

Sunday, February 28, 2021

Ms. Adriana Hochberg  
Assistant Chief Administrative Officer and Climate Change Coordinator  
Montgomery County Government  
Executive Office Building  
101 Monroe Street, 2nd Floor  
Rockville, MD 20850

Dear Ms. Hochberg,

The Climate Mobilization Montgomery County chapter provides these comments on the Montgomery County draft Climate Action Plan. As you know, we are the group that worked closely with the then Councilman Elrich and others to pass the first climate emergency in the US with the most aggressive GHG targets.

Given the extensive time and effort that went into producing this document, including the thousands of hours invested by the almost 200 volunteers, including some of our members, and the hundreds of thousands of dollars spent in consultant and other support to produce the CAP, we are disappointed with this draft, as our comments demonstrate. We trust that the 100 recommendations that we made will be given full consideration as you prepare the final CAP.

We believe that by incorporating these recommendations and those from other members of the public, the final CAP can provide the detailed direction needed to enable the county to lead the country in decarbonizing its economy, removing CO<sub>2</sub> from the atmosphere, and creating a more resilient and equitable life for all of our residents.

Thank you for consideration of our feedback.

Respectfully,

The Climate Mobilization, Montgomery County Steering Committee  
(Karl Held, Doris Nguyen, Herb Simmens, and Nanci Wilkerson)

**Comments on Montgomery County's draft Climate Action Plan  
prepared by The Climate Mobilization Montgomery Co chapter**

"If we're going to avoid catastrophe, we have to redesign the systems in our life, not just replace the individual parts." Alex Steffen

"We are the first generation to feel the impact of climate change and the last generation that can do something about it." Governor Jay Inslee

*"What we do over the next 10 years will determine the future of humanity for the next 10,000 years".* Sir David King, Science advisor to three British Prime Ministers

**Earth Day Action Agenda**

The Climate Mobilization of Montgomery County asks the county to report the implementation actions it recommends over the coming year including the text of proposed legislation, executive orders and Memoranda of Understanding with MCPS, the Montgomery County College, the Maryland National Park and Planning Commission and other such entities. This Earth Day Action Agenda shall be provided to the public on Earth Day April 22, 2021.

The final CAP which both responds to and incorporates comments from the public should also be distributed by Earth Day.

Accomplishing these tasks within this timeline is feasible and necessary. We will oppose any timeline that goes beyond these dates.

The Earth Day Action Agenda and final CAP will kick-off the comprehensive and urgent implementation of the CAP.

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Our CAP comments are presented in three major sections:

- Overview (Pages 1-9)
- Detailed Comments and Recommendations (Pages 10-40)
- Summary List of Comments and Recommendations (Pages 42-48)

## Overview

Few counties or cities have been as bold and dedicated as Montgomery in addressing the climate crisis in the past decade. Establishing the first county scale green bank, developing an award-winning microgrid project and an innovative building benchmarking law are just a few of the reasons why the county is undoubtedly in the top 1% of local governments in the United States in its climate ambitions and accomplishments. Yet neither the planet nor the climate grades on a curve, and so accomplishment must be measured not against one's governmental peers but against what scientific evidence says needs to be done.

The county clearly understood that in 2017 when the council by unanimous vote chose to set its climate goals based on what was needed, and that in turn required action and speed that could only be accomplished on an emergency footing. And so Montgomery became the first government in the country and only the second in the world to declare a climate emergency. The emergency would mobilize an all of county effort to achieve the toughest greenhouse gas reduction targets while also acknowledging the need - which Montgomery may have been the first to recognize - to draw down large quantities of CO<sub>2</sub> from the atmosphere. We at TCM are incredibly proud that we initiated this effort by asking the county to take these unprecedented steps and that they responded quickly and comprehensively.

It's now over three years later and finally the county has laid out its proposed strategy for meeting the critical goals laid out in the Climate Emergency Mobilization Resolution (CEMR).

This Climate Action Plan (CAP) builds upon the work of well over 150 County residents who came up with almost 900 specific actions and research recommendations. It was written by a highly experienced consultant team. As a result the plan is rich with ideas and generous in explaining the Montgomery context.

*Yet ultimately the CAP fails at its most fundamental task– to lay out a detailed, compelling, and comprehensive set of pathways to achieve the multiple goals of the CEMR.*

Because the CAP is rich with detail and is underlain with voluminous data we believe the ten actions we outline below can – if fully and rapidly embraced by the county – transform the draft CAP into an exciting, accessible, comprehensive, and most importantly actionable agenda that can lead the nation in restoring a safe climate and enhancing transformative adaptation in a truly just and equitable manner.

## **1. Let's act like it's a Climate Emergency**

*Act* like the emergency it is. The current CAP does not reflect the emergency either in its rhetoric or in its timetable for action. The CAP needs to model and reflect emergency scale and speed action throughout the document. Explaining the steep *procrastination penalty* that the world in general and the county in particular has incurred by delaying climate action is critical to gaining public and stakeholder support for urgent action. Highlighting a detailed timeline for acting on all 87 action groups is essential.

Managing a transformational climate emergency response with only one person in a central coordinating role dedicated to this effort guarantees failure.

*TCM reiterates our strong request that we made to the council in 2018 that a Climate Emergency Mobilization Office be established in the 2022 budget with sufficient staffing commensurate with the need.*

To help ensure accountability in meeting the county's climate targets we recommend that *the county enact the language in the CEMR into binding legislation.*

## **2. It's also an ecological crisis**

*Act* to enhance the county's ecosystems and reduce its negative impact on the world outside its boundaries.

The CEMR acknowledged the ecological crisis in its statement that the world has "drastically underestimated the urgency of the climate and ecological crises". Dramatic losses in habitat, sharp declines in populations of fish, insects, animals and unsustainable increases in toxic pollution in our air, land and water point to an ecological collapse.

The CAP however contributes to deepening the ecological crisis. It does not even acknowledge the crisis much less systematically focus on how to ameliorate this decline by in part reducing the consumption of materials and energy. The absence of any mention of energy conservation, the extremely modest recommendations for reductions in vehicle use and the absence of any acknowledgment of the potential of the sharing economy to reduce emissions are among the fundamental flaws that must be addressed in the final CAP.

These and other related actions will help minimize Montgomery County's extraordinary yet hidden ecological and climate burden on the rest of the country and the world.

It's also critical that the county acknowledge that the goal is not to reduce emissions in the county per se but to reduce emissions irrespective of location. Climate is not a local issue as is cleaning up a local stream or stopping air pollution from a small local factory. Therefore county actions have to be designed and implemented to maximize emission reductions even if they do not wholly or even primarily occur within the borders of the county.

### **3. Choose the right goal – Restoring a safe climate**

*Restore a safe climate.* The CEMR speaks of initiating “a massive global mobilization to restore a safe climate.” That requires eliminating greenhouse gas emissions *and* removing excess CO<sub>2</sub> and other greenhouse gases from the atmosphere that are causing the climate crisis. Yet the CAP not only ignores this legislative direction it contravenes it by counting sequestration as an offset to emissions rather than as an essential addition. It also avoids estimating how much CO<sub>2</sub> can and should be removed, and it puts off any discussion of engineered approaches to removing CO<sub>2</sub> to beyond 2027.

Even if society achieves complete emission reduction in a decade or two, the cooling of the earth will take many decades unless excess CO<sub>2</sub> is also removed. Why aim for a slightly less catastrophic world when a safe climate for every person by mid century is possible?

Therefore the CAP must:

- Develop a strategy to support the atmospheric removal of CO<sub>2</sub> directly or indirectly
- Support engineered and nature based solutions, inside and outside the county, and
- Count sequestered CO<sub>2</sub> as separate from emission reductions

### **4. Incorporate the vision and voices of Montgomery residents and businesses, particularly those less advantaged**

*Lead with Vision.* Even the most diligent reader would have difficulty imagining what this plan means and what his or her life would look like with full implementation of the plan in the coming years. The county regrettably chose not to create a widespread community partnership to help develop a vision and actions for the CAP, despite many efforts by TCM to urge the county to do so. (We even organized a webinar meeting focused entirely on vision in July 2020 with well over 100 people in attendance. See <https://youtu.be/BdD2ziAepmQ>.) The county can learn from Montgomery Planning’s frequent use of visioning exercises.

Results of such an engaging outreach effort if embedded in the CAP would provide the public with a much better sense of why these recommended actions are critical and how lives will be affected by both the climate crisis and the county’s response.

The “good news” is that because the CAP is so vague and ambiguous in so many respects, much effort will be required by the county to further define and set priorities and timetables for action. These activities must fully engage the public with particular focus on those individuals and groups who have been heard least and who will often experience the most negative impacts from the climate crisis and the actions taken to address it.

The county should immediately convene a broad-based group with special focus on those least advantaged to utilize these or other engaging approaches to the development of a comprehensive implementation agenda.

These approaches could include facilitating and catalyzing literally hundreds of local climate conversations amongst friends, neighbors and colleagues, and hosting a Citizen Assembly as recommended in the Governance section. These and other efforts to engage people must continue for the many years it will take for the county to fully transform its carbon economy and lifestyle.

## **5. All of county must act**

*Mobilize* all the levers of county government and all sectors of society. For the county that means divestment and reinvestment policy, using purchasing specs to decarbonize commodities, initiation of legal action, boycotts and more. These and related actions are not now in the CAP and must become an integral part of it.

The county CAP needs to articulate a clear set of actions to support businesses, non profits, educational institutions and the rest of the county in taking these actions. Some suggestions would include creating a county Climate Extension Service that would help businesses and residents make better lifestyle and purchasing decisions and a series of climate contests with prizes for the best ideas to advance the county Climate agenda.

## **6. Clear and detailed action pathways are needed**

*Develop* specific pathways/roadmaps to a safe climate. The CAP must describe *what* actions are recommended, *why*, *how much* they will cost, *who* should do them, *when* they will occur, and *what* climate and other benefits and costs will result.

Neither cost, nor finance, nor timing or priority are currently addressed in any detail. The CAP for example does not even give a hint of an answer to the basic question of how much conservation versus efficiency versus solar versus wind versus geothermal and so forth should be generated to replace fossil fuels.

Nor are the obstacles to implementation and how they can be overcome addressed. They must be described in order for effective and speedy implementation to occur.

We reproduce a summary chart from Ann Arbor to show the kind of analysis and presentation that the CAP should and must have. However, creating such a chart will not be simple as the CAP is absent most of the needed information, such as the reduction in the number of tons of GHGs and the estimated cost-per-ton of GHG emissions reduced or avoided. This must be remedied.



### ACTION SUMMARY TABLE

STRATEGY 1	Total Costs	GHG Reduction	%total emissions	\$/ton	Co-Benefits
Community Choice Aggregation	\$3,245,000	784,000	35.8%	\$4	AIR; \$\$; EQU; SCALE
Bulk Purchase of Renewables	\$605,000	85,000	3.9%	\$7	LOCAL; NRG; AIR; JOBS; RES; \$\$; SCALE
Community Solar Program	\$205,000	11,500	0.5%	\$18	LOCAL; NRG; AIR; JOBS; RES; \$\$; EQU; SCALE
Landfill Solar Project	\$80,000	23,000	1%	\$3.5	LOCAL; NRG; AIR; SCALE
STRATEGY 2	Total Costs	GHG Reduction	%total emissions	\$/ton	Co-Benefits
Home & Business Electrification	\$7,100,000	362,200	16.5%	\$ 20	LOCAL; AIR; JOBS; HEALTH; SCALE
Bus Electrification	\$86,000,000	13,800	0.6%	\$ 5,839	LOCAL; AIR; RES; HEALTH; EQU
Bulk Purchase EVs	\$700,000	122,900	5.6%	\$6	AIR; JOBS; RES; HEALTH; \$\$; SCALE
Private EV Fleets	\$123,000	Not Calculated			AIR; RES; \$\$; HEALTH; SCALE
City EV Fleet	\$4,000,000	1,100	0.05%	\$3,636	AIR; JOBS; RES; HEALTH; \$\$; SCALE
EV Infrastructure	\$42,000,000	Not Calculated			AIR; JOBS; HEALTH; SCALE
STRATEGY 3	Total Costs	GHG Reduction	%total emissions	\$/ton	Co-Benefits
Bulk Purchase of Energy Efficiency	\$950,000	242,500	11.1%	\$ 4	LOCAL; AIR; JOBS; HEALTH; \$\$; EQU; SCALE
Building Code Requirements	\$1,935,000	48,300	2.2%	\$ 40	LOCAL; JOBS; RES; \$\$; EQU; SCALE
LED Lighting	\$3,140,000	2,600	.1%	\$1,208	AIR; \$\$
Benchmarking	\$2,370,000	Not Calculated			JOBS; \$\$; SCALE
Loan Loss Reserve	\$1,578,000	Not Calculated			LOCAL; JOBS; RES; HEALTH; \$\$; EQU; SCALE
Energy Concierge & Community Education	\$820,000	Not Calculated			JOBS; \$\$; EQU; SCALE
Net Zero Energy Affordable Housing	\$800,000	400	0.0%	\$2,000	LOCAL; NRG; AIR; JOBS; RES; HEALTH; \$\$; EQU
Green Rental Housing Program	\$530,000	Not Calculated			LOCAL; AIR; JOBS; RES; HEALTH; \$\$; EQU; SCALE
Green Business Challenge	\$700,000	Not Calculated			LOCAL; NRG; AIR; JOBS; RES; \$\$; SCALE
Aging in Place Efficiently	\$155,000	Not Calculated			LOCAL; JOBS; RES; HEALTH; \$\$; EQU
Weatherization Expansion	\$1,550,000	Not Calculated			LOCAL; JOBS; RES; HEALTH; \$\$; EQU

KEY					
EQU	Benefits the most vulnerable	RES	Improves local resilience	LOCAL	Produces local energy
COST	Cost savings accrued	HEALTH	Improves public health	ENV	Supports biodiversity preservation
\$\$	Supports local economy	SCALE	Scalable or transferable to other communities		
AIR	Improves air quality	JOBS	Creates jobs and/or develops workforce		

### ACTION SUMMARY TABLE

STRATEGY 4	Total Costs	GHG Reduction	%total emissions	\$/ton	Co-Benefits
Non-Motorized Plan	\$2,400,000	60,400	2.8%	\$40	AIR; RES; HEALTH; \$\$; EQU
Local and Regional Transit	\$656,780,000	93,200	4.3%	\$7047	LOCAL; AIR; JOBS; RES; HEALTH; \$\$; EQU
Park and Ride	\$170,000,000	28,400	1.3%	\$5,986	AIR; EQU; SCALE
Increase Housing Diversity	\$250,000	2,200	0.1%	\$114	LOCAL; AIR; RES; SCALE
Mixed-Use Zoning	\$365,000	Not Calculated			LOCAL; AIR; RES; HEALTH
Parking Rates	\$4,500,000	Not Calculated			LOCAL; AIR
STRATEGY 5	Total Costs	GHG Reduction	%total emissions	\$/ton	Co-Benefits
Year Round Composting	\$26,000,000	400	0.0%	\$65,000	LOCAL; NAT; JOBS; SCALE



## 7. Be Strategic

*Determine* which actions and systems should be addressed by the county and which by the private sector or other levels of government. Billions of dollars in public and private investment will be necessary to achieve these targets and the CAP must suggest at least in broad terms the role of government and the private sector in raising and spending these sums. The county must be orchestra leader and catalyst, but cannot focus attention on each and every action. While the CAP must be broader in scope in order to address all of the goals in the CEMR it must simultaneously be more detailed in its strategic analysis.

It may be for example that a regulatory change or tax incentive to support an industry with breakthrough energy technology may lead to a greater Greenhouse Gas (GHG) impact than more conventional actions, particularly if GHG or carbon dioxide removal benefits are looked at both inside and outside county boundaries. The county needs to be nimble and focused on the climate bottom line, which is not always easy for any government.

The largest challenges that need the most detailed attention are simple to identify:

*the transformation to a low carbon grid,  
transforming buildings away from methane gas, and  
eliminating vehicles powered by internal combustion (ICE) engines*

The grid transformation will be accomplished primarily by aggressive utilization of Community Choice Energy (assuming that the state legislature authorizes the county to do so ) along with state and federal action to require 100% clean energy by 2035 at the latest.

Removing internal combustion cars and gas heating and appliances in buildings results in eliminating over half of the county's emissions, so the county needs to strategically focus its efforts towards achieving these two monumentally difficult challenges. The CAP however treats these two challenges with no more detail or attention than the other sources of CO2 emissions as further discussed below. This must change.

Land-use is a sector that needs strategic analysis as it is a critical dimension of climate action, and is almost completely ignored in the CAP. Potential emission reductions from land-use were not even estimated.

Land use would seem to be the key priority area for the county given its likely substantial climate impact and its direct control by the county. Since regulatory action is the key land use intervention, it's much less expensive than the kinds of direct investments or subsidies that establishing electric car infrastructure or removing gas fired heating systems from many homes would require.



Yet there is no strategic discussion like this in the document. Without this strategic analysis the county may rush off (or the public may demand the county to rush off) to implement actions that could prove to be too expensive, counterproductive or even impossible to achieve, or that could best be handled by another level of government or the private sector.

Utilizing a *climate test* can help the county evaluate on an ongoing basis not only those actions contained in the CAP but the hundreds if not thousands of actions and decisions made by the county each year that will have a greater or lesser impact on the climate crisis.

To use the example of land-use, while we think land-use has significant climate impacts it would be unfortunate to give priority to land-use decisions without requiring a rigorous, objective and publicly transparent climate test process to measure and project GHGs and other climate benefits.

#### **8. Create a World Climate Center with the goal of becoming the leading educational, research and entrepreneurial center in the world**

*Create* the leading climate research, educational, and entrepreneurial center on the planet. Though exceedingly ambitious, such a center can be created by leveraging the county's climate leadership, highly educated and skilled workforce, federal climate and research oriented agencies and access to research universities, proximity to Washington DC. and political support of its elected officials at all levels.

Such a climate campus will provide an internationally unique opportunity for the establishment of new institutions to conduct research, educate the public and attract climate entrepreneurs.

These unique institutions include a *National Institute of Climate* and a *Climate University of America*. In addition a *Climatarium* would educate and engage the public in creative and hands on ways about climate. This complex, also containing space for entrepreneurial activities, would become the foremost climate educational, research and entrepreneurial hub on the planet by 2035. That same year the county would reach climate positivity – with zero emissions and millions of tons of CO<sub>2</sub> removed from the atmosphere.

A campus containing these institutions plus facilities for climate entrepreneurs could be located in the less advantaged eastern part of the county, providing jobs and income to those most in need. Creating these world class institutions would attract associated enterprises and thousands of jobs, thus addressing the county's lagging economic development record in a unique, enduring, sustainable and socially beneficial manner. Most importantly the contribution of these institutions towards accelerating progress in meeting the world's preeminent existential problem would be incalculable. We urge the county to include this concept in the CAP.

## 9. Connect everything

*Connect* everything. Every aspect of life and every dimension of our society is both affected by and will affect climate. For example a home and a car should not be treated as separate objects and systems, as the CAP does. If we see the vehicle, the home, the business or institution and the neighborhood as interconnected with both relationship flows and physical energy flows we can explore how to share energy at different hours, design our homes and public and private vehicle systems to much more effectively reduce emissions, save energy and money and even build community.

Similarly the county should focus on *transformative adaptation* that goes well beyond the necessary goal of minimizing the harm to people, ecosystems and property from extreme and often unprecedented weather. The larger systems at work – economic, political and social will almost inevitably destabilize society in unforeseen ways. Dramatically increased migration, economic shocks, political extremes and more that we can only begin to imagine are likely to become commonplace. All of these phenomena are connected.

Yet the CAP ignores all these forces and changes many of which are already underway. That must change.

*The CAP must be updated with the goal of connecting the dots between many of the recommended actions.* In addition a much more *comprehensive transformative adaptation plan* with the engagement of a broad and representative cross-section of the public must be developed.

## 10. Equity and Justice for all

*Act Equitably.* Transformative climate action needs to be planned, designed, implemented and evaluated with fairness and justice as a core principle. Those whose resources are limited though race, age, geography, physical limitations and economic means must be fully brought into this process to ensure their interests are protected in a society that too often just protects those with means. This also means that the key building blocks of a good life - housing, health, employment, education and mobility - must be addressed in ways that reflect the needs of all. The CAP and any and all implementing actions need to go much further than it has already done by fully integrating equity considerations.

Intergenerational justice requires that the voice of young people and those not yet born must be heard. We strongly recommend that the county establish the position of *Climate Trustee*, whose legal responsibility would be to advocate for policies and actions that protect the rights and future of young people and those yet to be born.

## Detailed Comments and Recommendations

The Climate Mobilization Montgomery County chapter is disappointed by the draft Climate Action Plan (CAP) released in December 2020. While a number of the sections - including social justice and racial equity, governance and public engagement, are well done, several goals in the CEMR are not addressed at all and key sections - energy, buildings and transportation - have significant gaps that need to be addressed in order to effectively meet the county's climate goals. The need to anticipate and adapt to the political, social and economic shocks that climate chaos will bring must also be addressed in the CAP.

Our immediate action recommendations attempt to balance two key outcomes - having a comprehensive and solid CAP that can provide evidence-based guidance for many years and developing, on an urgent basis, a package of carefully thought-out actions that can be implemented in the next few months by the council, executive and other governmental agencies and the private sector.

### **It's a climate emergency. We must act like it is.**

The fundamental deficiency of the CAP is the absence of either rhetoric or actions that demonstrate emergency scale and speed action. We had repeatedly urged the county to incorporate the word Emergency into the title of the CAP and in the title of an office to direct the county's Climate Emergency. This would help ensure that the CAP truly reflects the council's clear declaration of a Climate Emergency. Both were rejected and so we once again ask for these title changes.

There is nothing in the CAP that explains to the public that unless action is taken with emergency speed and scale, the world will likely face unfathomable tragedy within a couple of decades – that is within the lifetime of most everyone now living in the county. Nor is there any hint of the ecological/biodiversity emergency the planet is experiencing and the overlapping connections between these two emergencies - as the Climate Emergency Mobilization Resolution (CEMR) states:

*“The federal government, national media, and civil society, including most climate organizations, have drastically underestimated the urgency of the climate and ecological crises, failed to accept that we face an unprecedented global emergency, and relied on failed strategies of gradualism.”*

The word *emergency* has a very specific connotation: that unless remedial action is taken immediately, it becomes too late.

The county, because of its special responsibility and opportunity to set an example for the country and perhaps the world, must take the lead as it did when it adopted the first climate emergency in the United States and set the toughest GHG emissions standards in the country.

The central concept of a planetary carbon budget is not mentioned once in the document nor is the county's responsibility to act in accordance with this limited budget for CO2 emissions.

The actions necessary to decarbonize in less than a generation are transformational in nature and will affect in material ways every resident and business in this county. Unless the public is made aware on a regular basis of why this is essential, we fear it is almost inevitable that the necessary public and political support will not materialize.

Therefore, a chapter focusing on the nature of climate change and why only emergency speed and scale offers the possibility of restoring a safe climate is required. It also must forcefully articulate the monumental (albeit difficult to quantify) costs to county residents and businesses of not acting aggressively to minimize GHG emissions, remove atmospheric carbon dioxide and enhance community resilience.

The CEMR clearly states that:

*"Each of us has the moral duty to safeguard the planet for future generations."*

That profound responsibility should inform every word of this document. Currently it does not.

The CEMR also states:

*"The Montgomery County Council calls upon the national Administration, the Congress, the State, and other local governments to join Montgomery County, to use all available powers and resources to:*

*declare a climate emergency and initiate a massive global mobilization to restore a safe climate and build a sustainable economy;"*

This language stresses the requirement to "initiate a massive global mobilization." Therefore, everything the county does and everything the CAP calls for must be measured against whether it is supportive of climate action efforts both inside and outside its borders. With few exceptions, that is not the case with the CAP. Nowhere in the document is the need for a massive global mobilization stated, much less discussed.

The one important action in the CAP consistent with this goal is the establishment of a statewide coalition of local governments focused on advancing ambitious state climate policy (Action P-11, page 200). We applaud this proposed action and urge that it be given a high priority.

The eight principles on page xix that guide the plan conspicuously avoid any mention that emergency scale and scope action is required. Consequently, the idea of a *procrastination penalty* is also not articulated or even implied.

We would like to see the important first principle - *Think Transformationally - big out of the box thinking was encouraged* - applied throughout the CAP.

A procrastination penalty simply means that delay in eliminating GHG emissions requires a proportionately greater magnitude of emission reductions to make up for lost time. Just as a baseball team that is behind by three runs in the seventh inning has a much better chance of winning than a team behind by three runs in the ninth inning, so too the county and indeed much of the world that continues to delay effective climate action ensures that the pathway to a thriving planet becomes extremely narrow.

A just published report estimates that delaying serious Climate Action from starting now till starting in 2030 would cost the United States an extra \$3 trillion. A rough extrapolation suggests that would then cost Montgomery county and its residents some \$10 billion extra. That is one example of the *procrastination penalty* at work.

[https://energyinnovation.org/wp-content/uploads/2021/01/Cost\\_of\\_Delay.pdf?utm\\_campaign=Hot%20News&utm\\_medium=email&\\_hsmi=109491610&\\_hsenc=p2ANqtz-9aNE3YVJncV\\_X9p4n3756Mu\\_ie3u4ezdyFSpFliW9XK6ZqOdlk3JNklEhDmmcdKrj-lrRqZ66vRyU4sZ4E9Ecx6jaqQ&utm\\_content=109491610&utm\\_source=hs\\_email](https://energyinnovation.org/wp-content/uploads/2021/01/Cost_of_Delay.pdf?utm_campaign=Hot%20News&utm_medium=email&_hsmi=109491610&_hsenc=p2ANqtz-9aNE3YVJncV_X9p4n3756Mu_ie3u4ezdyFSpFliW9XK6ZqOdlk3JNklEhDmmcdKrj-lrRqZ66vRyU4sZ4E9Ecx6jaqQ&utm_content=109491610&utm_source=hs_email)

Had the county's Climate Mobilization Work Group, for example, prepared a true action plan in 2018 instead of taking more than six months just to compile little more than a list of ideas, 8% of its CO2 emissions would have been required to be eliminated each year instead of the 11% a year now required due to this three-year delay.

The CAP is literally the fifth climate action report to be produced by the county in a decade or so. These include the Climate Protection Plan of 2009 (many of whose 58 recommendations overlap the CAP), the 2018 Climate Mobilization work group report, the transition report prepared for the new Elrich administration and the voluminous reports issued by the five technical advisory work groups in 2020. These reports repeat and rephrase many of the same recommendations over and over again. If repetition and redundancy somehow reduced emissions the climate crisis would have been resolved already.

While we acknowledge that the county is acting to some degree while it is planning, the CAP is organized in a sequential rather than simultaneous and overlapping process and timetable. In an emergency setting one cannot act sequentially and expect results commensurate with what the science demands.

The US did not start building war materials only after every single blueprint was 100% complete. It designed and built simultaneously with each activity interacting and learning from its counterpart. In our view, the county not only wasted many months in choosing not to bring the consultants on board until the work group reports were completed; but, by doing so, it also all but eliminated the productive back and forth that would have occurred had the work group members been able to routinely and frequently interact with the consultants. And the consultants would have benefited from ongoing interaction with the work groups and would have been able to complete the CAP months sooner.

The CAP describes the county's climate progress on pages 5 and 55. The County's GHGs have declined by 19% (90% of this decline is from buildings, due to cleaner electricity and better energy efficiency) between 2005 and 2019 (much of the decline occurred due to the Great Recession), a little less than 1.5% per year or about seven times slower than the current 11% (80÷7) required pace of emissions reductions. For some reason the CAP does not highlight the incredible challenge of accelerating the pace of emission reductions about *seven times faster each year over the next seven years*. It must do so.

Perhaps like the Holy Roman Empire, which was said to be neither holy, nor Roman, nor an empire, so too is the Climate Action Plan lacking in effectiveness at climate, at action or as a plan. The CAP is neither comprehensive nor effective in its treatment of climate change initiatives, nor in its ability to describe with clarity what actions are necessary nor as a plan as it is absent a coherent strategy, theory of change and implementation agenda.

### **We need to restore a safe climate, not just reduce emissions**

The worldwide climate campaign must be aimed at achieving the correct goal, which is simply the restoration of a safe climate, as clearly stated in the CEMR adopted by the council on December 5th 2017:

“declare a climate emergency and initiate a massive global mobilization *to restore a safe climate and build a sustainable economy*”

(We note that, while there is little in the CAP regarding a sustainable economy, the county is preparing a separate ‘sustainable economic development report’ to be completed this year as discussed on page 227.)

The Paris Agreement goal of limiting temperature increases to well below 2°C, which is taken to mean 1.5°C, cannot restore a safe climate, since the consequences of 1.5°C are obviously much more catastrophic than the current climate with temperatures around 1.1°C above historical norms.

A safe climate requires restoring the pre-industrial climate, which in turn requires limiting atmospheric CO2 to well under 350 parts per million (ppm) from the 413 ppm currently in the atmosphere.

This in turn requires the removal of 1 trillion or more tons of CO2 in addition to (and not as part of) the effort to all but eliminate current CO2 emissions. Yet the CAP explicitly chooses to sweep aside this goal, going so far as to actually describe carbon removal throughout the document as an offset to emission reductions, directly contradicting the intent and plain language of the CEMR:

“transform the climate by reducing greenhouse gas emissions by 80% by 2027 and reaching 100% elimination by 2035, **and initiate large-scale efforts to remove excess carbon from the**

*atmosphere.*” (Neither CEMR clause is highlighted in the document, though the CEMR is reproduced in its entirety.)

This defiance of legislative direction and intent must be rectified.

### **We need a clear plan of action**

The vagueness and imprecision of the recommendations presented in each of the seven major sections of the report make it virtually impossible to coherently evaluate the CAP or determine the timing and sequencing of CAP implementation, as will be described in more detail throughout this document. The recommendations are only generally described in most cases, and there is no schedule for these actions, no clear cost data or cost effectiveness, or any consistent examination of the linkages that may exist between recommendations. It would be helpful to see the few dates in the report compiled into one graphic. A simple graphic showing recommended actions, cost, staffing and other information on an annual basis through 2027 is necessary and essential.

The CAP declines to specify a specific pathway nor does it even suggest a series of alternative pathways, given the inevitability that any specific pathway will encounter expected and unexpected obstacles making success anything but a sure bet.

The CAP does little to advance the recommendations and analysis contained in the previous climate efforts with regard to the three key targets of any effective decarbonization plan: **clean energy, buildings and transportation.**

The actions in the CAP are little more than - albeit a bit lengthier and more sophisticated - a wish list with well over 200 or more possible actions. We say 200 plus, rather than the 87 identified in the report, as the majority of the 87 actions described contain multiple sub-actions. This makes it all but impossible to determine exactly what the county has concluded needs to be done and when.

For example, the electrification of existing buildings action (B-4) contains at least six sub-actions, several of which overlap sub-actions mentioned in other building action descriptions. To what degree they are recommended requires the assistance of a dictionary as some sub-actions are described as ‘should’ occur, others as ‘could’ occur and yet another says ‘strong consideration should be given.’ Similarly ambiguous language occurs throughout the document.

The CAP claims to have a feasible strategy for reaching the 80% target by 2027 but falls significantly short (by 17%) of reaching the 100% target by 2035. It is impossible to assess the foundation of this assertion as key assumptions and underlying data are missing. But it is hard to understand how the county could reduce its emissions on average by 11% or so a year for the next seven years and then essentially all but stop reducing emissions in 2027 with a reduction rate of less than 0.5% a year for the next eight years.

This 17% gap follows from the decision made to defer action in several areas largely because they are either smaller in scale or more difficult to decarbonize. We disagree. The scale of proposed decarbonization should not be the determining factor in what priority that effort should receive. For example, if it costs less per ton, or is administratively, technically or politically easier to do, why would the county wait for almost a decade to tackle methane leakage or refrigerant gases?

Staffing is particularly critical, as the hundreds of actions are likely to require dozens of staff to administer. Action G-4 speaks of identifying staff needs, but as a climate *action* plan, staffing estimates need to be included in this document across all activities so that priorities and cost effectiveness can be determined.

The CAP does estimate relative benefits and co-benefits of the emission reduction, sequestration and adaptation actions in Figure 28. No comparable chart is available for public engagement or governance, nor would such a graphic be simple to construct.

While the need for action by other entities outside of county jurisdiction is noted for every action, what is not noted is which entity must act and what must they do to allow the county to move forward with that action. This information presumably was collected and therefore needs to be included in the CAP.

An initial upfront cost range is given for each action ranging from below \$100,000 to greater than \$1 million for public costs and less than \$10 million to greater than \$100 million for private cost. Do these estimates include costs to address the kinds of subsidies and financial support included in the equity enhancement discussions appearing alongside each action? Clearly an analysis of the cost parameters of each action must have been undertaken. Then why is this information - like so much other information - kept out of the CAP?

There is also no estimate or range of overall public or private costs to implement. This is unacceptable. The public and county decision makers need to know the potential financial and economic burden and benefit of implementing the agenda that is outlined. A chapter outlining the economic and fiscal impact and consequences of full implementation of the CAP would be invaluable for decision making, for plan rewriting and for public awareness. (*The Ann Arbor A2 Zero Plan contains costs and actions by year, as should the CAP.*)

This document is missing critical information that an action plan must have. It also does a poor job in effectively communicating the information and conclusions that it does contain. There is no one place, for example, that highlights the key strategic actions the County is recommending along with cost, benefits and more. One has to simultaneously review Figure 23, along with tables 6 to 10, and Figures 26, 27 and 28 while also looking at the descriptions of each action to get something like a full picture of the intent of the action and its importance. Many of the figures themselves are extremely difficult to understand and utilize. Figures 23, 26, 27 and 28 (pages 63-64, 77-82) have axes with no units and are difficult to interpret. For example, in Figure 28,



what does a 25 on Cumulative Primary Benefits mean? What does a 5 on Cumulative Co-Benefits mean? What are the units in each figure? How were these values determined?

A simple chart with four rows would suffice:

Action:

Actors responsible:

Specific response needed:

Date required:

A comparable chart would divide actions by the specific government or private sector, so that one could easily see what actions the county needs from the state or federal government.

Ultimately the progress made in MoCo depends on what happens in Washington and Annapolis, as much or even more so than what happens in Rockville. And, while no one knows what legislative bills will be passed, we do know that we have a climate hawk as president whose platform is public and whose recommendations to Congress will be made shortly. Why would the CAP ignore this reality? An analysis of how the County could take most advantage of initiatives likely to be adopted by the federal government and, similarly, what it would do in case those initiatives are not adapted would be valuable and a necessary addition to this document.

Establishing an intergovernmental climate action group with Federal, state and municipal, and other governmental representatives would be an important step for the county to take.

No transparency on the use of the Curb model and data is available. It must be provided ASAP so that it can be more effectively analyzed and evaluated, rather than only provided when the plan is completed, as county staff has so indicated.

The Ann Arbor Plan from April 2020, with a more ambitious set of climate targets, was developed in four months from the time an emergency was declared.

### **We need to connect everything**

A true systems perspective is not evident in the CAP. Linkages between the various actions - particularly those in separate sections - are not explored or discussed.

No discussion, for example, is found of the essential role that markets for electric vehicles, cost-effective heating pumps or similar technologies as a key component of the decarbonization system will play. How fast will these markets evolve to offer higher quality and lower cost products and services? What can and should the county do to use its purchasing, regulatory and other leverage to speed this acceleration? What can be done to provide incentives and support for the county's automobile dealers to speed the transition to electric vehicles? There is little in the CAP that addresses these issues and questions.

One example of the need for linkage and the evolution of low carbon electric power products and services is the opportunity to integrate within a home or multi family building battery storage, two-way car charging, energy efficiency and solar collectors. These integrated approaches have great potential for saving money, taking advantage of economies of scale, and simplifying the transformation of the structures through a kind of leapfrog one stop shopping and installation. Yet discussion of this concept is absent in the CAP, perhaps because this would require policy that is closely coordinated in all three of the key domains - buildings, energy and transportation.

A recent report from Rewiring America estimates the cost of electrifying a single-family house and vehicle to be on the order of \$70,000. With the integration of these systems and low-cost financing, however, households in Maryland are estimated to be able to save as much as \$2500 annually on operating costs. Nowhere is it made clear to the public that this is the magnitude of the effort that may be required of virtually every household in the county nor is it clear exactly how the county will support households in undertaking this challenge.

See

[https://static1.squarespace.com/static/5e540e7fb9d1816038da0314/t/5f9125184a17493652db0ba9/1603347768714/No\\_Place\\_Like\\_Home\\_RA.pdf](https://static1.squarespace.com/static/5e540e7fb9d1816038da0314/t/5f9125184a17493652db0ba9/1603347768714/No_Place_Like_Home_RA.pdf)

### **Other CAP concerns**

- If you seek to locate the seven key climate action sections in the CAP, you will be frustrated as they are all lumped into a chapter in the table of contents that covers 136 pages and is labeled Climate Action Introduction. While other much shorter sections are identified in the table of contents, apparently the county thought it was not important to identify where one could find Energy, Buildings, Transportation, Sequestration, Adaptation, Governance and Public Engagement.
- *Priority trade offs are absent.* What, for example, does the CAP say about the situation where there is fiscal capacity and political support for the addition of say five new full-time positions to address climate? How should these positions be allocated amongst educating the public, adapting to climate hazards, removing CO2 from the atmosphere or reducing emissions in the areas of buildings, transportation and energy? While Charts 2 and 28 begin to get at these questions by ranking actions based on cost and co-benefits, they are difficult to understand and combine with other information elsewhere in the report that suggest other dimensions of priority.
- There is little or no *assessment of the effectiveness of the existing 150+ climate related* programs the county has established. The county Green Bank for example, the first county sponsored green bank in the US, is mentioned in the document but no effort is made to evaluate its programs or progress. How can the CAP recommend new actions without knowing the effectiveness of current efforts?

- The plan is not responsive to the resolution's commitment to '*use all available powers and resources*' Legal action, procurement and budgeting are among the areas where hee county can and should be doing more.
- The county ignores opportunities to *mobilize the political connections* of its residents and businesses. Given the substantial number of county residents who work in the federal government in high level positions, who are lobbyists or help run trade groups, imagine if the county organized interested residents individually and collectively using their influence to accelerate climate action at the federal level.
- No sensitivity or '*what if*' *analysis* is evident throughout the document. For example, what if faster than expected cost reductions in electric vehicles and efficiency improvements in electric chargers occur or, alternatively, what if these efficiency and economic benefits fail to materialize? What if the climate crisis accelerates federal action which in turn leads to dramatically higher Federal and related employment and population in the county?
- Many lessons can be learned from examining the behavioral, economic and other changes that *COVID-19* brought to Montgomery County and elsewhere. Yet the CAP all but neglects COVID-19 except for a handful of scattered references.
- *Monitoring and evaluating* progress is an essential component of any large scale complex change effort such as this. Other than asserting that a new Climate Leadership Team will monitor and evaluate this effort, no hint is given in the CAP of how such a monitoring effort should work. At the very least, key indicators of progress need to be identified. The CAP needs a well thought out monitoring and evaluation chapter.
- Each of the key action chapters needs a *summary* at the beginning which succinctly describes in several sentences the strategy and outcomes embodied in that section. The absence of such a feature makes it almost impossible to discern the intent of each of these key chapters.
- *Montgomery College*, with over 12,000 students and a budget in excess of \$300 million, is barely mentioned in the document. Enormous opportunities exist to enlist the college in many of the actions outlined in the CAP. Imagine the entrepreneurial energy this could foster in helping build a sustainable economy.
- While *infrastructure* is appropriately discussed in the context of changes to enhance adaptation, there is no systematic analysis of the opportunities that reimagining the county's infrastructure could have in reducing emissions and meeting other county goals.
- A clear explanation of the meaning of the critically important concept of *Carbon Dioxide Equivalent- CO2e* is needed, given the importance of GHGs such as methane, nitrous

oxide and chlorofluorocarbons. Strategies to reduce these GHGs can bring great benefits given their potency.

- While *procurement* is mentioned in Principle 3 and advocated in Action G-8, the opportunities to leverage procurement specifications, particularly in partnership with other governments, is substantial enough that the CAP should include a chapter specifying which products and services have potential.
- A number of important technologies, processes and actions are missing from the CAP. These include *hydrogen* as a fuel, and *district heating/combined heat and power* as a well-established and underutilized, low-carbon, cost-effective means of heating a number of buildings from a centralized source. The critical importance of *grid modernization* is not mentioned and *battery storage* is only mentioned in scattered locations.
- *Aerosols*, as a source of climate cooling from certain kinds of air pollution, needs to be discussed. Switching to renewables may reduce aerosols, thus cleaning the air but also reducing sources of climate cooling. Thus renewables or other forms of fossil fuel reduction may actually result in heating the planet.
- The *social cost of carbon (SCC)* is a well-recognized approach to placing a price on carbon to better quantify the climate consequences of particular decisions. We understand that the County had used, or perhaps is still using, the SCC. The opportunities and limitations of the SCC to support sound decisions as a component of a county broader climate test needs discussion.
- Few societal innovations are as consequential as the so-called *sharing economy*. The acceleration of communications technology and devices, GIS, payment systems and other advances have enabled such basic sectors as mobility and housing to be increasingly characterized by the sharing of vehicles, homes, offices and others. The implications for reducing demand for buildings and vehicles is significant and can potentially contribute to more easily and indirectly reducing - or increasing - emissions. Yet the CAP says little about this societal trend except for passing references in such actions as T-3, T-10 and S-4.
- With few exceptions, there is limited strategic discussion of the central importance of using the county's leverage to accelerate climate action elsewhere. As a first mover, the county could have enormous influence both reputationally and substantively. One action that does leverage the county's influence and deserves our full support is the public engagement proposal to form a statewide coalition of local governments (P-11).
- Since only **five of the 19 top** priority building, energy and transportation actions are within the county's authority, it is essential to describe how the county can maximize its

progress in the event that other levels of government do not provide the county with legal or financial authorization or support.

For example, generally land use policy is under county control, though shared in complex ways between the Executive, Council and Planning Board. Therefore, shouldn't focusing on issues of density, location, transport, sharing of facilities and more be given priority? Unfortunately, the CAP gives little guidance on smart growth issues except to essentially defer to the Planning Board's Thrive 2050 General Plan draft. This is problematic; as Thrive is a policy plan, not an action plan and has a different time horizon. The CAP needs to do more on land use and growth policy.

- No cogent argument is made for why residents and businesses should be supportive of the County taking the lead with all of the potential costs and risks - as well as the rewards of doing so. This is an essential argument that needs to be made given the undeniable fact that even achieving the County's incredibly ambitious climate goals, and even if other governments do as well, there will be no discernible positive impact on the climate for perhaps four or five decades at the earliest.
- No attempt is made to explain the plan to various constituencies. If someone wanted to immediately see the role of and impact on municipalities or small business, one would look in vain. One also looks without success to see what the plan says directly to the 250,000 or so residents of the county under age 18, to the elderly, to urban, suburban or rural residents or to large corporations.
- To engage and enlist the public effectively requires a narrative or vision of what the county will be like with these actions fully engaged, acted on and operational. What would life be like from the perspective of a family sitting around their kitchen table? Other than a bulleted summary on one page that is labeled as a vision, nothing like that appears. An example of such a vision is the 2035 sustainable transportation vision prepared by the county transportation work group:  
<https://www.montgomerycountymd.gov/green/Resources/Files/climate/workgroup-recommendations/transportation-demand-management-vision-for-2035.pdf>
- An example of a comprehensive vision for the county is the following:  
[https://1drv.ms/w/s!AgbEuSvtyyx6gh99AbqMkC8Tr\\_W8](https://1drv.ms/w/s!AgbEuSvtyyx6gh99AbqMkC8Tr_W8)
- Oftentimes regulations inadvertently derail projects whose transformational quality is needed to decarbonize buildings and transportation systems. It would be useful for the CAP to recommend that the County systematically review each of its regulations in the context of meeting the County climate goals consistent with the recommendations in the CAP. (A state regulation prohibiting the placement of wells under buildings, for example, threatened to derail the United Therapeutics Unisphere project in Silver Spring, the largest commercial net zero building in the world, when it opened in 2018.)

- The regional context for climate action is not discussed. There are numerous opportunities to cooperate with neighboring jurisdictions in and out of state to advance our collective greenhouse gas reduction goals. They need to be described and incorporated into the Actions in the CAP.
- As part of a comprehensive climate regulatory review the potential competitive consequences of the county's aggressive enactment of a suite of regulations, fees and taxes needs examination. The county is already experiencing slow job growth relative to its neighbors and significant additional regulatory burdens, taxes or other cost increases to do business need to be carefully weighed against the benefit they will provide locally.
- A number of actions are advocacy only (E-5, T12-13 for example). Yet 14 Energy, Buildings or Transportation actions require some action by an outside entity. Since there is a need for county advocacy for each of these 14 actions as well as the handful given their own action description they need to be described in more detail and highlighted the same way that the advocacy actions are.
- An examination of the Ann Arbor plan also shows that it identifies 10 possible co-benefits. The CAP has four broader co-benefits - *economy, environments, equity and health*. These do not address cost savings, scalability and transferability to other communities, air quality or local energy among other co-benefits. We believe the CAP should address these co-benefits.

## Comments by CAP Section

### Social Equity and Racial Justice (pages 15-30)

Equity and social justice are brought into the document in several ways. An important and forceful description of the historical context of social inequities in the county is given a separate chapter on page 15. Housing, transportation, employment and other areas where profound inequities occurred and still occur are described without euphemism. Summaries of community conversations and recommendations to enhance community engagement are extensively highlighted on pages 29 and 30. We also applaud the artwork contest featured in the CAP which is designed to highlight entries made by members of marginalized groups.

Most actions are associated with a sidebar that describes ways in which they may be implemented in a more equitable way (equity enhancement actions) in the emission reduction and adaptation selections. Integrating equity considerations into the body of each discussion might give them more force though perhaps at the expense of losing the highlighting that occurs by having them in a separate and exclusive section of each action.

The equity co-benefits for a given action are also acknowledged for each action in these sections though not described in detail.

However the absence of opportunities for the public in general and less advantaged groups in particular to vigorously participate in the formulation of the CAP casts doubt on the legitimacy of the document as a whole as well as on the particular recommended actions.

A clear statement that generally those who have contributed least to the climate problem are suffering the greatest consequences, both here in the United States and throughout the world, is necessary. Research has identified that the top 10% in the world emit 20 x as much as the bottom 10%. While it is unlikely that such extreme inequality exists in Montgomery County, dramatic differences in emissions amongst income groups exist here as well and must be acknowledged and addressed.

<https://www.treehugger.com/are-rich-responsible-climate-change-4847387>.

We are concerned that other dimensions of equity are not more fully addressed. What is the impact of both climate mitigation and climate risks on people of different ages and disabled people? We don't learn anything about these groups in the CAP.

Intergenerational justice requires that the voice of young people and those not yet born must be heard. We strongly recommend that the county establish the position of Climate Trustee, whose sole responsibility would be to advocate for policies and actions that protect the rights and future of young people and those yet to be born.

Figures 8, 19, 12 and 32 display some of the geographic impacts of climate risks. A narrative describing the connections between necessary emission reduction actions and any differential geographic impact is needed.

### **County Greenhouse Gas Emissions (Pages 53-70)**

We have three major concerns. First, addressing remaining emissions should not be deferred until after 2027. Second, sequestration of CO<sub>2</sub> is not and cannot be an offset to emissions. That is an explicit violation of the CEMR and guarantees that a safe climate - the fundamental goal - will not be achievable. Third, offsets should be taken completely off the table and must not be characterized as 'last resort' options.

### **Climate Action Chapter (Pages 73-85)**

Limiting the recommended actions to those suggested by the technical workgroups is puzzling and shortsighted. Doing so leads to a kind of mechanical process whereby the 894 actions are boiled down, as if by recipe to some smaller number - in this case 87, though in reality well over 200. The experience of staff and consultants as well as members of the public who were not on the advisory boards - or members of the advisory boards whose suggested actions did not make the cut-off - are thus essentially excluded.

Many additional actions might have been advanced had there been true collaboration between the workgroups. While the county did arrange several meetings to discuss cross-cutting issues at the end of the workgroup process, this was clearly an add-on to satisfy a few who asked for such an opportunity, and which did not appear to lead to any modification to the work group recommendations.

It is stated that ‘action prioritization is also a qualitative process and should be revisited during action development to take into account additional considerations in the County.’ Yet as mentioned elsewhere in the comments, there is no explanation of when and how and by whom this so-called ‘action development’ will occur. This omission is at the heart of our critique. How many plans have to be created and how much of the ever-shortening window for action will be eaten up by yet another undefined black hole of inaction when we need to decarbonize on the order of 10% or more per year?

Figure 26 page 77 presents actions with the greatest co-benefits. Three of the five top actions are sequestration actions, but since the county chose not to model estimates of sequestration actions we have no idea if there is any significant climate benefit, though it is unlikely given the low, impermanent and hard to verify CDR potential of most natural climate actions.

The other two are active transportation/micro mobility and public transit. Given how unwieldy the organization of the CAP is one has to search other figures to get a sense of the emissions reduction potential of these two actions. They are listed as medium impact which means 500,000 to 1 million tons of CO<sub>2</sub>e cumulatively through 2035. The larger problem is that each of these two actions require dozens of sub-actions to be achieved. And none of the subactions are quantified or discussed in any detail. Unlike passing legislation that requires net zero buildings for example these actions require behavioral change by many tens of thousands of people. So it is not clear what the CAP adds to the efforts by the county over decades to enhance public transit, walking and biking except to confirm that there is likely to be a significantly positive climate impact if done properly.

Figure 28 is perhaps the most important chart as it displays both the primary benefits and co-benefits of the 51 actions in the five key areas of Adaptation, Buildings, Energy, Sequestration and Transportation. While it is not intuitively understandable, a moment’s study shows a distinctive pattern of actions relative to their benefits and co-benefits:

1. 18 actions have both low benefits and low co-benefits (five or less on both scales)
2. 22 actions have medium benefits and low to medium co-benefits (5-15 benefits, 0-5 co-benefits)
3. 5 actions have high benefits and low co-benefits (15-30 benefits, 0-1 co-benefits)

The 4 actions with the highest benefits are, from lowest to highest:

B-1: Electrification Code Requirements for Existing Commercial and Public Buildings

B-2: Electrification Code Requirements for Existing Residential Buildings



## B-3: Energy Performance Standard for Existing Commercial & Multifamily Buildings

### E-1: Community Choice Energy

One would have to look at Figure 27 to see initial investment feasibility and county authority to undertake these actions.

## **Emission Reduction Chapters - Energy, Buildings, Transportation**

We don't need a sophisticated planning process taking years and millions of dollars to know that the massive challenge of:

- *transforming our buildings away from fossil/methane gas,*
- *eliminating vehicles powered by internal combustion (ICE) engines, and*
- *the greening of the grid*

are the three key milestones required to meet the great majority of the emission reductions that are necessary. (Though it is unclear, despite all the charts and verbiage, what percentage of GHG emissions would be eliminated with the fulfillment of these three milestones.)

Therefore, these three super high impact areas require a much more detailed analysis and game plan of how exactly to accomplish them than is contained in the CAP. (Only 46 of the 221 pages, or 20%, of the CAP is focused on emission reduction actions and strategy.)

The 31 actions required to achieve these milestones are all given roughly equal attention rather than a much more detailed focus on the most consequential of these actions. This more detailed focus should describe the inter-relationships between these actions, their timing and sequencing, costs and potential workarounds if actions cannot be achieved.

There isn't even mention of the number of vehicles and buildings that would need to be converted, abandoned or transformed to electricity, nor any straightforward and coherent description of how that is to happen.

Let us therefore assume that half of the county's 400,000 dwelling units currently are served by gas heat. Chart 6 indicates that 85% of these units are expected to have electric heat pumps by 2027. So 170,000 units would need to be converted in seven years or over 24,000 a year. We have no idea how much of an increase that is from the current pace as once again the CAP does not provide that information. An estimate of \$10,000 per unit including insulation and other actions to reduce energy use means that some \$240 million a year needs to be invested for each of the next seven years. (The actual number is likely to be much higher, particularly given that the demand for these units is likely to be much much greater than the supply, and installation labor shortages will be likely particularly in the early years.) Close to a *quarter of a billion dollars a year* is - most would agree - a lot of money.

What about trained labor availability? If we assume 20 hours of labor for each heat pump, that is 480,000 hours of labor a year which translates to about 300 full-time skilled installers. (This estimate does not account for the likely greater number of hours required due to increasingly severe weather affecting productivity and absenteeism.) Do we have that labor force? If not, what do we need to do to ramp up to that level, particularly when other nearby jurisdictions will be attempting to convert their heating systems to heat pumps? The CAP is silent on this issue.

### [2021 Heat Pump Prices | Installation & Replacement Costs.](#)

Remarkably, there appears to be no timetable in the CAP for the replacement of gas fired appliances such as ovens, clothes dryers and water heaters. Gas ranges and clothes dryers are only mentioned once in the context of a possible appliance trade-in program, and gas hot water heaters are not mentioned at all.

A similar analysis of the potential turnover of ICE vehicles is missing from the CAP.

We believe that this kind of analysis belongs in the CAP and should not have to be done on the back of an envelope by the public.

The magnitude of the transformation of the vehicle inventory of the county is staggering. A rough back of the envelope analysis might show the following:

With about 800,000 vehicles and an 85% transformation rate to EV's by 2027 (Figure 6) in seven years, and less than 1% of these vehicles currently battery powered, 680,000 vehicles would have to be traded in or otherwise retired - close to 100,000 per year. About 5% of the US vehicle fleet is replaced or added to each year by new car sales. Scaling down to the county, about 35,000 new vehicles are probably sold each year. So essentially to meet the county target:

*three times the current number of annual vehicle sales would have to occur each year for the next seven years and each of those cars, SUV's, and trucks must not be powered by ICE's.*

While EV cost reductions and financial incentives offered by governments are likely this is still a gargantuan task, and nothing in the CAP highlights either the challenge or the unprecedented effort the county will need to make to achieve this goal. The cost, availability and features - particularly charging and range - of the vehicles will likely have a much greater influence on the pace of uptake than anything the county can do.

Surprisingly and disappointingly, the CAP does not call for a specific numerical reduction in the number of vehicles in the county, only a reduction of 15% over 15 years in the number of miles these vehicles are driven each year. (Compare that to Ann Arbor's goal of reducing Vehicle Miles Traveled by 50% by 2030.) The benefits of reducing the number of vehicles are significant: a reduction in household financial burden, less traffic congestion, less sprawl, less

air pollution, and less need for the construction of and maintenance of parking spaces and parking garages. And a substantial benefit to the county's and the planet's biodiversity.

Reducing the county vehicle fleet by, say, 100,000 or 12% over seven years could reduce the volume of materials necessary to fabricate a vehicle by as much as 300,000,000 pounds of highly processed products from all over the world. See this article by the British climate scientist Kevin Anderson for more reasons to look askance at simply swapping ICE vehicles for EV's.

<https://theecologist.org/2020/nov/24/solution-problem>

It is difficult to comment in detail on the actions proposed in the energy, buildings and transportation action chapters as so many of the actions contain multiple sub-actions and are only described in the vaguest of terms. Therefore our comments are limited at this time.

For example, we count around 15 sub-actions in the first transportation action - T-1 Expand Public Transit. Fifteen is only an estimate, as the language is so inconsistent and vague as to make a determination of which sub-actions are being advocated all but impossible. The sub-actions in many cases are of greater magnitude and significance than a number of the other actions yet are not analyzed for their cost, priority, impact, co-benefits, and more.

*Therefore we strongly recommend that each of these three critical sections - Energy, Buildings and Transportation - be completely re-organized and rewritten to make them coherent, logical, comprehensive and actionable.*

### **Energy (Pages 89-98)**

This section begins with the assertion that the county must be generating 100% of its energy from renewable sources by 2030. There is no description of how the 2030 date was established for this important milestone.

The CAP uses the terms renewable energy, clean energy and carbon free energy without any definitions given. Since the use of nuclear energy is generally included within the definition of clean energy but not renewable energy, the use of these terms needs to be made much clearer. This is particularly important given that some 40% of Maryland's utility scale electricity is currently generated from nuclear power.

### **E-1 Community Choice Energy**

CCE appears to be the most impactful single action to catalyze emission reductions. Yet the description says only that the county *could* establish a CCE program. On page 98 however a further discussion of CCE says that the county *must* establish a CCE program after authorization by the state. Which is it - could or must?

There is not a word on energy conservation as opposed to energy efficiency. We need to focus attention and policies on increased conservation, i.e., reducing our energy footprints. Somehow the idea of “conservation” has been replaced with “energy efficiency,” which seduces us into thinking we are making progress, when in reality all we may be doing is adding to the energy footprint through renewables.

The IPCC 1.5 C report indicates that dramatic reductions in energy and material use are essential to meet this critical threshold while deploying carbon dioxide removal to lower temperature still further. See

<https://twitter.com/jefimvogel/status/1358468685141336067?s=21>

Sharp reductions in energy and material use are required from affluent communities like Montgomery in order to equitably allow for decent and humane living standards for the planet’s population.

See:

<https://www.sciencedirect.com/science/article/pii/S0959378020307512>.

It is difficult to conceive of a comprehensive climate action plan that avoids discussing the potential for the location of decentralized mostly solar generation in the county. This is particularly true given the controversy over whether and how much solar to allow in the county agricultural reserve. It is imperative that the county undertake this analysis ASAP and integrate and apply the results to the recommendations contained in this document.

If a robust CCE program is authorized by the state and advanced by the county, how critical is it that the county support in-county solar installations - whether on individual buildings or in freestanding arrays, particularly if the energy purchased through the CCE is less expensive than local solar? The CAP needs to provide the answer. See Table 9, p 62.

Alternatively if CCE is not authorized (we should know before the CAP is completed if the legislature authorized a Montgomery CAP pilot) what would the clean energy pathway look like?

## E-2 Private Building Solar Code Requirements

“Because the electric grid is powered primarily by a mix of fossil fuels and nuclear resources, continuing to rely on this electricity will not reduce building emissions enough to meet the County’s zero emissions goal.”

This statement equates fossil fuels and nuclear with respect to the level of emissions produced. We are not aware of any circumstances where this is the case. Quite the contrary as nuclear is a very low carbon emitting fuel.

How many buildings will the Solar code requirement apply to?

E-3 Promote Private Solar

Eight distinct and separate actions are recommended.

The production and distribution of solar panels generates substantial GHGs. This should be acknowledged and addressed.

Given what could be a very large scale demand for solar panels and associated equipment, the CAP should examine whether the county could either attract a manufacturer to locate here or set up its own fabrication facility to help meet both local and regional demand and even become a profit center for the county.

### **Buildings (Pages 101-111)**

There are only seven building actions - ignoring the substantial number of sub-actions identified mostly with little description. Each of these actions except for B-7 needs outside approval from some unspecified authority. The CAP must specify what specific entity is required to give authority and what kind of authority is necessary.

For example, the four key actions for existing buildings focus on code (B1-2), standards (B-3) and incentives (B-4). The relationships between these four and the order they should be implemented is barely addressed. Absent this kind of analysis it is next to impossible to evaluate these proposed actions.

The impact of acting on existing vs new buildings is really confusing. On page 101, the donut chart shows that 99% of the GHG impacts comes from actions focused on existing buildings. Yet chart 25 shows that the total emission reduction score of the actions focused on existing buildings is 75 and new buildings 20, which suggests that new building GHG emissions magnitude is considerably greater than 1%. (What these numbers actually stand for is unclear.) This is remarkably confusing and needs rectification here and throughout the CAP.

The first principle guiding building decarbonization should be to *reduce the use of energy* by conservation, efficiency and scale of building. Only then should renewable technologies such as solar be considered. The word conservation in this context is nowhere to be found in the entire CAP.

Where is the discussion of smaller - even tiny - houses, of shared housing, co-living, of cohousing? The average size of an American home has increased commensurate with the average size of an American automobile in past years (and the average waist size as well). This is unsustainable.

In a time of increased teleworking the scale and quantity of new commercial construction ought to be significantly less. After all, the most efficient building is one that is not built. Is this factored into the model?

The upfront energy and GHGs emitted in the materials, transport and construction of the building are a significant portion of total GHGs and will become an increasing portion of GHGs as operational GHG's decline. Their absence from an emissions inventory does not mean they are absent from the atmosphere. (We intentionally use the word upfront rather than embodied as these emissions are not embodied in the materials but rather are emitted into the atmosphere prior to the completion of the building.)

While we are pleased to see this statement in Governance action G-8:

*“This includes the development of specifications for low-embodied carbon-building materials and requirements for contractors to develop their own GHG inventories and account for their Scope 3 emissions*

Emissions released to the atmosphere now rather than later generate a significantly greater global warming impact and therefore they must be addressed soon rather than waiting a decade or more.

Why are 85% of residential buildings intended to have electric heat pumps, but only 25% will have better insulation and low E windows by 2027? Similar percentages are projected for commercial buildings. For new buildings 100% would have all electric and related efficiency measures with the passage of the appropriate legislation.

The most consequential actions in this section focus on adopting regulations for new and existing buildings that reduce or eliminate energy use and greenhouse gas emissions. It would be helpful to have a discussion of the relationship of these proposed code changes to the *International Green Construction Code* and the *International Energy Construction Code* currently used by the county.

Page 23 GHG reduction potential. Is this a percentage or simply an artificial score?

B-1 Electric code for existing commercial buildings

While there are few milestone dates in this document, the CAP should be able at the least to establish a date for the complete electrification of county owned and controlled buildings

B-2 Electric codes for existing residential buildings

While discussion of a point of sale or lease ordinance requiring replacement of fossil fuel equipment is part of the description of this action, it is not clear whether this approach would transcend the difficult problem of reconciling the economic interests and incentives of owners

versus leasees. A challenging obstacle to building decarbonization is the differing motivation and incentives for landlords and tenants for both commercial and residential property. *Green leases* are at least one way to transcend these differing interests and yet are not mentioned at all either in this section or anywhere in the CAP.

Additional analysis needs to be done on the potential negative impact on racial equity and social justice for this and other building actions. The electrification incentives in B-4 may be one way to address these expected very negative co benefits.

### B-3 Energy performance standard for existing commercial and multi family buildings

This action proposes setting standards that get increasingly stringent “to ensure that existing buildings are set on a path toward decarbonization (pg 105).” It is identified as being the fourth most impactful action (Figure 28, pg 81-2) and is closely tied to B-4 by providing an affordable pathway.

1 What is the timeline for increasing the performance standards? Could this be acted on rapidly as the County already has a Building Energy Benchmarking Law?

2. How will the benchmarking law be designed to meet the goals for electrification identified in Table 6 (pg 61)?

3How will the Racial Equity and Social Justice impact be addressed, as noted on page 106, “because there is no County-wide rent control, electrification costs are likely to be passed on to residential or commercial renters... even if the County provides incentives such as grants or tax rebates to low-income homeowners, the capacity and ability to access these financial incentives will vary”? This is another example for Electrification Incentives (B-4) to be integrated with this action.

### B-4 Electrification Incentives for Existing Buildings

Information needs to be provided on how this action will be coordinated with B-1/B-2/B-3. As noted, “the County’s goal of electrifying all existing buildings cannot be accomplished without financial incentives and assistance programs (pg 107)”. The timing for this action needs to be within the overall timeline for B-1/B-2/B-3.

### B-5, B-6 All electric code for new buildings, Banning gas in new buildings

Why is the banning of natural (methane) gas in new construction one of the only actions that has a definitive date associated with it? Though even the language recommending this action does not say that the county will or should ban natural gas but only that it ‘could’ ban natural gas. Nevertheless we commend the county for recognizing the need not only to ban gas but to do it almost immediately.

It is not clear why requiring all electric new buildings is a separate action than banning gas. If you require all buildings to be electric then aren’t you de facto banning gas? And if you are

banning gas aren't you de facto requiring all electric unless you're allowing buildings to be heated by oil - which makes no climate sense?

And why is the use of propane or oil heating considered a weakening of the ban, instead of simply extending the ban to all fossil fuels, not just gas?

Why does the all-electric building code have "Somewhat Positive" Racial Equity and Social Justice impact, but B-6, banning natural gas has a "Somewhat Negative" impact due to "the cost differential between natural gas heating and electric heating (pg 109)? Both would appear to have the same somewhat negative impact.

Since the first principle articulated in the CAP Is to think transformationally - with no idea to be considered impractical - perhaps the county should consider passing legislation that would ban the sale of gas heating and appliance systems after a certain date. We are not aware of any other jurisdiction that has proposed such an action, but what clearer way to send a critical message and help ensure rapid building decarbonization? (Of course, gas appliances and heating system sales in neighboring jurisdictions are likely to skyrocket with such an approach unless this is done on a regional basis.)

B-7 Net zero building code for new buildings

A 2030 date is recommended for a net zero energy code to replace the all electric code. (Public buildings are recommended to be net zero by 2022.).

Why isn't this action implemented immediately, as this is the only building action that does not require an authority outside the county?

It's not because there aren't examples of what a zero energy code could look like as in this building decarbonization code overlay to the international Energy Conservation Code:

[https://newbuildings.org/wp-content/uploads/2021/02/DecarbonizationCodeOverlay\\_20210217.pdf](https://newbuildings.org/wp-content/uploads/2021/02/DecarbonizationCodeOverlay_20210217.pdf)

## **Transportation** (Pages 115-136)

Decarbonizing Transportation appears to be a much more complex endeavor than decarbonizing buildings or energy. The 13 transportation actions outnumber the combined building and energy actions. None of the transportation actions result in a high level of GHG reduction whereas eight of the 12 building and energy actions are rated as high.

The donut chart indicates that only 13% of the county's transportation emissions will be addressed through a mode shift with the remaining 87% resulting from a fuel shift. This is one of



the more important numbers in the plan and deserves detailed explanation. Private vehicle use needs to decline from 75% of all trips to 60% by 2035 according to the CAP. The proportion of bike, rail and bus trips needs to double during this time.

According to an analysis by the Rocky Mountain Institute “the US transportation sector needs to reduce carbon emissions 45 percent by 2030 in order to align with 1.5 C climate goals—requiring that we electrify 70 million EVs by 2030. This EV range depends on whether we can also achieve in parallel a 20 percent reduction in miles travelled.” If a 20% reduction in vehicle miles traveled is required to meet a much less ambitious climate goal then we seriously question whether the VMT reduction in the CAP Is sufficient.

How to Move America to Electric Vehicles - RMI  
<https://rmi.org/how-to-move-america-to-electric-vehicles/>.

Given the enormous benefits of downsizing the overall vehicle fleet in the county, the CAP should model and discuss an alternative that has a significantly higher proportion of mode shift to fuel shift. A sliding scale of various proportions of mode vs fuel shift should be displayed, so the tradeoff between these alternatives could be examined. Options to reduce the aggregate number of trips need to be explicitly integrated. Telemeetings, aggressive transportation demand management strategy, limitations on road and prohibitions on highway expansion, aggressive road diets and co-location and density/mixed use should also be integrated into these pathways. (Table 10, page 62.)

‘The county successfully achieved its ambitious goal of eliminating essentially all transportation related greenhouse gas (GHG) emissions generated from within the county.

The county’s transportation emission reduction strategy had three key goals:

- 1) reduce single occupancy vehicle driving,
- 2) accelerate use of low emission vehicles, and
- 3) require climate-friendly development patterns’

The 2035 vision for a sustainable transport that the transportation work group prepared starts off with the language quoted above. Whether or not this particular language is used, the section and indeed every other section of actions needs a clear and succinct statement of the overall strategy embodied by the multitude of actions that are described on subsequent pages.

Among the many policies necessary to meet the twin objectives of enhancing quality of life while striving towards a climate positive county is the need to reduce road surfaces dedicated to vehicles both for driving and for parking. More parking equals more driving equals more pollution equals more climate emissions even with low carbon vehicles.

<https://www.sightline.org/2021/01/28/more-parking-isnt-harmless-it-actually-makes-us-drive-more/>

While *The Transportation and Climate Initiative* is mentioned in action T-12, it deserves to be fully discussed and integrated into the transportation decarbonization strategy. Other regional efforts to fund and deploy transit, electric chargers, congestion charges, integrated signaling and more are also ignored.

And the 270-Beltway widening, a project that could well bust the climate budget for Montgomery and nearby communities, is nowhere to be found on these pages. *Electric bikes*, perhaps the most consequential future mode of travel, are only mentioned once. Their aggressive rollout could have a significant positive impact on GHGs. Instead the now fashionable umbrella term 'micromobility' is mentioned 12 times, particularly in Action T-2.

#### T-2 Active transportation.

While this action acknowledges the need to implement the bicycle and pedestrian master plan recommendations since those plans did not take into account the county's climate goals they must be revisited to determine whether the recommendations are adequate and if not the plans should be amended to provide the guidance necessary to fully decarbonize by 2035.

#### T-3 private vehicle electrification

This action is perhaps the most challenging in the entire CAP. It will require a massive effort to retire the 800,000 or so vehicles powered by fossil fuels. Assessing a realistic balance between the roles and capabilities of each level of government and the private sector is absolutely essential. This assessment is missing in the description of this action.

Establishing a car loan through the Green Bank that is paid back through fuel savings is a creative and potentially consequential approach to accelerating the transformation to EV's.

#### T-4 Congestion pricing and limiting vehicles in urban areas

This set of possible actions encompasses a variety of ways to limit the use of vehicles particularly focused on the handful of downtowns in the county. In particular we applaud the CAP for advocating a congestion tax

That said, these broadly defined actions are likely to be vigorously challenged. To be successful they will require aggressive build out of public transit, walking, bicycling and other means of non-motorized transit and coordinated complementary zoning and land-use changes.

#### T-5 Electrify public and school buses

The observation that the county will have to stop purchases of non-electric buses by next year is significant, as is the recommendation to have completed the electrification of the county bus fleet by 2027. We applaud these recommendations and urge that a similar if not more aggressive timeline be included in the CAP for the electrification of school buses. That said,

maximizing opportunities for students to walk or bike to school is much preferred to simply electrifying school buses for a whole host of reasons.

#### T-7 Electric Charging Networks

A preliminary estimate of perhaps 7000 or more charging stations may be required by 2035. We support the need for a plan to achieve this goal as described in this action.

#### T-8 Transportation demand management and telework

We question the characterization of transportation demand management and telework as only providing low GHG reduction benefits. Given the broad scope of TMD and the dramatic increase in telework during COVID, how is it that aggressive use of these approaches could not lead to a substantial reduction in GHGs in ways that are superior to fuel shifting to EV's? We believe that a much more aggressive TDM program that takes into account the shifting transportation patterns and dramatically increased use of telework from the pandemic is necessary. Expanding transportation demand districts is one key action.

#### T-10 Low income electric car sharing

While we are supportive of creating EV car sharing programs with special emphasis on low income residents or areas, such programs should also be available, perhaps at a later phase, for middle income people and areas of middle income.

#### T-12 Advocacy for a vehicle carbon gas tax

We don't support advocacy for any particular revenue source absent the development of a comprehensive proposed financing plan that carefully examines the advantages and disadvantages of each potential source of revenue.

### **Carbon Sequestration (Pages 139-148)**

The description and six actions are narrowly focused on county lands and soils, agriculture, forests and water related bodies. We are supportive of increasing tree canopy, retaining and restoring such natural systems as forests, waterways and wetlands and encouraging the much greater use of the wide variety of sustainable and regenerative agricultural practices.

Our fundamental critique is that the CAP completely contradicts the wording and intent in the Climate Emergency Mobilization Resolution, which says that large scale efforts to remove CO2 are *in addition* to those efforts to reduce emissions of carbon by 80% and then 100%. Even though the CAP displays the CEMR on page 3, apparently no one authoring the CAP bothered to read it.

*Carbon dioxide removal is not and cannot be an offset to emission reduction.* It is a separate category and absolutely essential if the planet is to somehow muddle through without the collapse of our civilization and unfathomable destruction.

The substantial limitations of 'natural' carbon sequestration are also nowhere addressed. Cost effective and accurate measurement of sequestration and finding ways to ensure that CO2 is permanently sequestered rather than given up to the atmosphere when certain conditions change are fundamental limitations that may largely negate the theoretical benefits of natural means of sequestration. It appears that planting trees, rather than capturing CO2 from the atmosphere could actually be a source of additional CO2 given off to the atmosphere in as little as 20 years according to recent research.

<https://earther.gizmodo.com/land-absorbs-carbon-now-but-it-could-emit-it-in-just-a-1846053001>

The county should act as a catalyst for the development and deployment of frontier processes and technologies as described further on in this document.

We would like to see greater emphasis on local food self reliance here and in the Adaptation section.

No estimate, not even an order of magnitude, is given of the amount of CO2 that could be sequestered nor is there any discussion of increasing the number of acres in any particular category of land-use covered by the section.

The enhancement of soil quality described in Action S-5 is extremely important. Along with air, water and sun, soil is an essential component of all life. The restoration and maintenance of healthy soils has multiple benefits that go well beyond its ability to enhance carbon dioxide sequestration. We urge the county to make soil restoration a key priority.

We support the creation of a sequestration task force as recommended in S-6. However we have little idea of what the Whole System Carbon Management and Planning tool means. We assume it is important as it is one of only six sequestration actions described. Is there a similar tool that could be used by the county?

### **Climate Adaptation (Pages 151-177)**

Considerable detail is given in the climate conditions chapter of the scale and impact of severe weather - heat, rain, wind and drought. Yet this information is presented in almost a sealed vacuum as the associated instability, economic and psychological harm they will bring are totally ignored.

The 20 actions in this section, most of which can be implemented by the county with certain changes, present a solid approach to anticipating and responding to the physical challenges

that are outlined in the climate conditions chapter and that will increasingly confront the county and its residents over the next decades.

We particularly appreciate the focus on green infrastructure and green streetscapes, mold prevention and removal, the creation of a network of resilience hubs, and the support of climate adaptive technology and sustainability permits. Requiring solar, green or cool roofs and pavement is also to be commended given its multitude of benefits including minimizing the urban heat island effect. Finally the recognition of the need for climate adapted housing technologies to be subsidized to ensure equitable opportunities for installation and operation is a positive step towards enhancing individual and community resilience.

However it is hard to understand why the adaptation actions chapter has an almost complete absence of any discussion of the emotional/psychological and economic challenges that residents and businesses will face.

Astonishingly the term mental health is nowhere included in this document despite research and surveys demonstrating that significant numbers of people are already experiencing psychological impacts as a result of the reality and the threat of climate change. Recommendations should be developed to address this issue before it becomes epidemic.

Similarly there is no discussion of the potential consequences on the productivity of individuals, businesses and other entities as a result of the extreme weather and ever increasing impacts of the climate crisis. Temperature increases lead to productivity declines and absenteeism increases. Organizational functioning is likely to suffer, including the county government itself. What does the county say about that? Apparently nothing.

The increase in nighttime temperatures - often greater than the daytime temperature increases - presents unique health hazards to people and agriculture which go entirely unremarked in this document. We must assume this is an unintentional oversight. Please rectify.

Nor is there any discussion of the impact on the county of the larger forces that climate change will increasingly be likely to unleash. Dramatically increased migration and immigration from areas inside and outside the US destabilized by climate, and concomitant significant political, economic and social instability must be expected. The fact that we do not know the magnitude, timing or exact nature of these anticipated instabilities is no excuse for neglecting to analyze and develop recommendations to be better prepared to address them in a humane fashion.

A specific comment relates to the extensive discussion of culverts and their importance but devotes no attention to whether green or natural infrastructure can replace or complement the county culvert system.

## **Governance (Pages 181-190)**

The county is to be commended for the recognition of the central role of governance in ensuring that climate efforts can be properly developed, funded, implemented and evaluated. The 16 actions are all within the purview of the county. We particularly support the creation of a climate change academy providing training both to county staff and ultimately the public, as well as the creation of a climate innovation lab and a climate ambassadors program, a centralized climate data center and creation of a comprehensive center of metrics and evaluation criteria.

The use of contests with prizes to accelerate climate action should be promoted in the CAP.

We would also recommend a clearly defined action that would institute a process for quickly monitoring, evaluating and modifying, expanding or eliminating new or existing climate programs based upon rapid analysis of the progress of the many initiatives that this CAP calls for. The pace and boldness required will inevitably often lead to program failure. That's fine as long as the county fails forward, learning from what didn't work.

Most importantly we urge the county as we have done for the past three years to create and comprehensively implement a *climate test* to help ensure that all significant county budgetary, legislative, regulatory and programmatic decisions are consistent with the CAP and other official Climate guidance. The climate test should also apply to any outside organizations receiving significant county funding or other support. This effort can go a long way towards ensuring alignment amongst the hundreds of decisions the county makes each year.

The continued refusal of the county government to apply a climate test potentially negates much of the climate progress proposed in the CAP. The climate implications of such proposed legislation as 5G and missing middle housing rezoning for example, are very substantial, yet are ignored as neither is required to have any climate analysis performed. This makes no sense.

## **Public engagement, Partnerships and Education (Pages 193-206)**

While this chapter has many positive ideas for public engagement ironically the CAP itself as currently written is not an effective vehicle for engaging the public. It makes no effort to explain the nature of the climate emergency and the necessary steps the county is proposing to take.

We appreciate the recommendations, most notably a series of actions to engage students and young people through Montgomery County public schools and other institutions. We also like the emphasis on maximizing involvement of the arts, of federal agencies, the convening of a climate assembly and the involvement of community organizations, as well as engaging with the public through a public health /climate lens.

As with the rest of the CAP however there are no priorities set amongst these 20 actions, Nor is there any estimate of the cost, timetable, impact metrics or relative importance and priority compared to the multitude of other proposed actions in this document. This is particularly

important as each of the 20 actions can be implemented by the county without need for legislation or other intervention by other levels of government or the private sector. In the absence of these critical parameters the section, while useful, is still little more than yet another list of ideas with little context.

We are also concerned with the statement at the beginning of this chapter that states “the success of the County’s Climate Action Plan is based largely on the degree to which community members are actively engaged and participating.” Why is this the case? This attitude is concerning as while individual action is important, we certainly cannot rely on it to be the driving force in this process.

### **What Can I do? (Page 209-212)**

This chapter describes actions that individuals and businesses could take. However it is missing a discussion of the actions that the county proposes to take to support citizens to make these often difficult, time consuming and expensive modifications to their way of living. The CAP chooses to avoid the opportunity to examine the systemic connections between individual and collective action.

And other than the critically important action of encouraging people to talk to others about climate none of the personal actions involve perhaps the most important actions one could take. And that is getting involved politically, governmentally and collectively as a climate advocate. After all, the most significant action individuals can take is to advocate, be heard, and hold people accountable - including those responsible for carrying out this CAP.

Other policies for action could also be explored, such as encouraging the organization of a citizens climate program to assist the county in gathering data. Or a citizens climate community corps to work with neighbors to help them understand and act to advance climate actions.

### **Zero Waste Task Force Planning and Initiatives (Page 215)**

Rather than action recommendations this short page simply discusses some of the solid waste planning activities currently underway. The CAP must provide policy and action direction on solid waste and not just description.

An example of the absence of systems thinking in the CAP is the absence of any mention of the dramatically increased solid waste the county will likely generate as a result of the rapid decarbonization of buildings and transportation. Hundreds of thousands of gas heating systems and appliances will need disposal/deconstruction/recycling, as will upwards of 800,000 ICE powered vehicles. Is anyone at the county planning for this challenge and opportunity? We hope so.

## **Remaining Emission Sources and Potential Reduction Strategies (Pages 219-222)**

We urge the county to examine opportunities and develop strategies for the reduction of emissions from refrigerant gases - as they amount to a considerable 5% of emissions, which is more than twice the emissions from solid waste. Fugitive gases should also be reduced now rather than waiting for many years. While fugitive gases are only estimated at .5% of emissions we question that number. These emissions are made up largely of methane which is a more potent GHG than CO<sub>2</sub> on a molecule by molecule basis

We are concerned that too low a multiplier is used for methane in calculating its Global Warming Potential (GWP). We believe that the multiplier should be 84 or more given the critical importance of reducing methane concentrations in the short run to avoid triggering catastrophic planetary tipping points. (This multiplier value is the relative forcefulness of methane versus CO<sub>2</sub>.)

In addition, leaking gas pipes present a great hazard to the health and safety of residents and unless existing gas can be more rapidly phased out, developing programs to repair these leaks in conjunction with the relevant utilities should be advocated.

The discussion of emerging technologies for carbon capture and storage avoids mention of any of the most promising carbon dioxide removal technologies now being researched and in some cases deployed.

These include biological, engineered and hybrid approaches. Among the technologies are synthetic limestone for use in making concrete, a variety of biochars for use both as soil amendments and for incorporation into a wide range of products, use of the mineral olivine to sequester CO<sub>2</sub> on beaches and elsewhere as well as seaweed farming and techniques to mitigate ocean acidification while removing GHGs.

To limit discussion to only carbon farming in Montgomery County is to cut off significant opportunities to catalyze these promising techniques through publicity, procurement, and perhaps even direct investment.

The CAP could recommend modest funding to support companies who are developing carbon or other greenhouse gas removal approaches to help create and enhance markets for these critical products and processes. Microsoft recently awarded contracts to companies as a means of both becoming a climate positive company and to stimulate these critical markets. Why not Moco, perhaps in partnership with local businesses?

Consumption emissions are also a critical and urgent area for county action. Continuing to consume large quantities of products and services whose GHG emissions are generated outside the county is inequitable. The county should indicate in the CAP how soon it will initiate a consumption inventory. It should also create a consumption task force made up of a



cross-section of residents and experts to begin to formulate a detailed plan for reductions in consumption emissions commensurate with reductions in production emissions.

We commend the CAP for introducing innovative solar technologies including placing solar along highway and bicycle right ways, installing solar windows and other emerging technologies. It is essential that the county establish a forward-looking Climate Innovation Lab as described in G-5 of the Governance section to continually scan emerging technologies and practices for those that have promise for demonstration purposes or early adoption.

Building innovations such as constructing high-rise buildings with wood, placing carbon absorbing materials on facades and many others should also be closely examined. Similarly transportation advances such as new forms of micro mobility, greater sharing of vehicles.

Most importantly autonomous vehicle deployment requires close monitoring (it is astonishing that autonomous vehicles are not mentioned even once in the CAP.) as they are likely to reshape development patterns, individual and business budgets and locational decisions and so much more. The CAP must recommend that the county examine the best ways to ensure that their introduction will positively contribute to GHG reduction and other county goals.

#### **Paying for climate action Implementation (Page 225)**

The recommendation in the Governance section G-10 for creating a financing task force is too important to be relegated to one of a list of 20 actions. Rather it should be removed from this section and highlighted along with the rest of the all too short and too general discussion. Once again the reader will see us restate an obvious deficiency. And that is there is no timetable or priority for such a working group to be established and its report to be completed as there must be.

At the very least The CAP must estimate the order of magnitude costs of implementing the CAP actions. For without estimates of cost any discussion of financing is almost useless. Estimating private, public and start-up and ongoing costs as the CAP begins to do for a number of the actions is required. A discussion of the categories of financial resources available, their limitations, legal authority and revenue raising capacity is then both possible and necessary. Such an effort would provide essential guidance to both the public, decision-makers and members of any subsequent working group established to develop a detailed and actionable financing plan.

The CAP should also consider a commitment of 1% of county expenditures to be allocated for climate action, a proposal we made in 2020.

**The Looking Forward** section on page 227 contains a list of next steps. Two important next steps- or perhaps past steps would be more accurate - however are not included. We requested that the county hold a joint public meeting with Montgomery Planning to hear public comments and answer questions on the many critical relationships between the THRIVE plan and the CAP.

We also asked that the county hold a public hearing on the CAP so that individuals could give testimony. Both of these requests were turned down with no reason given. For the county to invest this extraordinary amount of time and resources on a document so critical to the county's future and then refuse to convene even one public meeting and hearing leads us to question the sincerity of the county's commitment to public involvement.

While we are pleased that a sustainable economic development report will be prepared this year as per the direction given in the CEMR, similar descriptions of those of the 87 actions that are intended by the county to be the next steps in this process should also be given.

## **Summary list of comments and recommendations**

### **Global** (Not specific to a CAP section)

1. Put the language in the CEMR into binding legislation and adopt this year
2. Take the lead in creating a world-class Planetary Climate center consisting of a National Institute of Climate, a Climate University, and a Climatorium
3. The CAP should be titled the emergency CAP
4. The CAP must have an extensive chapter explaining the climate crisis, the consequences if no action is taken and the rationale for the CEMR and CAP
5. The various planning functional and sector plans need to be revised to reflect both THRIVE and the final CAP
6. There is much to be learned from COVID19 that should be incorporated in the CAP

### **Our Vision**

7. Create a compelling vision of the future to incorporate in the CAP.
8. A strategic approach to climate action is required that is almost entirely missing from the CAP

### **Executive Summary**

9. Following the lead of the CEMR, the CAP must build upon the county's role as helping to lead a worldwide Mobilization rather than simply as an effort to decarbonize in one location

### **Background**

10. The CAP actions are not consistent with the CEMR's direction for the county to use "all available powers and resources"

### **Racial Justice and Social Equity**

11. The absence of significant public involvement in the development of the CAP, particularly amongst less advantaged groups, casts doubt on the legitimacy of its recommendations
12. Increasing inequality which exacerbates the climate crisis should be acknowledged and addressed by the CAP
13. The negative impacts of climate generally fall most on those who generate the lowest level of GHG emissions which should be acknowledged
14. The elderly, young people, disabled people and geographic location affect social equity and should be addressed
15. The position of Climate Trustee should be created by the county to protect the interests of young people and those not yet born

### **Climate Action Introduction**

16. Develop timelines and costs for each group of related climate actions
17. Calculate the number of tons of CO<sub>2</sub> that can be removed from the atmosphere by sequestration actions
18. The CAP must describe what combinations of actions are recommended, why, what are the climate and other benefits are, how much they will cost to implement, who should undertake them, and what approvals from other levels of government or entities are required
19. Transforming the grid and eliminating natural gas-fired space heating, cooking, and appliances, plus internal combustion engine powered vehicles, are the key challenges and require the most detailed analysis in the CAP
20. Develop actions that maximize energy synergies between homes and vehicles, including using vehicle and home energy storage and charging to connect to the grid
21. Alternate backup climate action scenarios should be described if, for example, enabling legislation is not authorized for a particular action
22. Each of the key climate action chapters needs a summary
23. The CAP needs to address the implications of the fact that only 3/4 of the top priority building, energy and transportation actions are under the county's direct control
24. Given the cost and complexity of many of the proposed actions, their impact on the county's economic competitiveness needs to be explicitly addressed
25. The four categories of co-benefits should be reviewed to see if additional, more narrowly focused co-benefit categories should be applied
26. The actions in the CAP should not be limited to those recommended by the work groups
27. There is no timeline in the plan for implementation, including when specific climate actions will be accomplished.
28. The building, energy and transportation sections need to be re-organized and rewritten to make them coherent, comprehensive and actionable
29. Energy conservation is not mentioned in the document and needs to be an essential component of any decarbonization strategy
30. All the relevant information to determine the priority and effectiveness of each climate action should be displayed in one location
31. The CAP should clarify the impact of eliminating GHGs in new construction, as different charts appear to show different numbers.

### **Clean Energy Actions**

32. Such technologies and systems as green hydrogen, district heating, combined heating and power and battery storage need discussion
33. Please explain why a 2030 date was chosen for when the county must be generating 100% of its energy from renewable sources
34. Definitions of renewable energy, clean energy and carbon free energy should be given to make clear the role of nuclear and other categories of energy
35. Analysis of appropriate locations for solar and other climate related infrastructure within the county needs to be included

36. The advantages and disadvantages of the county attempting to become clean energy independent versus importing its clean energy from outside the county needs discussion
37. Given the large quantities of solar panels and related equipment needed, the CAP should give consideration to supporting the establishment of businesses that can manufacture, distribute or install this equipment

### **Building Actions**

38. The CAP should make clear that the first principle for buildings decarbonization is to reduce the use of energy, and the best way to accomplish that is to avoid the need for a building
39. The construction of smaller houses should be encouraged as a way to reduce GHGs
40. While embodied or upfront building Emissions are discussed, they need to be addressed sooner rather than later, as they make up a significant proportion of building lifecycle emissions
41. Please explain why 85% of residential buildings are expected to have heat pumps by 2027 but only 25% are expected to have better insulation
42. The CAP should address the issue of differing incentives for landlords and tenants with regard to making improvements to a property and whether such tools as green leases should be encouraged or required
43. Explain why banning gas in new buildings also requires an all electric code as these two actions are presented separately
44. Instead of being concerned about the use of propane or oil heating as weakening the gas ban, why would this action simply not also ban any fossil fuel combustion?
45. Why are zero energy new buildings not recommended until 2030?

### **Transportation Actions**

46. Removing only 13% of the county transportation emissions through mode shift seems much too low given the extraordinary benefits of reducing the use of automobiles no matter how powered
47. The reduction in road surface for vehicles should be a Climate Action as part of the development of a complete streets network
48. The potential of the regional Transportation and Climate Initiative needs further discussion, given the opportunities to significantly advance county climate progress
49. Electric bikes as a very promising mobility option needs more discussion
50. Much greater detail is needed on the strategy and actions to remove some 800,000 ICE vehicles from the county within 15 years
51. The proposal for a green bank car loan payback with fuel savings is very promising and should be fully developed
52. The admirable timetable for electrifying school buses should not take away from the first priority which is to provide opportunities for the maximum number of students to walk or bike to school

53. Transportation demand management strategies, particularly teleworking, needs to be aggressively expanded and implemented
54. The low income electric car sharing program deserves priority and its expansion to other income segments of the county should be explored
55. It is premature to advocate for a vehicle carbon gas tax absent the development of a comprehensive CAP financing plan

### **Carbon Sequestration Actions**

56. Revise language and policy in the CAP to treat carbon dioxide removal/sequestration as an addition to emission reductions and not as an offset
57. Support engineered technology-based carbon dioxide removal
58. The formidable obstacles to utilizing natural climate approaches for sequestration including measurement and permanence need to be addressed
59. No estimates are given of the acreage in the various sequestration categories
60. Please explain in simple terms what the Whole System Carbon Management and Planning Tool means and what tangible benefit would it bring

### **Climate Adaptation Actions**

61. Acknowledge the ecological emergency and modify the CAP to address this urgent crisis
62. Incorporate an analysis of potential economic, social, political and other potential extreme societal destabilizing forces to better prepare the county to respond
63. We urge the rapid implementation of such adaptation actions as resilience hubs, the requirement for solar green or cool roofs and pavement, climate adapted housing technologies, and sustainability permits
64. The increasingly important problem of ecological anxiety and climate related mental health concerns needs to be forthrightly addressed in the CAP
65. The consequences of climate destabilization on the productivity of individuals and organizations needs to be addressed as does the health impacts of substantial increases in nighttime temperatures

### **Climate Governance Actions**

66. Rename the Climate coordinating office to the Climate Emergency Mobilization Office
67. Increase the staff of that office in the FY22 proposed budget
68. Implement an essential climate test to ensure that all major county decisions advance the county climate goals
69. A Climate Trustee should be established to protect the interests of young people and those not yet born
70. Estimates of staffing needs must be included in the CAP
71. The effectiveness of the 150+ existing climate related county programs needs to be determined

72. An intergovernmental climate coordinating committee should be established by the county with representatives from municipalities, the state and the federal government
73. The CAP must identify key targets and indicators and recommend the development of a system to incorporate monitoring and evaluation
74. The CAP should address opportunities for the Montgomery County College to decarbonize and support the actions in the CAP
75. How infrastructure investments can contribute to achieving climate goals needs to be addressed in the CAP.
76. The role of procurement in leveraging substantial climate action here and elsewhere needs to be elevated
77. The social cost of carbon as a way to evaluate climate appropriate investments needs attention in the CAP
78. The role of municipalities, the state and the federal government should have a section
79. The CAP needs to recommend that the county conduct a top to bottom regulatory review to identify regulations that need to be added, modified, or eliminated
80. The regional context needs to be included as many of the proposed actions may be more effective if jointly undertaken with neighboring jurisdictions
81. Such governance actions as the creation of a climate change academy, a climate innovation lab, a climate ambassadors program and a centralized climate data center are excellent ideas that deserve rapid implementation
82. Rapid prototyping of programs and rapid evaluation to expand, modify or close down programs needs to be institutionalized

## **Public Engagement**

83. Work with the public to use citizen assemblies or other engagement processes for developing implementation agendas
84. The CAP should discuss strategies for mobilizing political and other connections with its residents and businesses to influence policy at the federal and state level
85. The CAP would benefit from a separate section describing the roles of young people, the elderly, urban, suburban and rural, business and labor constituencies in implementing the CAP
86. While the public engagement section has many positive recommendations, the CAP itself as written is not particularly effective in engaging the public
87. Positive public engagement recommendations include engaging students and young people throughout schools and other institutions, maximizing involvement of the arts, the convening of hundreds of climate conversations, as well as engaging the public through a public health/climate lens

## **What Can I Do**

88. The personal actions described here are disconnected from the 87 actions and must be more closely integrated

## **Zero Waste Task Force**

89. The solid waste section needs to propose specific actions

## **Remaining Emission Sources**

90. The sharing economy needs to be addressed given its enormous climate ramifications

91. Remaining emissions, such as fugitive gases and refrigeration gases, must be acted upon now and not be put off to post 2027

92. The methane multiplier needs to be explicitly addressed and should be in the 84 or so range, rather than in the 24 range that we believe is now the case

93. Actions to address leaking gas mains that are public health and climate hazards need to be described

94. Approaches for engineered carbon dioxide removal should be described and acted upon including synthetic limestone, biochars, olivine and seaweed farming, among others

95. A consumption working group should be established ASAP to develop a consumption inventory and suggest specific steps to reduce this emissions source

96. Highlighting frontier technologies and processes is commendable and should include using wood to construct high-rise buildings, carbon absorbing materials on building facades, and perhaps most importantly the development of autonomous vehicles

## **Paying for Climate Actions**

97. The financing task force recommendation in the governance section should be highlighted in the financing section, as it is key to a successful CAP

98. While a comprehensive financing plan may be beyond the scope of the CAP order of magnitude estimates of financing needs and a detailed discussion of sources of financing must be included

99. The proposal made by TCM last year to allocate 1% of county expenditures to climate should be giving serious consideration in the CAP

## **Looking Forward**

100. A public hearing to hear testimony on the CAP should be scheduled in March, as well as a joint public meeting with Montgomery Planning to hear views on the connections between the CAP and Thrive



