

Prince William County Sustainability Commission

Status Update for Supervisor ~~XXXXXX~~

Draft Working Document

[Date]

[Commissioner's Name]



Outline

Briefing Objectives

- Review goals
- Summarize SC Efforts
- Describe where we're headed

1. Background

2. SC deliverables

3. Findings

4. Likely recommendations

5. Key takeaways

Appendix: Key gaps identified by SC and being addressed by CESMP team

1. Background

- Nov 17, 2020: BOCS adopted the **Climate Mitigation and Climate Resiliency (CM/CR) Goals**:
 - 2030 - Reduce greenhouse gas (GHG) emissions to 50% below baseline 2005 levels
 - 2030 - Achieve 100% renewable electricity in Prince William County Government operations
 - 2030 - Become a Climate Ready Region and make significant progress to be a Climate Resilient Region
 - 2035 - Source 100% of PWC's electricity from renewable sources
 - 2050 - Achieve 100% carbon neutrality in Prince William County Government operations.
- Dec 7, 2021:BOCS authorized creation of Sustainability Commission (SC) to advise on content of the **Community Energy and Sustainability Master Plan (CESMP)**, which will serve as a roadmap for reaching the CM/CR Goals
- Apr 2022: BOCS appoints final voting commissioner
- May 2022: First monthly SC meeting
- Sept 2023: Target for delivering recommendations

2. SC Deliverables

- June 2022: Recommendation to BOCS to adopt a practice of assessing energy and sustainability impacts of land use, housing, and infrastructure (water, transportation, energy) decisions requiring board approval.
 - Impact: no action yet at BOCS level
- June 2022: Recommendation that the Office of Sustainability works with partners such as Keep Prince William Beautiful and the Joint Environmental Taskforce to develop sustainability communication and outreach plan to coordinate consistent messaging and collective actions.
 - Impact: pending action by Office of Sustainability and PWC Communications staff

2. SC Deliverables

- Aug 2022: Recommendation to the Planning Office and BOCS to align the Land Use, Housing, and Mobility Chapters of the Comprehensive Plan to support CM/CR goals, with focus on transit-oriented development communities.
 - Impact: Final Comp Plan incorporated some modifications
- Sept 2022: Recommendation to the Planning Office and BOCS to amend the updated Comp Plan Land Use Chapter to include specific action strategies.
 - Impact: Final Comp Plan incorporated some modifications

2. SC Deliverables

- Sept 2022: Recommendation to BOCS to direct PWC staff to incorporate several “fast-track” measures in its planning and budgeting to put the county on a trajectory to achieve its GHG, renewable electricity, and resilience goals.
 - Impact:
 - BOCS approved resolution on Feb 28 put forward by Sup. Boddye to (1) create plan for Carbon-Neutral County Vehicle Fleet by 2040, (2) update the Countywide Trails and Blueways Plan to improve trail connectivity, and (3) expand the County's Reforestation Program
 - BOCS unanimously approved staff directive March 7 put forward by Sup. Boddye to (1) install solar panels & battery storage on County buildings; (2) improve energy efficiency program; (3) push new data centers to source clean energy & use low/no carbon backup generators; (4) incentivize existing data centers to convert existing fossil fuel backup generators to low/no carbon ones; (5) consult with solar organizations & the VA Building and Code Officials Association to improve clean energy implementation for residential and non-residential buildings; and (6) research community choice aggregation for Prince William County

2. SC Deliverables

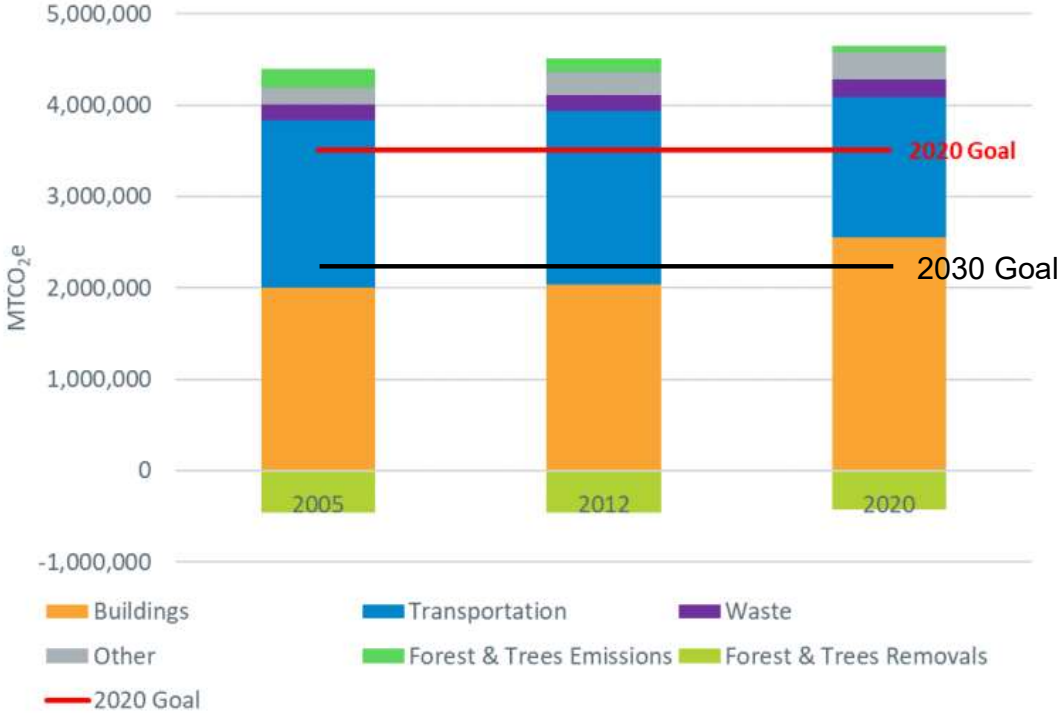
- Sept 2022: Developed and posted [PWC SC GHG Fact Sheet 9-22-2022 v1 \(1\).pdf \(pwcva.gov\)](#)
 - Impact: fact sheet summarizes status and trends of GHG emissions, key drivers of emission growth, and key opportunities for emission reductions.
- Oct 2022: Recommendation to BOCS on proposed PW Digital Gateway Comp Plan Amendment to study and mitigate impacts to water, energy use, and GHG emissions before approving the project.
 - Impact: BOCS approved project but during debate indicated intention to study some of these issues during subsequent zoning decisions.

2. SC Deliverables

- Oct 2022 – Feb 2023: Input to Energy/Environment Sustainability Officer and AECOM on CESMP Study Methodology. Recommended tailoring methods and assumptions to address critical drivers in PWC including impact of Federal Inflation Reduction Act (IRA) on power grid and transportation; carbon intensity of energy use by data centers and other commercial buildings; and incorporation of forest carbon associated with large forested areas.
 - Impact: ESO and AECOM determined that budget and schedule do not allow study improvements.

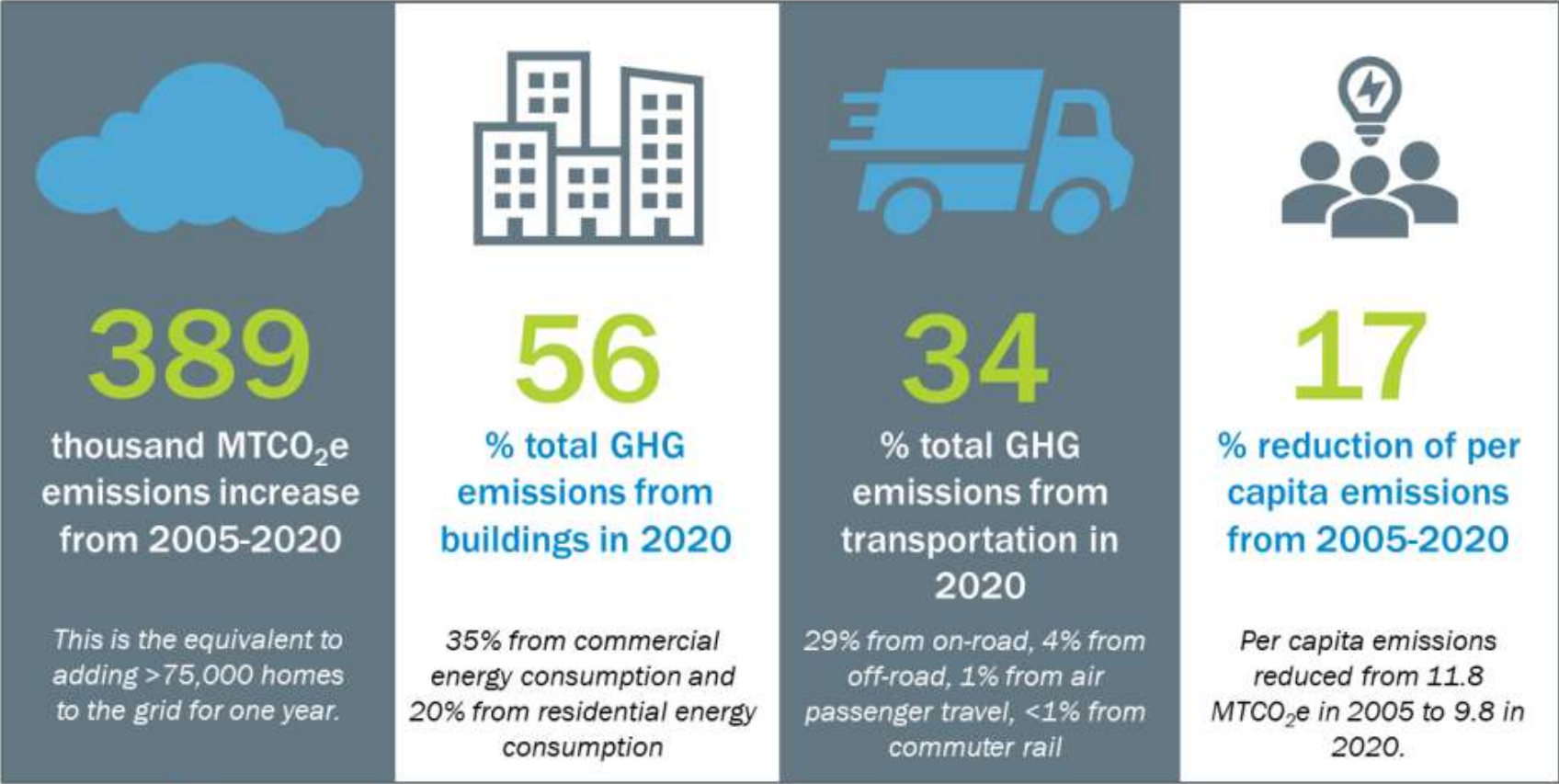
3. Findings: GHG Inventory from MWCOCG

Prince William County community-wide greenhouse gas (GHG) emissions increased by 6% between 2005 and 2020, along with a 32% growth in population. In 2020, forests and trees sequestered more than 353,000 metric tons of CO₂ equivalent (MTCO₂e) or 8% of total emissions.



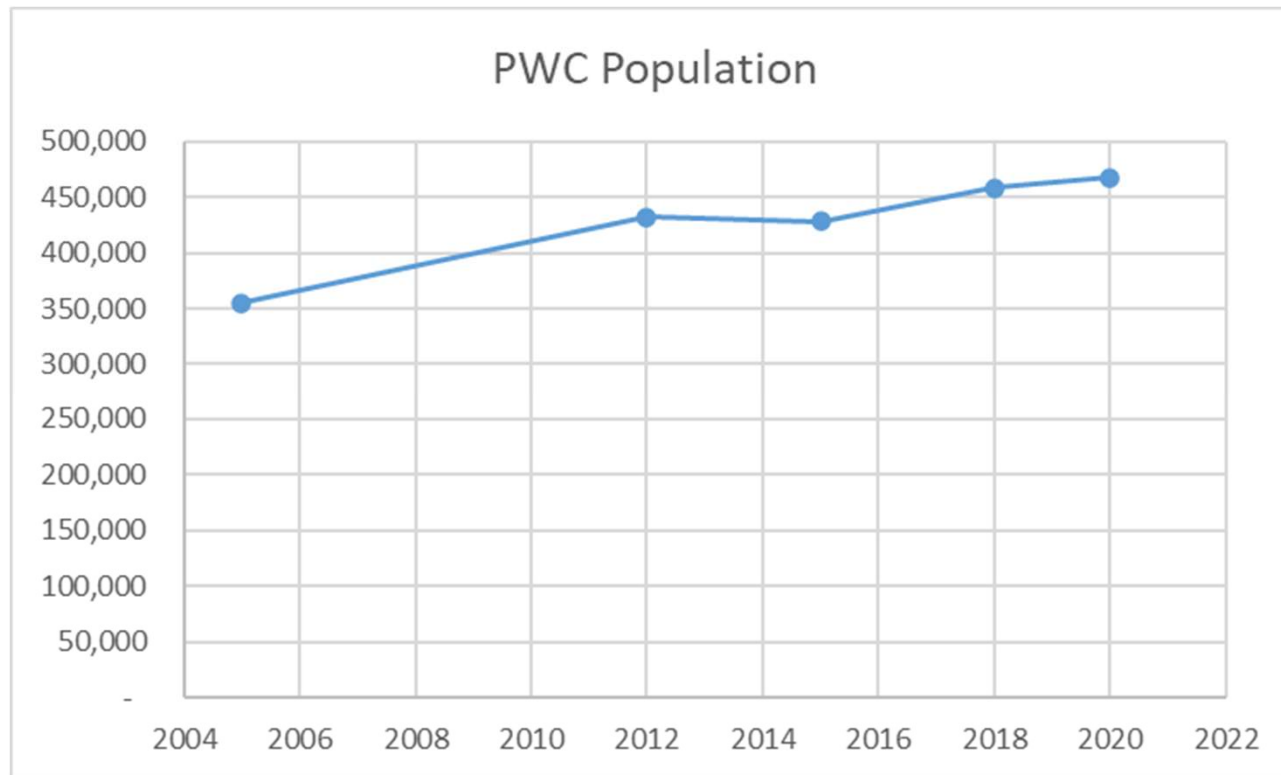
Note: Other refers to emissions associated with the release of Hydrofluorocarbons, emissions resulting from local natural gas system losses within the community, as well as emissions from Agriculture.

3. Findings: GHG Inventory from MWCOCG



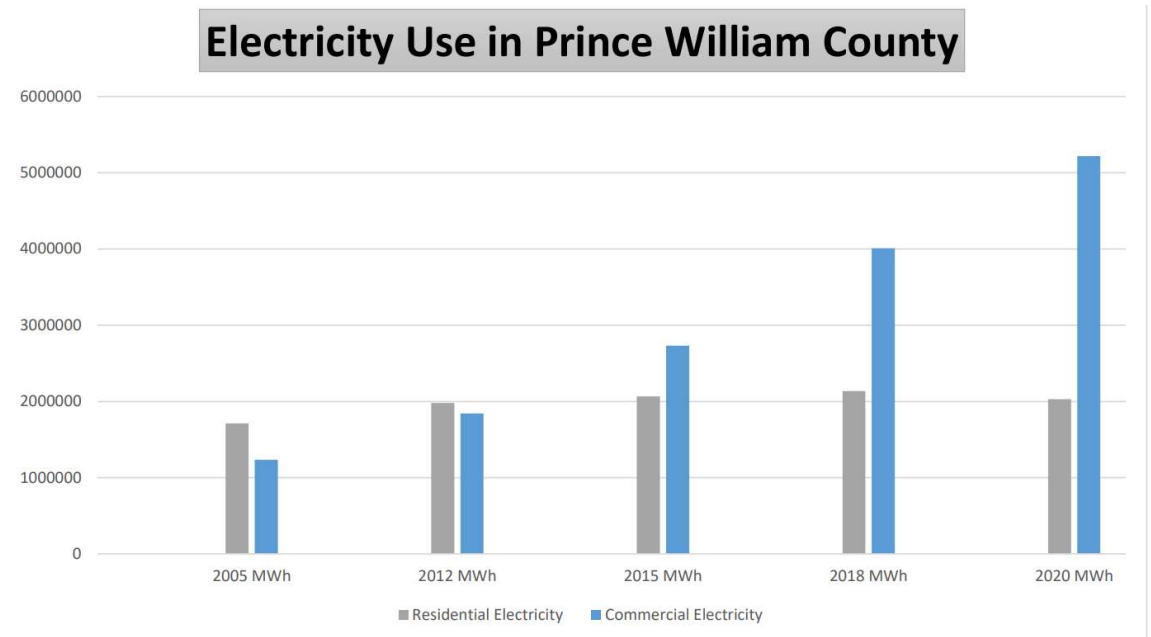
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- Population growth – 32% higher in 2020 than 2005, compared to 20% increase for the MWCOCG region



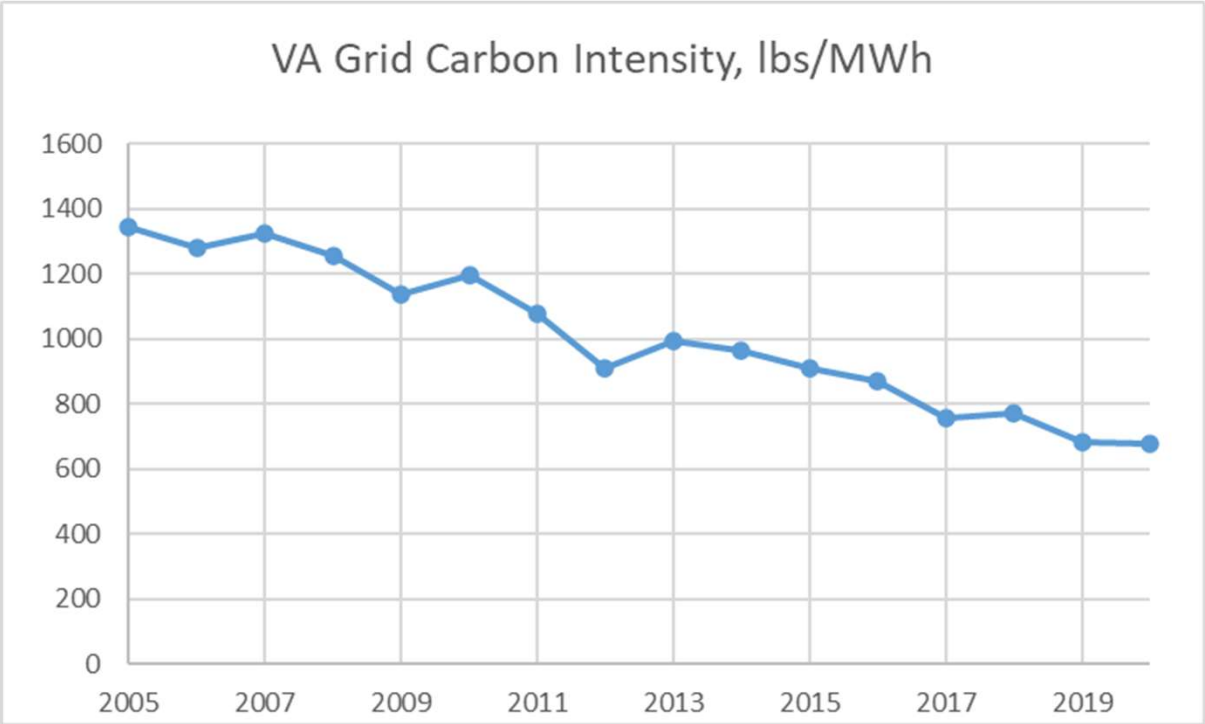
3. Findings: GHG Inventory from MWCOCG

- Greatest increase in emissions: electricity use from commercial buildings. Emissions in 2020 were 844,000 MTCO₂e higher than 2005 (+132% of 2005 levels)
- Increased commercial energy intensity and building floorspace -> more commercial electricity use
- Residential electricity emissions relatively flat despite population growth due to decrease in carbon intensity of electricity



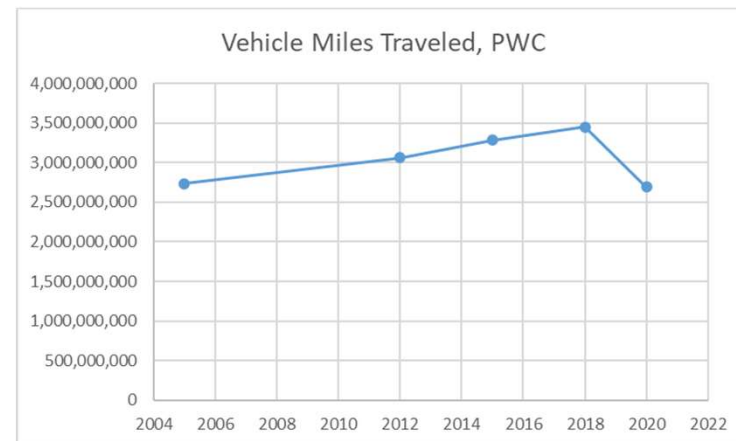
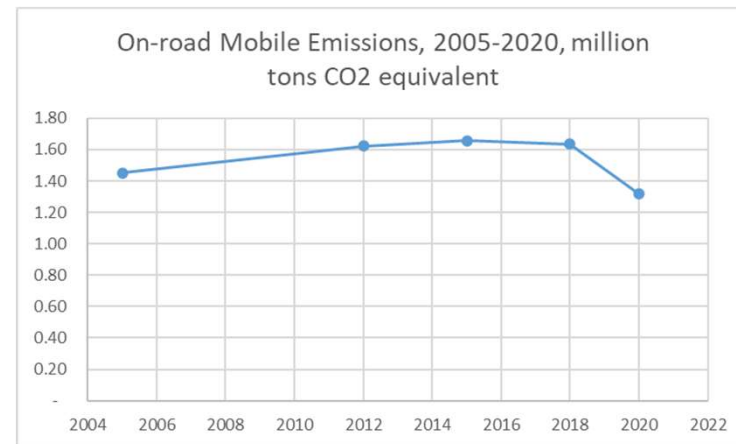
3. Findings: GHG Inventory from MWCOCG

- Decreased carbon intensity of VA's grid – 2020 C intensity is 51% of 2005 C intensity (source: Energy Info Admin state electric power reports)



3. Findings: GHG Inventory from MWCOCG

- On-road mobile is 2nd largest emission source in PWC after commercial building electricity use
- Improved vehicle fuel efficiency has helped counterbalance population increase
- Decreased VMT (vehicle miles traveled) in 2020 largely due to covid



3. Findings: GHG Reduction Analysis from AECOM

Final 2030 GHG Reduction Scenario

Strategy	External Forces Contribution to Strategy	County Contribution to Strategy
92% clean electricity	33% renewable electricity (RPS)	59% clean electricity
50% of vehicles are ZEV	17% of vehicles are ZEV (Market Forecast)	33% of vehicles are ZEV
40% of HVAC/water heaters are highly efficient and electric	N/A	40% of HVAC/water heaters are highly efficient and electric
57% HFCs replaced with zero GWP alternatives	25% HFCs replaced with zero GWP alternatives (Kigali Amendment)	32% HFCs replaced with zero GWP alternatives
5% mode shift from passenger vehicles to active/public transport	N/A	5% mode shift from passenger vehicles to active/public transport
60% waste diversion rate	N/A	60% waste diversion rate
100% high-efficiency lighting and appliances	N/A	100% high-efficiency lighting and appliances
15% zero emissions off-road equipment	10% electric off-road equipment (Market Forecast)	5% zero emissions off-road equipment
20% reduction in aviation emissions	N/A	20% reduction in aviation emissions
10% reduction in agriculture emissions	N/A	10% reduction in agriculture emissions



4. Likely Recommendations – Goal 1: reduce GHGs by 50% by 2030

- **Expand clean energy supply and access to reduce emissions from buildings**
 - Expand clean energy planning
 - Work with Dominion and NOVEC to assure adequate transmission and clean energy supply is available to support residential and commercial growth plans
 - Streamline county processes involved in transmission permitting
 - Provide large-scale mechanism for residents and businesses to procure zero-carbon electricity through
 - County-run municipal aggregation
 - Dominion Green Power/ NOVEC Renewable Energy Certificates (typical cost per residence: \$12-\$15/ month)
 - Encourage/ require new data centers and other energy-intensive businesses to use 100% clean electricity
 - Use zoning process to incentivize clean energy use and other sustainable practices
 - Incentivize installation of solar PV
 - Streamline permitting/ inspection process
 - Zero out permit fees

4. Likely Recommendations – Goal 1: reduce GHGs by 50% by 2030

- **Reduce transportation emissions through EVs, transit-oriented development, and reduced VMTs**
 - Promote electric vehicles (EVs)
 - Reduce vehicle registration fees for EVs
 - Incentivize installation of charging infrastructure
 - Expand transit-oriented development / reduce VMTs
 - Increase concentration of growth in activity centers
 - Expand micro-transit options
 - Expand trails network
 - Subsidize e-bikes

4. Likely Recommendations – Goal 1: reduce GHGs by 50% by 2030

- Promote building energy efficiency
 - Use zoning process to incentivize LEED or other green building design/ construction
 - Provide real estate tax incentives for residential green building design/ construction
- Develop forest carbon program
 - Develop voluntary tree-planting program
 - Develop policy requiring compensation and/or replanting for large scale commercial/ industrial forest removals
- Cross-cutting measures
 - Develop carbon offsets program as backstop: Buy carbon offsets from voluntary market (currently about \$10 per ton of CO₂) to fill remaining gaps as needed
 - Expand grant application capabilities to better pursue federal and state funding across all sectors
 - Develop communications/ outreach plan for residents and businesses on how to access resources
- Note: there will likely be other targeted program recommendations (e.g., refrigerant recycling, waste management, etc.)

4. Likely Recommendations – Goal 2: increase county government renewable energy to 100% by 2030

- Minimize electricity demand through energy efficiency
 - Ramp up building EE program to invest in all cost-effective EE measures
- Expand installation of solar PV on county buildings
- Procure zero-carbon electricity
 - County-run municipal aggregation
 - Power purchase agreements
 - Dominion Green Power/ NOVEC Renewable Energy Certificates

4. Likely Recommendations – Goal 3: Become a Climate Ready Region and make significant progress to be a Climate Resilient Region by 2030

- Require all county departments to assess and manage climate risk
 - Provide method guidance and resources
 - Integrate into budgeting and strategic planning processes

4. Likely Recommendations – Goal 4: Source 100% of county-wide energy from renewable sources by 2035

- Expand energy efficiency program to minimize electricity demand
 - Enlist home builders in going beyond code requirements
 - Attach more stringent EE commercial requirements as part of zoning process
- Expand on large-scale mechanism for residents and businesses to procure zero-carbon electricity from goal 1
 - County-run municipal aggregation
 - Dominion Green Power/ NOVEC Renewable Energy Certificates

4. Likely Recommendations – Goal 5: Achieve 100% carbon neutrality in Prince William County Government operations by 2050

- Expand on-site solar PV
- Expand building energy efficiency measures
- Use EVs in all available vehicle categories in county fleet
- Use carbon offsets to fill remaining gaps

5. Key Takeaways

- GHG emission reduction goal is likely to be most difficult – and most resource-intensive – to accomplish, and will require significant departure from business as usual
- Focus for emission reductions
 - Reduce emissions from electricity use in buildings – procure clean electricity, improve energy efficiency, require new facilities to use clean electricity
 - Reduce emissions from transportation – promote EVs in vehicle fleet, promote transit-oriented development, reduce vehicle miles traveled (VMTs)
 - Supplement with forestry and other sector-based actions
 - Implement cross-cutting measures (buy carbon offsets, leverage federal/ state funding, engage citizens and business community)

5. Key Takeaways

- Clean energy procurement will be critical for the RE goals as well – need to carefully scope out large-scale municipal aggregation program as well as county procurement practices
- Climate resilience is within reach via integration of climate risks in county business practices, budgeting, and planning
- All of the major actions require a multi-year timeline to implement
- **Despite PWC's population growth, all 5 goals can be achieved if we allocate sufficient resources and if we start pronto**

Questions/ discussion

Thank you!

[Your name], Sustainability Commission
[your email and phone #]

Appendix: Gaps Analysis

- Gaps represent areas where the SC recommends improving the technical foundation for the CESMP
- Gaps have been identified by the SC and communicated to the ESO, who coordinates with AECOM and the Core Team
- Some of the gaps are the subject of ongoing efforts and others are candidates for future supplementary analyses

Appendix: Gaps Analysis - Goal 1: reduce GHGs by 50% by 2030

- Gap 1.1 – Forecast is incomplete
 - Gap 1.1.1 – Inflation Reduction Act (IRA) isn't considered (electric grid, EVs)
 - Gap 1.1.2 – Data Center RE purchases aren't considered
 - Gap 1.1.3 – Effect of further Transit Oriented Development (TOD) and other vehicle miles traveled (VMT) measures aren't modeled
 - Gap 1.1.4 – Forestry isn't considered
 - Key question: would choice of options be different if these gaps are filled? Would missing IRA, data center RE, and TOD be counterbalanced by Forestry?
- Gap 1.2 – Marginal Abatement Cost Curve analysis isn't part of methodology so cost-effectiveness isn't explicitly considered

Appendix: Gaps Analysis - Goal 2: increase county government Renewable Energy to 100% by 2030

- Gap 2.1 – Goal wasn't clearly specified in terms of whether it was zero-carbon electricity (inc nuclear , biomass, and hydropower) or exclusively “new” RE (wind, solar, geothermal) – clarified with Sup. Boddye that all zero-carbon electricity counts toward goal
- Gap 2.2 – Baseline and forecast RE use wasn't included in methodology
- Gap 2.3 – Method for selecting RE options wasn't included in methodology

Appendix: Gaps Analysis - Goal 3: Become a Climate Ready Region and make significant progress to be a Climate Resilient Region by 2030

- No significant gaps identified. Vulnerability analysis complete, and plan appears on track to provide useful recommendations.

Appendix: Gaps Analysis - Goal 4: Source 100% of county-wide energy from renewable sources by 2035

Same gaps as Goal 2:

- Gap 4.1 – Goal wasn't clearly specified in terms of whether it was zero-carbon electricity (inc nuclear , biomass, and hydropower) or exclusively “new” RE (wind, solar, geothermal) – clarified with Sup. Boddye that all zero-carbon electricity counts toward goal
- Gap 4.2 – Baseline and forecast RE use wasn't included in methodology
- Gap 4.3 – Method for selecting RE options wasn't included in methodology

Appendix: Gaps Analysis - Goal 5: Achieve 100% carbon neutrality in Prince William County Government operations by 2050

- Gap 5.1 – County-specific GHG emissions haven't been estimated or forecasted.
- Gap 5.2 – Methodology didn't include approach for identifying government-specific emission reduction options.