Executive Order 2019-01 establishes the goal to strive to achieve a 26% reduction of net greenhouse gas emissions statewide by 2025, and an 80% reduction of net greenhouse gas emissions by 2050 (from 2005 levels).
Commonwealth Agency Goals

Reduce
- Overall energy consumption by 3% per year, and 21% by 2025 from 2017 levels;

Replace
- 25% of the state passenger fleet with Battery Electric Vehicles and Plug-In Hybrid Electric Vehicles by 2025;

Procure
- Renewable energy to offset at least 40% of the Commonwealth’s annual electricity, and/or directly purchase renewable power generation sited within PA;

Build
- New buildings, major renovations, build to suit leased buildings to high performance building standards.
The GreenGov Council is chaired by the Secretaries of the Department of General Services (DGS), Department of Environmental Protection (DEP) and the Department of Conservation & Natural Resources (DCNR):

Secretary Curt Topper, DGS

Secretary Patrick McDonnell, DEP

Secretary Cindy Adams Dunn, DCNR
GreenGov Annual Report

- **Executive Summary** of the GreenGov Program and **Agency Efforts**
- **Communications Tool** for Reporting Program Status to **Public Stakeholders**
- **Baseline Creation** of the Commonwealth’s Energy Portfolio for **Energy Benchmarking**
GreenGov Annual Report – Recommendations

- **Increase Participation** in the Utility Benchmarking Initiative
- **Expand the Fuel-Efficient Vehicle Fleet** Including Electric and Hybrid Options
- **Install Solar Power Arrays** Including Ground-Mounted Options
- **Attain High-Performance Building Certifications** ENERGYSTAR, LEED, etc.
- **Implement Sustainability Measures** Including Agency Sustainability Teams
## Renewable Energy – Procure 40% Annually

<table>
<thead>
<tr>
<th>Partner Name</th>
<th>Annual Green Power Usage (kWh)</th>
<th>GP % of Total Electricity Use*</th>
<th>Industry</th>
<th>Green Power Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Google Inc.</td>
<td>5,921,710,873</td>
<td>107%</td>
<td>Technology &amp; Telecom</td>
<td>Biogas, Solar, Wind</td>
</tr>
<tr>
<td>2. Microsoft Corporation</td>
<td>5,335,585,000</td>
<td>100%</td>
<td>Technology &amp; Telecom</td>
<td>Solar, Wind</td>
</tr>
<tr>
<td>3. Intel Corporation</td>
<td>3,897,829,084</td>
<td>101%</td>
<td>Technology &amp; Telecom</td>
<td>Geothermal, Solar, Wind</td>
</tr>
<tr>
<td>34. Ahold USA</td>
<td>358,748,135</td>
<td>20%</td>
<td>Retail</td>
<td>Solar, Wind</td>
</tr>
<tr>
<td>35. Commonwealth of Pennsylvania</td>
<td>353,978,000</td>
<td>44%</td>
<td>Govt. (State)</td>
<td>Various</td>
</tr>
<tr>
<td>37. City of Austin, TX</td>
<td>333,805,639</td>
<td>100%</td>
<td>Govt. (Local, Municipal)</td>
<td>Wind</td>
</tr>
</tbody>
</table>
## Energy Reduction – 3% Annually


<table>
<thead>
<tr>
<th>Known Electric Meters</th>
<th>Known Nat. Gas &amp; Steam Meters</th>
<th>State Reporting Agency</th>
<th>Normalized Use (MMBtu)</th>
<th>FY 2017 Baseline MMBtu</th>
<th>FY 2018 Current MMBtu</th>
<th>Percentage Change</th>
<th>Metric Tons CO2 Reduction</th>
<th>Known Meter Count</th>
<th>Percent of Meters Reported</th>
</tr>
</thead>
<tbody>
<tr>
<td>220</td>
<td>70</td>
<td>Dept of Corrections</td>
<td>[Green]</td>
<td>669,213</td>
<td>655,073</td>
<td>-2.1%</td>
<td>1,352</td>
<td>290</td>
<td>58%</td>
</tr>
<tr>
<td>47</td>
<td>29</td>
<td>Dept of General Services</td>
<td>[Blue]</td>
<td>598,249</td>
<td>588,601</td>
<td>-1.6%</td>
<td>1,062</td>
<td>76</td>
<td>75%</td>
</tr>
<tr>
<td>191</td>
<td>657</td>
<td>Dept of Military and Veterans Affairs</td>
<td>[Red]</td>
<td>446,876</td>
<td>434,087</td>
<td>-2.9%</td>
<td>530</td>
<td>848</td>
<td>82%</td>
</tr>
<tr>
<td>71</td>
<td>17</td>
<td>Dept of Human Services</td>
<td>[Yellow]</td>
<td>346,091</td>
<td>318,019</td>
<td>-8.1%</td>
<td>1,558</td>
<td>88</td>
<td>63%</td>
</tr>
<tr>
<td>3,245</td>
<td>141</td>
<td>Dept of Transportation</td>
<td>[Black]</td>
<td>269,549</td>
<td>260,334</td>
<td>-3.4%</td>
<td>619</td>
<td>3,386</td>
<td>75%</td>
</tr>
<tr>
<td>1,876</td>
<td>45</td>
<td>Dept of Conservation and Natural Resources</td>
<td>[Green]</td>
<td>80,593</td>
<td>80,108</td>
<td>-0.6%</td>
<td>84</td>
<td>1,921</td>
<td>62%</td>
</tr>
<tr>
<td>7</td>
<td>3</td>
<td>Dept of Labor and Industry</td>
<td>[Blue]</td>
<td>65,085</td>
<td>64,572</td>
<td>-0.8%</td>
<td>65</td>
<td>10</td>
<td>80%</td>
</tr>
<tr>
<td>1,051</td>
<td>79</td>
<td>PA State Police</td>
<td>[Red]</td>
<td>42,364</td>
<td>41,164</td>
<td>-2.8%</td>
<td>100</td>
<td>1,130</td>
<td>5%</td>
</tr>
<tr>
<td>80</td>
<td>18</td>
<td>PA Fish and Boat Commission</td>
<td>[Black]</td>
<td>31,110</td>
<td>30,847</td>
<td>-0.8%</td>
<td>(53)</td>
<td>98</td>
<td>68%</td>
</tr>
<tr>
<td>145</td>
<td>12</td>
<td>PA Historical and Museum Commission</td>
<td>[Green]</td>
<td>28,147</td>
<td>27,506</td>
<td>-2.3%</td>
<td>106</td>
<td>157</td>
<td>64%</td>
</tr>
<tr>
<td>7</td>
<td>5</td>
<td>PA Emergency Management Agency</td>
<td>[Blue]</td>
<td>25,026</td>
<td>25,320</td>
<td>1.2%</td>
<td>(65)</td>
<td>12</td>
<td>50%</td>
</tr>
<tr>
<td>113</td>
<td>7</td>
<td>Dept of Environmental Protection</td>
<td>[Red]</td>
<td>20,362</td>
<td>21,228</td>
<td>4.3%</td>
<td>(77)</td>
<td>120</td>
<td>71%</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
<td>Dept of Revenue</td>
<td>[Black]</td>
<td>12,340</td>
<td>11,547</td>
<td>-6.4%</td>
<td>64</td>
<td>7</td>
<td>71%</td>
</tr>
<tr>
<td>224</td>
<td>10</td>
<td>PA Game Commission</td>
<td>[Green]</td>
<td>10,139</td>
<td>10,279</td>
<td>1.4%</td>
<td>(42)</td>
<td>234</td>
<td>55%</td>
</tr>
<tr>
<td>22</td>
<td>1</td>
<td>Dept of Health</td>
<td>[Blue]</td>
<td>9,475</td>
<td>9,778</td>
<td>3.2%</td>
<td>(88)</td>
<td>23</td>
<td>30%</td>
</tr>
<tr>
<td>10</td>
<td>5</td>
<td>Dept of Agriculture</td>
<td>[Red]</td>
<td>1,141</td>
<td>1,092</td>
<td>-4.3%</td>
<td>7</td>
<td>15</td>
<td>40%</td>
</tr>
<tr>
<td><strong>7,314</strong></td>
<td><strong>1,101</strong></td>
<td></td>
<td></td>
<td><strong>2,655,761</strong></td>
<td><strong>2,679,554</strong></td>
<td><strong>-2.9%</strong></td>
<td><strong>5,242</strong></td>
<td><strong>8,415</strong></td>
<td><strong>61%</strong></td>
</tr>
</tbody>
</table>
### High Performance Buildings

#### Commonwealth-Owned High Performance Building Delivery
Projects in Construction & Planned

<table>
<thead>
<tr>
<th>Number</th>
<th>Agency</th>
<th>Project</th>
<th>Location</th>
<th>Project Description</th>
<th>Green Standard</th>
<th>Square Footage</th>
<th>Anticipated Delivery</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Department of Conservation &amp; Natural Resources</td>
<td>Construct New Visitor Center and Office</td>
<td>Hickory Run State Park, Carbon County</td>
<td>Construct new combined visitor center and office for visitor contact, campground check-in, general park administration, visitor interpretive programming and education. Building to include LEED Certification.</td>
<td>LEED Certification</td>
<td>13,300</td>
<td>Construct 2020</td>
<td>$6.53 M</td>
</tr>
<tr>
<td>2</td>
<td>Game Commission</td>
<td>Construct Replacement Regional Office Facility</td>
<td>South-Central Regional Office, Huntingdon County</td>
<td>Demoilish existing facility and construct energy-efficient replacement utilizing high performance building envelope and geothermal mechanical systems.</td>
<td>10% Reduction over ANSI/ASHRAE/IES Standard 90.1.2016</td>
<td>TBD</td>
<td>Design 2020 Construct 2021</td>
<td>$3.20 M</td>
</tr>
<tr>
<td>3</td>
<td>Department of Military &amp; Veterans Affairs</td>
<td>Construct New Police Station Facility</td>
<td>Fort Indiantown Gap, Lebanon County</td>
<td>Construct new facility utilizing high performance building envelope and systems. Project includes: central alarm systems, holding cell, arms vault, evidence room, locker rooms, security fencing and standby generator.</td>
<td>10% Reduction over ANSI/ASHRAE/IES Standard 90.1.2016</td>
<td>6,000</td>
<td>Design 2020 Construct 2021</td>
<td>$2.85 M</td>
</tr>
<tr>
<td>4</td>
<td>Department of Conservation &amp; Natural Resources</td>
<td>Construct New Resource Management Center</td>
<td>Delaware State Forest, Pike County</td>
<td>Construct new office and storage buildings utilizing high performance building envelope and systems. Building to include LEED Certification.</td>
<td>LEED Certification</td>
<td>16,000</td>
<td>Design 2020 Construct 2022</td>
<td>$7.00 M</td>
</tr>
<tr>
<td>5</td>
<td>Department of Conservation &amp; Natural Resources</td>
<td>Construct Park Office</td>
<td>Hill Creek State Park, Tioga County</td>
<td>Construct new park office for visitor contact, general park administration, visitor interpretive programming and education. Building to include PV solar array and LEED Certification.</td>
<td>LEED Certification</td>
<td>6,000</td>
<td>Design 2020 Construct 2022</td>
<td>$4.00 M</td>
</tr>
<tr>
<td>6</td>
<td>Department of Conservation &amp; Natural Resources</td>
<td>Construct Park Office</td>
<td>Marsh Creek State Park, Chester County</td>
<td>Construct new park office for visitor contact, general park administration, visitor interpretive programming and education. Building to include PV solar array and LEED Certification.</td>
<td>LEED Certification</td>
<td>TBD</td>
<td>Design 2020 Construct 2022</td>
<td>$2.00 M</td>
</tr>
<tr>
<td>7</td>
<td>State-Related Higher Education School</td>
<td>Renovation of Historic Vail Hall</td>
<td>Lincoln University, Chester County</td>
<td>Renovate Vail Hall and construct new 14,000 sq. ft. replacement addition for office consolidation utilizing high performance building envelope and systems.</td>
<td>10% Reduction over ANSI/ASHRAE/IES Standard 90.1.2016</td>
<td>14,600</td>
<td>Design 2020 Construct 2022</td>
<td>$12.00 M</td>
</tr>
<tr>
<td>8</td>
<td>State System of Higher Education</td>
<td>Renovation of Barons-Forems Library</td>
<td>Edinboro University, Erie County</td>
<td>Renovate Barons-Forems Library including energy-efficient mechanical systems, classrooms, fitness area and computer lab.</td>
<td>10% Reduction over ANSI/ASHRAE/IES Standard 90.1.2016</td>
<td>102,000</td>
<td>Design 2020 Construct 2022</td>
<td>$13.30 M</td>
</tr>
<tr>
<td>9</td>
<td>Independent Higher Education School</td>
<td>Construct New Community Learning Center</td>
<td>Trudeus Stevens College of Technology, Lancaster County</td>
<td>Construct new facility including: child care center, STEM education lab, building to utilize high performance building envelope and systems.</td>
<td>10% Reduction over ANSI/ASHRAE/IES Standard 90.1.2016</td>
<td>13,600</td>
<td>Design 2021 Construct 2022</td>
<td>$4.00 M</td>
</tr>
<tr>
<td>10</td>
<td>Department of Conservation &amp; Natural Resources</td>
<td>Construct Park Office</td>
<td>Keystone State Park, Westmoreland County</td>
<td>Construct new office and storage buildings utilizing high performance building envelope and systems.</td>
<td>10% Reduction over ANSI/ASHRAE/IES Standard 90.1.2016</td>
<td>TBD</td>
<td>Design 2020 Construct TBD</td>
<td>$2.00 M</td>
</tr>
<tr>
<td>11</td>
<td>Department of Conservation &amp; Natural Resources</td>
<td>Construct New Resource Management Center</td>
<td>Gallitzin State Forest, Cambria County</td>
<td>Construct new office and storage buildings utilizing high performance building envelope and systems. Facility to include net-zero PV solar array and LEED Certification.</td>
<td>LEED Certification</td>
<td>14,600</td>
<td>Design TBD Construct TBD</td>
<td>$4.80 M</td>
</tr>
</tbody>
</table>

### Commonwealth-Leased High Performance Building Delivery

<table>
<thead>
<tr>
<th>Number</th>
<th>Agency</th>
<th>Project Description</th>
<th>Green Standard</th>
<th>Square Footage</th>
<th>Anticipated Delivery</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Human Services &amp; Office of Administration</td>
<td>The new space will be built with energy conservation features, including LED lighting, water conservation measures, alt design to manage glare and heat gain, and use of recycled materials.</td>
<td>10% Reduction over ANSI/ASHRAE/IES Standard 90.1.2016</td>
<td>120,000</td>
<td>Design 2020 Construct 2021</td>
<td>TBD</td>
</tr>
</tbody>
</table>
**Transportation – 25% EV Fleet by 2025**

**Commonwealth Agency Electric Vehicle Fleet & Charging Stations**  
(as of 11/30/2019, rolling annual report)

<table>
<thead>
<tr>
<th>Description</th>
<th>Count</th>
<th>Equipment Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery Electric Vehicles (BEVs)</td>
<td>6</td>
<td>Chevrolet Bolt, Ford Focus</td>
</tr>
<tr>
<td>Plug-In Hybrid Electric Vehicles (PHEVs)</td>
<td>47</td>
<td>Chevrolet Volt, Chrysler Pacifica, Ford Fusion</td>
</tr>
<tr>
<td>Owned &amp; Operated Charging Stations</td>
<td>18</td>
<td>Level 2 Stations (240V)</td>
</tr>
<tr>
<td>25% Electric Vehicle Goal (by 2025)</td>
<td>990</td>
<td>Battery Electric Vehicles (BEVs)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Plug-In Hybrid Electric Vehicles (PHEVs)</td>
</tr>
</tbody>
</table>
Open Forum Question & Answer
### Agency Certification Checklist

- **Assessment Tool** to Gauge Implementation and Achievement of Performance Goals
- **Menu of Measures** and Strategies for Conservation and Sustainability
- **Annual Program** Evaluation to Align with the Commonwealth Fiscal Year
- **Tracking Progress** of Implementation
- **Sharing Results** Among Agencies and the Public

![Diagram](image-url)
Agency Certification Checklist – FY2019-2020

2019-2020 Submittal
• July 1, 2019 through June 30, 2020
• Score Based on Applicable Measures
• Due Monday, August 3, 2020

Checklist Expansion
• 84 Measures Across All Program Areas
• 14 New Measures for More Agency Opportunities
• 154 Total Points Available
Agency Certification Checklist – FY2019-2020

EnergyCAP
- Agency Liaison & Core User Roles
- Executive Level Reporting

Facility Operations
- Square Footage for EnergyCAP & TRIRIGA
- Opportunities “1 Facility” vs. “All Facilities”

Vehicle Fleet
- Telematics Data Tracking
- EV Charging Station Installations
GreenGov Program Area Focus Groups

- Utility Management
- Sustainability (Small Agencies)
- Electric Vehicles & Charging
- Green Facility Management
- Construction & Leasing Specs
- Products & Materials

“Standing-up GreenGov Program Principles throughout Commonwealth Operations”
Focus Group: Utility Management

2020 Goal – Progression from 60% of Energy Meters Validated and Reporting within the EnergyCAP System to 85%

- **Identify, Validate & Assign** Missing Meters and Building Assignments to Achieve the **85% goal**
- **Establish and Assign** Agency Liaison and Core User Roles for Participating Agencies
- **Streamline** and **Confirm** Utility Bill Processing Steps for Accuracy and Consistency

“Agency Liaisons Provide the Best Opportunity for Energy Reductions”
Focus Group: Sustainability Teams
(Small Agency Operations)

Top Conservation Measures for Agency Operations Identified:

- **Paper Reduction & Recycling** Practices & Policy
- **Employee Communication** to Gain Participation & Buy-In
- **Carbon Footprint Tracking** for Transportation Methods

Develop Policies to Incorporate Conservation Measures for Achievement of Performance Goals

Share Strategies of Conservation Measure Implementation for the Success of All Agencies

“Best Practices to Reduce Energy and Resource Consumption, Realize Savings and Protect the Environment”
Focus Group: Electric Vehicles & Charging

EV Charging Station Project Guidelines

• Specifications for Level 2 Charging Station Equipment
• Lists Equipment & Site Installation Recommendations
• Includes Parameters for DEP Rebate Incentives

EV Charging Station Project Pathways

• Step-By-Step Guide for Charging Station Project Delivery
• Project Scoping and Delivery Steps for Both Owned and Leased Facilities

“2020 Goal to Deliver Electric Vehicle Charging Stations and Infrastructure”
Electric Vehicle Charging Station Development Guidelines

Commonwealth Level 2 Workplace Charging

Purpose:
This document contains minimum guidelines and additional recommendations for use by commonwealth agencies when siting “Level 2 Workplace Charging.”

Level 2 Workplace Charging - refers to a freestanding or wall mounted charging device that delivers a 208/240V charge, replenishing an electric vehicle battery at an approximate rate of 10 to 20 miles of range per hour of charging time. Level 2 Workplace Charging is solely for use of the commonwealth-owned vehicle fleet.

For the purposes of this document, Level 2 Workplace Charging will NOT include:
- Any installations intended for public use (including employee personal vehicles);
- Any installations intended for combined commonwealth fleet and public use;
- Any installations using 110/120V (Level 1 Charging) or 480V (Direct Current (DC) Fast Charging);
- Any installations proposed on public streets.

Commonwealth agencies may decide to install chargers for public or employee use, and/or on public streets, however there are many other factors to consider which are not covered in these guidelines.

Note: All criteria which include an * are required by the Department of Environmental Protection as a condition to securing a Level 2 Electric Vehicle Charging Rebate for your project. Agencies applying for rebates may be reimbursed up to $3,500 per plug or 50% of the total project cost (whichever is less). Applications must be submitted prior to the start of project installation.

Agencies who install charging stations in calendar year 2020 will be eligible for extra GreenGov Checklist points!

General Project Guidelines
- *Minimum of 2 plugs per location
- Installed by a licensed professional contractor
- Designed by a professional engineer
- Compliance with National Electric Code and 2015 Building Codes
Focus Group: Green Facilities Management

“Modernization of Management Directive 720.5 to Include Large Energy Reduction Programs”

- **MD720.5 Revisions** to Include GreenGov, EnergyCAP & TRIRIGA Programs
- **GESA Project Best Practices “Booklet”**
  Defining the Guaranteed Energy Savings Act Program, Benefits and Delivery Mechanism
- **Comprehensive Facility Management Manual** to be created through the Collaboration of Agency Facility Managers
• **Standardized Construction Specs** to Achieve 10% Energy Savings Over ANSI / ASHRAE / IES Standard 90.1.2016

• **Standardized Green Lease Specs** for Energy Savings Developed Through Agency, Lessor & Consultant Partnerships

• **Evaluation and Incorporation** of Green Construction Standards to Meet & Exceed Executive Order Performance Goals

• **Information Sharing** of Energy Saving Techniques and Programs with Outside Industry Professionals

Photo Credit: BuildingToday
Focus Group: Products & Materials (Procurement)

- **Revise and Modernize** Existing Recycling Policies Including Management Directive 205.22 (Commonwealth Recycling)
- **Expand Recycling Operations** to Include Additional Recyclable Material Streams
- **Partner with Multiple Agencies** and **Penn State University** to Develop Comprehensive Recycling Programs
- **Identify Opportunities** to Better Manage Recyclable Materials and Create Sustainable Clean Product Streams

"Environmentally-Preferred Products for the Conservation of Resources"
Brown Bag Lunch Series – Penn State Sustainability

GreenGov Partnership with Penn State Sustainability Institute Hosting Call-In Webinar Series for Employees and Stakeholders