

Comments from some members of the Clean Energy Working Group Technical Advisory Committee

These comments are being submitted by the following members of the Clean Energy Working Group Technical Advisory Committee that was created by the County Executive to generate the recommendations that were reviewed for consideration for the draft Climate Action Plan. We are generally pleased with how the draft CAP represented our specific proposed actions. However, we share below certain comments that we think will strengthen the final Plan.

Thank you very much for the opportunity to comment.

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The Target: “Electricity consumed in the County is carbon-free by 2030” should be clarified with the word ALL. This is identified in the narrative (“By 2030, 100% of the electricity used in the County must be generated from renewable sources”, page 89) and should be clear in the target.

The Headlines are both appropriate and necessary and largely represent the five goals of the Clean Energy Technical Advisory Committee¹

- Montgomery County uses and invests in carbon-free, reliable, affordable electricity.
- Ensure broad access to affordable zero-carbon electricity.
- Create clean energy jobs, secure funding to support clean energy, and optimize economic activity in clean energy.
- Expand renewable electricity generation and use of distributed energy resources.

The Plan correctly notes, “Achieving the County’s energy target will involve leveraging both energy efficiency and distributed renewable energy resources” (p 89). It would be useful to cross-reference to sections on buildings and transportation, noting that those sections provide recommendations for efficiency whereas the section on clean energy focuses on generation.

¹ Goal 1 – Green the electricity supplied to Montgomery County residents and businesses.

Goal 2 – Expand the use of distributed renewable energy.

Goal 3 – Expand the use of renewable energy to power buildings.

Goal 4 – Encourage economic development related to renewable energy

Goal 5 – Establish a dedicated, secure funding source to support renewable energy programs and financial incentives.

It would be valuable for the report to discuss conservation (reducing consumption) as well as efficiency (using energy more efficiently). Although personal actions was not a topic of a separate working group, the report should have a section that identifies the importance of personal energy actions (including purchases of energy-efficient appliances, managing the building thermostat and driving less) to complement the sectoral based approaches in this document. It is important for the report to emphasize that meeting the county's climate emergency goals will require a combination of actions by government, businesses and individuals.

The **Introduction to the Clean Energy section** (p 89) needs major rewriting. About half of the introduction discusses the current controversy about generation of solar energy in the County Agricultural Reserve. The County Council is largely resolving that issue as a policy issue in February 2021. Regardless of one's position on the issue, it is inappropriate for the Introduction to focus on one issue that is not core to the recommendations.

We recommend that the discussion about solar energy in the agricultural reserve be replaced with the framing statement from the Clean Energy Working Group: "Montgomery County is presently not capable of meeting all of its needs for emission-free energy only by energy generated within the County. The goal is independence from non-renewable fossil fuels, not energy independence for the county. Nevertheless, the County should develop renewable energy sources and economic opportunities within the county, including distributed energy captured on buildings and other structures, microgrids, and with larger scale commercial facilities. However, it would be counterproductive for the County to reduce greenhouse gas emissions by turning forests, farmlands and wetlands into industrial facilities for energy capture. These vegetated lands and the soil beneath are important in capturing carbon from the atmosphere, reducing the urban heat island and providing clean water, clean air, biodiversity and other ecosystem services. Preservation and protection of the environment should be an essential component of the County's shift to net zero."

<https://www.montgomerycountymd.gov/green/Resources/Files/climate/workgroup-recommendations/Clean-Energy-WG-Intro.pdf>

The Clean Energy Working Group worked hard on this framing statement over several months, so it is appropriate that they be included in the introduction.

The introduction could note that the recommendations primarily are of two types. First is state-level policy E-1 and E-5 that will "green the grid" by enabling Montgomery to implement opt-out Community Choice Energy (CCE) and to require Maryland to move to a 100% Renewable Portfolio Standard (RPS). The remainder of the recommendations are to convert buildings to photovoltaic generation new commercial and residential buildings (E-2), primarily through regulations and requirements, existing buildings (E-3), through a combination of financial incentives and education (not discussed sufficiently) and public buildings (E-4). The introduction could note that the GHG reduction impact of converting public buildings is only because there are relatively fewer public buildings.

The statement in the Introduction, "If the utilities do not provide 100% renewable energy to the grid, a potential option for the County, assuming change in state law to allow it, would be to establish an opt-out Community Choice Energy (CCE) program and purchase renewable energy for its residents" underemphasizes Recommendation E-1 to establish CCE.

It is clear that the utilities are not going to provide 100% renewables unless pushed or required to do so. The Technical Advisory Committee recommended two actions to make the grid 100% renewable energy (at least for the County) – E-1 Community Choice Energy and E-5 advocating for 100% Renewable Energy Portfolio standards (RPS) for Maryland. Both should be mentioned in the Introduction.

E-1 Community Choice Energy (pp 91-92) is accurately described. The summary “Authority: Outside County – Requires County Collaboration with Other Public or Private Entities or Is Outside County Authority” needs clarification. As noted, state legislation is needed to provide the county the ability to offer “opt-out CCE, but there is no explanation of the photo at the bottom of p. 92. It should be noted in the photo caption or in the text that 1) state legislation to give the county authorization for an opt-out CCE has been introduced in 2020 and 2021, 2) the photo is from 2020 (note no masks and no distancing!), 3) the legislation has support from the County Council and County Executive Marc Elrich who is on the left of the photo (appropriately).

E-2 Private Building Solar Photovoltaic Code Requirements (p 93). This recommendation only discusses requirements for new construction and substantial modifications, despite the accurate statement, “To do this, a combination of voluntary measures and strict code requirements are needed”. It would be useful to have an estimated quantification of the amount of photovoltaic energy that would be generated by an “all solar” requirement on new construction. There should also be discussion of non-regulatory means to incentivize and encourage transformation of existing buildings to in-situ solar. Note that whenever a roof needs to be replaced, that's the best time for a solar installation to be factored in. As part of the replacement “re-build the roof to accommodate a solar generation system”.

The statement “However, given the financial investments associated with this action, solar costs are likely to be passed onto renters (both residents and small business owners) and new buyers, which may create affordability issues (especially for first-time buyers or those on a fixed income)” could be evaluated using data from California and perhaps other localities where there are requirements for solar construction.

E-3 Promote Private Solar Photovoltaic Systems (p 94-96). This section is well done, especially on the financing issues of converting to PV. Recommendations regarding existing buildings from the Technical Committee should be included.² This section also identifies the significant knowledge barrier for homeowners and owners of other buildings who may consider installing PV capture and storage systems. The County should consider either establishing a solar education office or partnering with a non-profit organization that could be a clearinghouse and honest broker to help the residential and

² Action 2.1.1 – Examine the benefits of reinstating County’s property tax credit for solar and geothermal systems
Action 2.1.2 – Analyze the need for warranty or insurance product that covers costs of roof and PV system maintenance with the Montgomery County Green Bank and other parties.

Action 2.5.4 – Create an incentive to support small (less than 300 kW DC) commercial installations or installations on non-profits’ properties.

Action 3.1.1 – Make efforts to convert existing buildings into solar ready buildings and offer incentives for such retrofits (similar to incentives offered under EmPower MD).

Action 3.1.2 -- Evaluate feeder line expansion by utilities to account for future solar needs and installation sizes in each neighborhood.

commercial building owners to navigate the complexities of going solar. This is a very big issue as even informed and motivated homeowners on this committee lack information on effective approaches and options.

E-4 Public Facility Solar Photovoltaic Installations and Groundwork. This section seems to discuss what the County has already done more than what the County needs to do. The narrative should point out that although the GHG reduction potential is low related to the other actions (because of the relatively small acreage of public facilities compared to private facilities), it is essential that the county, including Montgomery County Public Schools (MCPS), install renewable energy on all of its facilities: 1) to reduce costs (as mentioned), 2) to serve as an example and provide demonstration and education projects – such as on schools, 3) because it can be done without depending on other entities. This section is limited in only considering PV, and does not even mention geothermal (which may be especially viable for clusters of public facilities) and wind (which may not be worth mentioning because of location issues). See what the Technical Committee recommended.³ See below for elaboration on ways the County can achieve the potential of solar collectors on schools.

E-5 Advocate for a 100% Renewable Portfolio Standard by 2030. This section is pretty straight forward. For clarity, add Maryland to the headline. Also, it would be good to note that energy sources such as energy generated by incineration currently are included in Maryland's Tier 1 list of renewables. We suggest that this action specifically call for removing incineration and black liquor from the RPS since they are not carbon free sources and currently comprise 40% of the renewable energy credits given out in Maryland.

Other considerations under Clean Energy

The Technical Committee included several other recommendations that could be considered enabling or implementing actions. These should be at least mentioned in this section (not just in the appendix).

The current draft primarily focuses on generation of renewable (largely PV) energy. However, to fully achieve the potential for “decarbonizing the grid”, issues of storage and capacity need to be solved. See the Strategies 2.6 and 2.7 of the Technical Committee recommendations.⁴

³ *Strategy 2.3 – Expand the use of solar on public facilities.*

Action 2.3.1 – Develop a ranking system to categorize sites based on economic, environmental, and social considerations.

Action 2.3.2 – Take advantage of any federal, state, and other funding sources to support deployment of solar on public facilities.

Action 2.3.3 – Maximize use of solar on public school facilities.

Action 2.3.4 – Develop/require communication and engagement tools at all public and commercial solar facilities to take advantage of opportunities to educate the public on the benefits of solar.

Action 2.3.5 – Develop multi-site solar PV project on public facilities through Power Purchase Agreement or similar mechanism to facilitate economies of scale.

⁴ *Strategy 2.6 – Working with the Public Service Commission and electric utilities, support an assessment of the ability of utilities to incorporate additional distributed energy.*

Action 2.6.1 – Examine issues of feeder capacity, safety, load control, and grid stability.

The Technical Committee strongly emphasized the importance of assessment of the County's potential for generation of renewable energy and for prioritization of new energy development in the urbanized areas of the County where losses in transmission would be less and where the environmental impact would be smaller. Note the recommendations related to this point that were included.⁵The draft CAP focuses almost exclusively on solar photovoltaics as a renewable energy source. However, as noted below, the Technical Working Group also considered and recommended development of other renewable sources.

Although the summary on page 89 mentions economic issues, the Plan should explicitly discuss economic development opportunities and education needs, even though the GHG reduction potential of these actions may be hard to quantify (see Technical Committee recommendations).⁶

Action 2.6.2 – Ensure rate systems equitably distribute costs among ratepayers.

Action 2.6.3 – Examine impact of battery systems on grid.

Strategy 2.7 -- Review the feasibility of implementing more energy conversion efficiency technologies in Montgomery County (i.e. co-generation, co-process, and heat recovery).

Action 2.7.1 Review the feasibility of community-based energy systems and energy storage.

⁵ *Strategy 2.2 – Assess feasible public and private locations for solar and wind installations of various scales in Montgomery County and adjacent jurisdictions.*

Action 2.2.1 – Develop a ranking system to categorize sites based on economic, environmental, and social considerations.

Action 2.2.2 – Evaluate financial incentives to encourage solar development on brownfields and other preferred solar locations.

Action 2.2.3 – Examine feasibility of solar on industrial sites like the Dickerson power and incinerator facilities.

Action 2.2.4 – Work with other jurisdictions and the State to ensure coordinated efforts related to siting renewable energy facilities.

⁶ **Goal 4 – Encourage economic development related to renewable energy**

Strategy 4.1 – Increase education in renewable energy and sustainability.

Action 4.1.1 – Offer an Associate of Applied Science in Renewable Energy at Montgomery College (MC) and provide 100% free tuition for County residents who obtain this degree.

Action 4.1.2 – Provide incentives for solar companies, public utilities, and public agencies to offer internships for students enrolled in Renewable Energy program at MC.

Action 4.1.3 – Provide incentives for solar and other renewable energy companies and public utilities to offer apprenticeship programs/on-the-job training.

Action 4.1.4 – Provide scholarships for degrees in environmental sustainability programs at State universities.

Strategy 4.2 – Establish a Green Technology Innovation Fund to attract and support promising business start-ups offering solutions that reduce GHG emissions and/or contribute to essential clean energy infrastructure.

Strategy 4.3 – Encourage social enterprises, non-profits, and small and local businesses developing renewable energy solutions.

Action 4.3.1 – Prioritize social enterprises, non-profits, and small and local businesses developing renewable energy solutions in Montgomery County's bids and RFPs.

Action 4.3.2 – Lower tax liability and generate incentive mechanisms for any conversion to clean energy that has been worked on by social enterprises, non-profits, and small and local businesses developing renewable energy solutions.

Because the Plan emphasizes economic development and equity as well as GHG reductions, the goal “Encourage economic development related to renewable energy” (amended to “encourage economic development *and equity* related to renewable energy” should be identified as E-6 and then elaborated with the strategies and actions articulated in Goal 4 of the working group.

Additional comments on issues not recommended by the Working Group

We recognize that as working group members, we did not sufficiently consider fuel sources other than photovoltaics. We also didn’t discuss energy storage, which is essential to an energy system that is dependent upon intermittent renewable sources. Because the draft CAP is based on the recommendations of the working groups, these issues are omitted. We recommend that the final CAP include other fuel renewable fuel sources and energy storage as discussed below.

Other fuel sources – The Plan focuses on photovoltaics, but there are other sources that should be considered in the process of decarbonizing. Geothermal energy can be economical in certain circumstances, especially for heating and cooling of buildings. Additionally, the plan should note the potential to use waste water as a geothermal source in urban areas where there are numerous sewer lines to take advantage of.

Strategy 4.4 -- Encourage union workers to be contracted and develop renewable energy solutions.

Action 4.4.1 - Prioritize companies that use union workers in Mo Co’s bids and RFPs.

Action 4.4.2 - Lower tax liability and generate incentive mechanisms for any conversion to clean energy that has been worked on by these companies.

Strategy 4.5 – Promote an economic transition that is just and fair for all workers, especially those that have been laid off by “conventional” power production.

Action 4.5.1 – Encourage the establishment of new unions organized “by sector” (i.e. a “solar workers union”, a “wind workers union”, etc.).

Action 4.5.2 – Ensure workers employed in “conventional” power production find new satisfying and well-paying jobs with the transition to clean energy.

Action 4.5.3 – Coordinate with WorkSource Montgomery and its American Job Centers to emphasize renewable energy and efficiency career support and partnerships.

Strategy 4.6 - Emphasize the clean energy future in K-12 school curricula (see Italy example) or extracurricular programs, especially in collaboration with Thomas Edison H.S. of Technology; use solar + storage on all schools (see Action 2.3.3) to educate students on environmental and energy issues.

Note that the county has several other magnet programs that could be used to educate students about a clean energy future including the Global Ecology Magnet Program and the Science, Math, Computer Science Magnet Programs. We strongly support the recommendations related to education for development of climate solutions and clean energy curricula that will be taught to all students in the county, including public and private schools.

Strategy 4.7 - Explore more public private partnership opportunities to support innovation opportunities.

Biomass is excluded, yet capturing methane which is 25 times more potent greenhouse gas than carbon (although shorter-lived in the atmosphere) is critical. The County could both capture (where feasible) and use biogas from sewage and water treatment, food processing, landfills, and agriculture (including aquaponics & hydroponics, community gardens, etc).

Biogas can be an important substitute for fossil (fracked) natural gas for purposes such as cooking fuels (especially for restaurants). On the county level, it would be prudent to use the pure biogas on-site for space-heating, cooking or industrial processes, or electricity production to offset fossil natural gas while intercepting methane that is far worse than carbon and is accelerating climate change. Biogas makes more impact in commercial, industrial, and institutional uses. Some companies are marketing biogas for residential uses.

It is always important in discussion energy sources to recall the comment of Amory Lovins about “negawatts” - the cheapest source of energy is the energy that is never used. Thus, there should be attention to both conservation and efficiency, which are elaborated in the sections on sectoral sources, especially buildings and transportation.

Additionally, our working group was deficient in not examining the role of storage. While there is a charging inefficiency associated with storage, as long as the storage is charged from non-carbon sources, there is no carbon hit. But, most importantly, as Katherine Hamilton, President of GRID Alternatives Mid-Atlantic and Co-Chair of the World Economic Forum's Future of Energy Global Future Council, says "storage is like bacon, it makes everything better" (presumably she isn't a vegan or vegetarian). Storage can help align customer load with available generation, and make it easier to rely on GHG-free generation. Moreover, adding storage to their portfolio helps the County meet customer needs in a flexible and affordable way.

Elaborating on E-4 Public Facility Solar Photovoltaic Installations and Groundwork (Solar in Schools)

We received comments from the Project Manager for the Washington DC 11MW deployment of Solar on 35 DC schools and other public buildings that is saving DC taxpayers \$25 million and at zero cost to the city. He notes that MoCo is now the furthest behind in the region in taking advantage of the low hanging fruit of deploying solar PV on the schools. Arlington, Fairfax, and Fredrick County have already let large RFPs to deploy solar on the schools. Being behind has its advantages as MoCo could conduct a formal Benchmarking Study to collect Best Practices and Lessons Learned from the neighboring counties. There are some critically important issues related to roofs that need to be addressed in the Procurement & Acquisition Plan. For example, in 2019 Fairfax County put out a Request for Proposals (RFP) for solar on roofs, but the RFP was flawed in being ONLY for solar and did not address the Roof Warranties, which can be for less than 25-year life span of a PV collection facility. The Power Purchase Agreement has a 25-year life, BUT the roofs have warranties that are less than that (20, 10, 12, 5, etc. years remaining) so the roof will need to be serviced at the end of its Warranty Period to maintain the warranty. You cannot have a commercial roof without a warranty yet in order to maintain the warranty you would have to remove the Solar Plant which damages the system and costs a fortune and undermines the entire business case.

Some proposed changes to Recommendations developed by Clean Energy Technical working group:

1. Change Action 2.3.3 as shown below

OLD: Action 2.3.3 – Maximize use of solar on public school facilities.

NEW: Action 2.3.3 – Maximize use of solar on public school facilities with acquisition plans that take advantage of best practices and lessons learned from neighboring jurisdictions (e.g., DC, Arlington, Fairfax).

2. Develop Solar PV Canopies or Carports. (The Washington Nationals Canopy Case Study installed PV without any cost to the owners of the Nationals).

3. Add Action 2.1.6 – Conduct Cost Benefit Analysis to develop a Prioritized list of Solar PV Projects that provide the highest Return on Investment (ROI) for the county. Utilize the results to inform the long-term facility maintenance and procurement plans.