0.0"/> | | <input type="text" value="Please select a value"/> | <input type="text" value="\$0.00"/> | |
| Bulb 2 | <input type="text" value="0"/> | <input type="text" value="Please select a bulb"/> | <input type="text" value="Please select a bulb"/> | <input type="text" value="Please select a bulb"/> | <input type="text" value="0.0"/> | | <input type="text" value="Please select a value"/> | <input type="text" value="\$0.00"/> | |
| Bulb 3 | <input type="text" value="0"/> | <input type="text" value="Please select a bulb"/> | <input type="text" value="Please select a bulb"/> | <input type="text" value="Please select a bulb"/> | <input type="text" value="0.0"/> | | <input type="text" value="Please select a value"/> | <input type="text" value="\$0.00"/> | |
| Bulb 4 | <input type="text" value="0"/> | <input type="text" value="Please select a bulb"/> | <input type="text" value="Please select a bulb"/> | <input type="text" value="Please select a bulb"/> | <input type="text" value="0.0"/> | | <input type="text" value="Please select a value"/> | <input type="text" value="\$0.00"/> | |
| Bulb 5 | <input type="text" value="0"/> | <input type="text" value="Please select a bulb"/> | <input type="text" value="Please select a bulb"/> | <input type="text" value="Please select a bulb"/> | <input type="text" value="0.0"/> | | <input type="text" value="Please select a value"/> | <input type="text" value="\$0.00"/> | |
| LED - flood/spot reflector | | | | | | | | | |
| Bulb 1 | <input type="text" value="0"/> | <input type="text" value="Please select a bulb"/> | <input type="text" value="Please select a bulb"/> | <input type="text" value="Please select a bulb"/> | <input type="text" value="0.0"/> | | <input type="text" value="Please select a value"/> | <input type="text" value="\$0.00"/> | <input type="text" value="\$0.00"/> |
| Bulb 2 | <input type="text" value="0"/> | <input type="text" value="Please select a bulb"/> | <input type="text" value="Please select a bulb"/> | <input type="text" value="Please select a bulb"/> | <input type="text" value="0.0"/> | | <input type="text" value="Please select a value"/> | <input type="text" value="\$0.00"/> | <input type="text" value="\$0.00"/> |

[Click here to go to the RESULTS tab and see your savings.](#)

Other Calculators

| Benefits of Buying Recycled Copy Paper | | | |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| GHG Emission Reductions: 420 metric tons of CO ₂ e | | | |
| Equivalent To: | | | |
|  |  |  | |
| Removing 90 cars from the road for 1 year. | Carbon sequestered by 548 acres of US forests in 1 year. | Electricity usage of 71 Homes for 1 year. | |
| Additional Reductions In: | | | |
|  |  |  |  |
| 889.1 million BTUs. of Energy | 168,880 gallons of Water | 19 lbs. of Hazardous Air Pollutants | 6,937 lbs. of Solid Waste |
| Conservation of: | | | |
|  | |  | |
| 32 acres of forest ecosystems | | 321 metric tons of wood | |

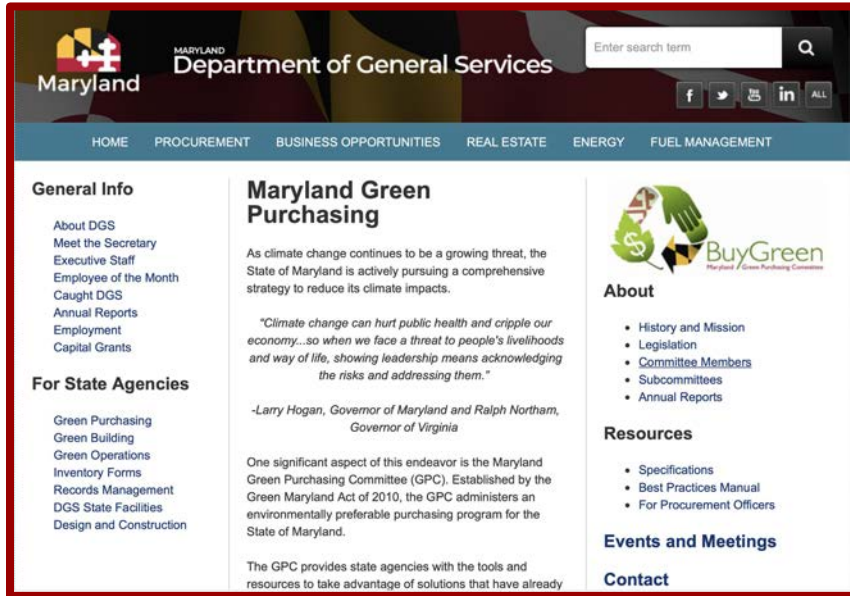
Recycled Paper Benefits Calculator:

- <https://c.environmentalpaper.org>

EPA's Recycled Content (ReCon) Tool:

- <https://www.epa.gov/warm/recycled-content-recon-tool>

GPC Website and Resources



The screenshot shows the Maryland Department of General Services website. The header includes the Maryland logo, the text "MARYLAND Department of General Services", a search bar, and social media icons for Facebook, Twitter, YouTube, LinkedIn, and All. The navigation menu includes: HOME, PROCUREMENT, BUSINESS OPPORTUNITIES, REAL ESTATE, ENERGY, and FUEL MANAGEMENT. The main content area is titled "Maryland Green Purchasing" and features a "BuyGreen" logo. The page is organized into several sections: "General Info" (About DGS, Meet the Secretary, Executive Staff, Employee of the Month, Caught DGS, Annual Reports, Employment, Capital Grants), "For State Agencies" (Green Purchasing, Green Building, Green Operations, Inventory Forms, Records Management, DGS State Facilities, Design and Construction), "About" (History and Mission, Legislation, Committee Members, Subcommittees, Annual Reports), "Resources" (Specifications, Best Practices Manual, For Procurement Officers), "Events and Meetings", and "Contact". A quote from Governor Larry Hogan is also present: "Climate change can hurt public health and cripple our economy...so when we face a threat to people's livelihoods and way of life, showing leadership means acknowledging the risks and addressing them."

One-Stop Shop for Green Purchasing:

- ❖ Legislation
- ❖ Specifications
- ❖ Resources for Procurement Officers
- ❖ GPC Events and Meetings

<https://dgs.maryland.gov/Pages/GreenPurchasing/index.aspx>

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