PRINCE WILLIAM COUNTY

Prince William County Community Energy and Sustainability Master Plan

Chesapeake Bay and Water Resources Policy Committee Meeting

Giulia Manno, Director, Prince William Office of Sustainability

May 2025

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Agenda

Background

- Prince William County Climate Goals
- Community Energy and Sustainability Master Plan (CESMP)

Implementation

- Integration into county planning
- Update on status of action strategies

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Climate Mitigation and Resiliency Goals

BOCS endorsed the following goals (Res. No. 20-773)

Reduce county-wide greenhouse gas (GHG) emissions by 50% from 2005 levels by 2030.

Procure 100% renewable electricity county-wide by 2035.

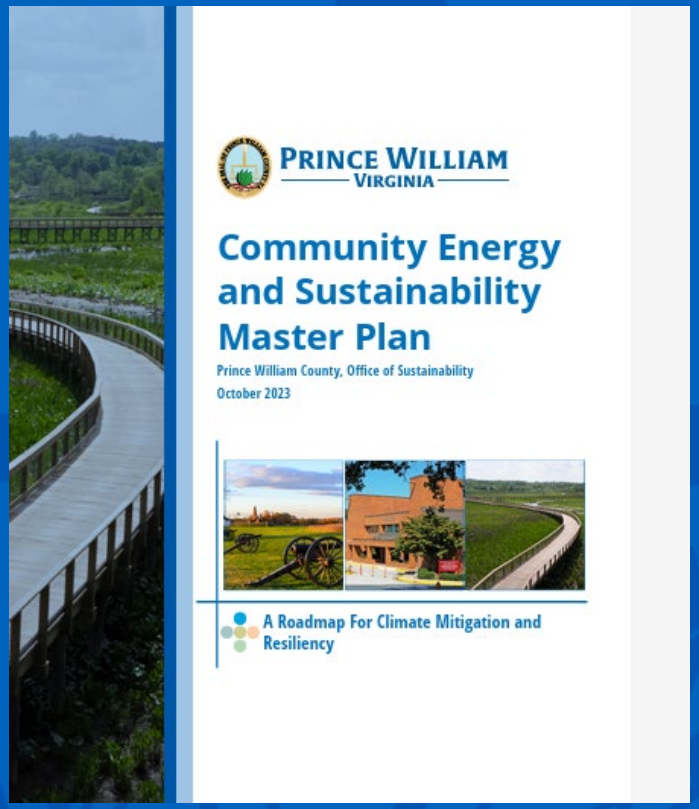
Procure 100% renewable electricity for county government operations by 2030.

Achieve carbon neutrality for county government operations by 2050.

Become a Climate Ready Region by 2030.

Key Steps in Developing Community Energy and Sustainability Master Plan (CESMP)

- Office of Sustainability was established
- Created CESMP Core Team (represents 14 County departments)
- Sustainability Commission (public advisory group) stood up
- Joint Environmental Taskforce (collaboration between County and School division) stood up
- Developed county Greenhouse Gas Forecast and Reduction Scenario
- **Conducted Vulnerability Assessment to determine climate adaptation and resiliency priorities**
- Incorporated Community Feedback (surveys, townhalls, and Board meetings)



Prince William County Vulnerability Assessment

County Assets

1. Safety & Security
2. Food, Water & Shelter
3. Health & Medical
4. Communications
5. Transportation
6. Energy & Hazardous Materials
7. Natural Resources
8. Socially Vulnerable Populations

County Climate Hazards

1. Precipitation
2. Extreme Temperature
3. Drought
4. Storm Surge & Sea Level Rise
5. Earthquakes
6. Strong Winds/ Tornadoes

Vulnerability Assessment Results

Climate Hazard	Asset Category															
	Safety and Security		Food, Water, and Shelter		Health and Medical		Communications		Transportation		Energy & Hazardous Materials		Natural Resources		Socially Vulnerable Populations	
	2050	2075	2050	2075	2050	2075	2050	2075	2050	2075	2050	2075	2050	2075	2050	2075
Precipitation	L	L	M	M	M	M	L	L	H	H	M	M	H	H	H	H
Extreme Temperature	M	M	M	H	M	M	M	M	M	H	M	M	M	H	H	H
Drought	L	L	M	M	M	M	L	L	M	M	M	M	M	M	M	H
Storm Surge and SLR	L	L	M	M	M	M	L	L	M	M	M	M	M	M	M	M
Earthquakes	L	L	M	M	M	M	L	L	M	M	M	M	M	M	M	M
Strong Winds/Tornadoes	L	L	M	M	M	M	L	L	M	M	M	M	M	M	M	M

Assessing Vulnerability to Adapt to Climate Change

(Foundational analysis for goal 5)

Climate Hazard: Extreme Heat

Climate Hazard:
Precipitation, Flooding, Sea Level Rise

Prioritized Actions

- Develop Adaptation Plans for Critical Facilities
- Restore Streams to Reduce Flooding
- Adopt Natural Open Space Requirements
- Manage Stormwater Flooding in Areas Outside of the Flood Plan
- Continue enhancing and supporting PWC Emergency Management

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25 Priority Actions

Community Energy and Sustainability Master Plan (CESMP)

Energy

- E.1. Acquire Clean Electricity Sources for the County
- E.2. Promote Renewable Energy Incentive Programs and Develop Additional Solar Incentives
- E.3. Encourage Renewable Energy Use in Energy-Intensive Commercial Buildings
- E.4. Promote Existing Green Power Products
- E.5. Install Solar on County Government Facilities

Buildings

- B.1. Encourage Energy Efficiency and Electrification Retrofits
- B.2. Propose Green Zoning Regulations
- B.3. Encourage Energy Efficient and Electric New Construction
- B.4. Promote Energy Efficiency and Electrification Incentives
- B.5. Transition to Net-Zero County Government Facilities

Transportation

- T.1. Improve Pedestrian and Bicycle Infrastructure and Enhance Connectivity
- T.2. Encourage Transit-Orientated Development
- T.3. Expand Existing Programs that Reduce Single-Occupancy Vehicle Trips
- T.4. Upgrade Public Transit Infrastructure
- T.5. Encourage Zero-Emission Vehicles and Charging
- T.6. Expand Public EV Charging Network
- T.7. Adopt Zero- or Low-Emissions County Fleet

Natural Resources

- N.1. Adopt Natural Open Space Requirements

Adaptation

- A.1. Develop Adaptation Plans for Critical Facilities
- A.2. Manage Stormwater Flooding Outside of the Floodplain
- A.3. Improve Power Resiliency for Critical Infrastructure
- A.4. Assess Shoreline Protection and Nature-Based Solutions
- A.5. Restore Streams to Reduce Flooding
- A.6. Encourage Technology for Residents to Make Homes Adaptive
- A.7. Plan Alternate Evacuation Routes for Flood-prone Areas

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Development of the Community Energy and Sustainability Master Plan (CESMP)

Nov. 2020

Board adopted Climate Mitigation & Resiliency Goals

June 2022

Effort to develop the CESMP and collaboration between the core team departments began

Office of Sustainability established

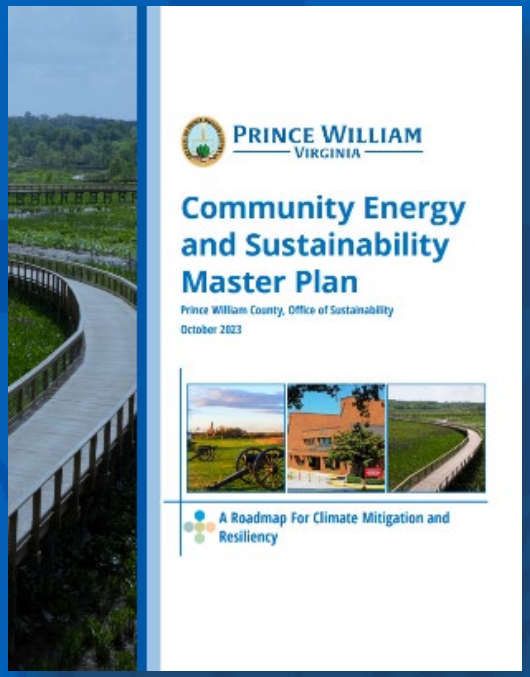
Mar. 2022

CESMP published and 25 high priority actions identified

Oct. 2023

Present

Implementation of CESMP actions



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Integration into County Planning

- May 2024, PWC Board of County Supervisors initiated a Sustainability and Resilience Comprehensive Plan Amendment to integrate recommendations from the CESMP into the 2040 Comprehensive Plan.
- February 2025, PWC Board of County Supervisors adopted 2025-2028 Strategic Plan. CESMP actions were integrated into the plan with about 1/5 of action strategies related to climate mitigation and resiliency.
- Green Buildings Manager and Climate Adaptation and Resiliency Manager positions approved in FY26 budget

CESMP Implementation – Current CIP Projects

- Rooftop Solar – design phase for installation of solar on 3 county buildings
- EV Charging – design phase for large installation of EV Charging stations at Main County Complex
- Conducting a feasibility study for electrification of 10 county buildings
- Conducting a feasibility study for transition of county buildings to net-zero by 2050
- Developing greenhouse gas inventory for county government operations

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CESMP Implementation of Climate Adaptation and Resiliency Actions

2025 – 2028 Strategic Plan includes objectives:

- Safeguard the quality of the County's air, water, and other natural resources to ensure they are not compromised for future generations.
- Reduce and mitigate the impacts of flooding in communities.

Supporting incorporation of Climate Resiliency actions into 2040 Comprehensive Plan through CPA

Public Works has ongoing stream restoration projects, including work along Cow Branch, Flat Branch, Powell's Creek, Marumsco Creek and Neabsco Creek. The stream restorations aim to:

- prevent or minimize flooding
- protect and preserve natural floodplains
- protect and improve water quality
- improve and maintain ecological functions
- reduce sediments and pollutants
- lower the levels of nitrogen, phosphorus and other harmful nutrients
- channel the flow of the stream to reduce impact on infrastructure, such as buildings, sewer/water lines, bridges, etc.

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Implementation of Climate Adaptation and Resiliency Actions

PWC Emergency Management has community outreach and engagement program and alerts for flood watches and warnings:

- 20 stage sensor sites and nine rain gauge sites
- Provides increased lead time for National Weather Service to issue flood warnings
- Monitors several PWC-owned “high” or “significant” hazard dams
- New sensors on the Potomac and Occoquan Rivers for coastal flooding / rise data

Emergency Generators:

- Identifying current generator infrastructure and gaps at all PWC critical facilities
- Coordinating with Parks and Recreation, Schools, Facilities and Fleet Management, and Social Services to ensure generators and/or adequate infrastructure to support portable generator hookups exists at all primary shelter sites for general population, critically vulnerable populations, and responder shelters.

Challenge – current uncertainty around the future of federal funding for flood mitigation. For example, recent cancellation of FEMA’s Building Resilient Infrastructure and Communities (BRIC) program

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Questions?

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