

To: Members of County Executive Pittman's Transition Team on Renewable Energy
From: Advocates for Herring Bay¹
Date: January 16, 2019
Re: Unsolicited Recommendations on Solar Energy

Anne Arundel County has promising opportunities for renewable energy production, especially from sources like solar, which can be installed on different types of surfaces across the county. We urge the new Administration to be proactive in managing the growth of solar facilities in a manner consistent with other land-use priorities and with sound environmental practices. Toward that end, we respectfully offer the following recommendations:

Build on progress made in 2018 in balancing energy and environmental goals

Future policies should reflect the policy framework forged in 2018. After a surge in applications for multi-acre solar projects, residents and planners engaged in a 10-month debate about where and how such projects should be built, with a particular focus on forests and farmland. That process resulted in the enactment of Bill 89-18, which created new siting criteria and procedures for greenfield projects and expanded opportunities for solar in commercial zones.

Importantly, the 2018 law codified siting standards that will protect priority forests and sensitive habitats. By precluding solar development in FIDS² habitats, that law spares Anne Arundel from the clear-cutting seen in Charles County and in other states, where developers are removing hundreds of acres of forests for solar projects. Recent research on the effectiveness of natural climate mitigation measures attests to the wisdom of Anne Arundel's leadership on forest protections (see Attachment 1).

The 2018 revisions also sought to build public confidence in solar development by making greenfield projects in RA districts a special exception use. Community members also expressed a strong preference for siting solar facilities on impervious surfaces and previously developed land, rather than on forests or farmland. Using those "preferred sites"³ makes sense in Anne Arundel County, where the amount of land covered with impervious surfaces is almost twice the acreage used for farming. There also is significant acreage that is maintained as open land (not forested or farmed, see Attachment 2).

Act immediately to regulate the landscape impacts of pending and future solar projects and to study the potential for developing solar on preferred sites (next 6 months)

1. *Enact updates to the county's Landscape Manual for solar arrays.* Solar energy doesn't pollute the air, but covering dozens of acres with panels can impair soils, habitats, and waterways unless the site is maintained with native, beneficial vegetation. Until Anne Arundel updates the manual for best practices (shown in Attachment 3), permits for pending and future projects will be issued using environmental standards enacted in 2010 for subdivisions and shopping centers. According to a colloquy between former Councilman Chris Trumbauer and the Director of the Office of Planning and Zoning on Bill 89-18, landscaping updates could be completed by Summer 2019.

¹ Contacts on this memo are: Birgit Sharp, Jeff Plewes, Jette Findsen, Kathy Gramp, Peter Legg, and Steve Marley.

² Forest Interior Dwelling Species (FIDS).

³ Examples of "preferred sites" identified by citizens include impervious surfaces (such as rooftops and parking canopies) and previously developed land (such as reclaimed mines, landfills, brownfields, utility and highway buffers).

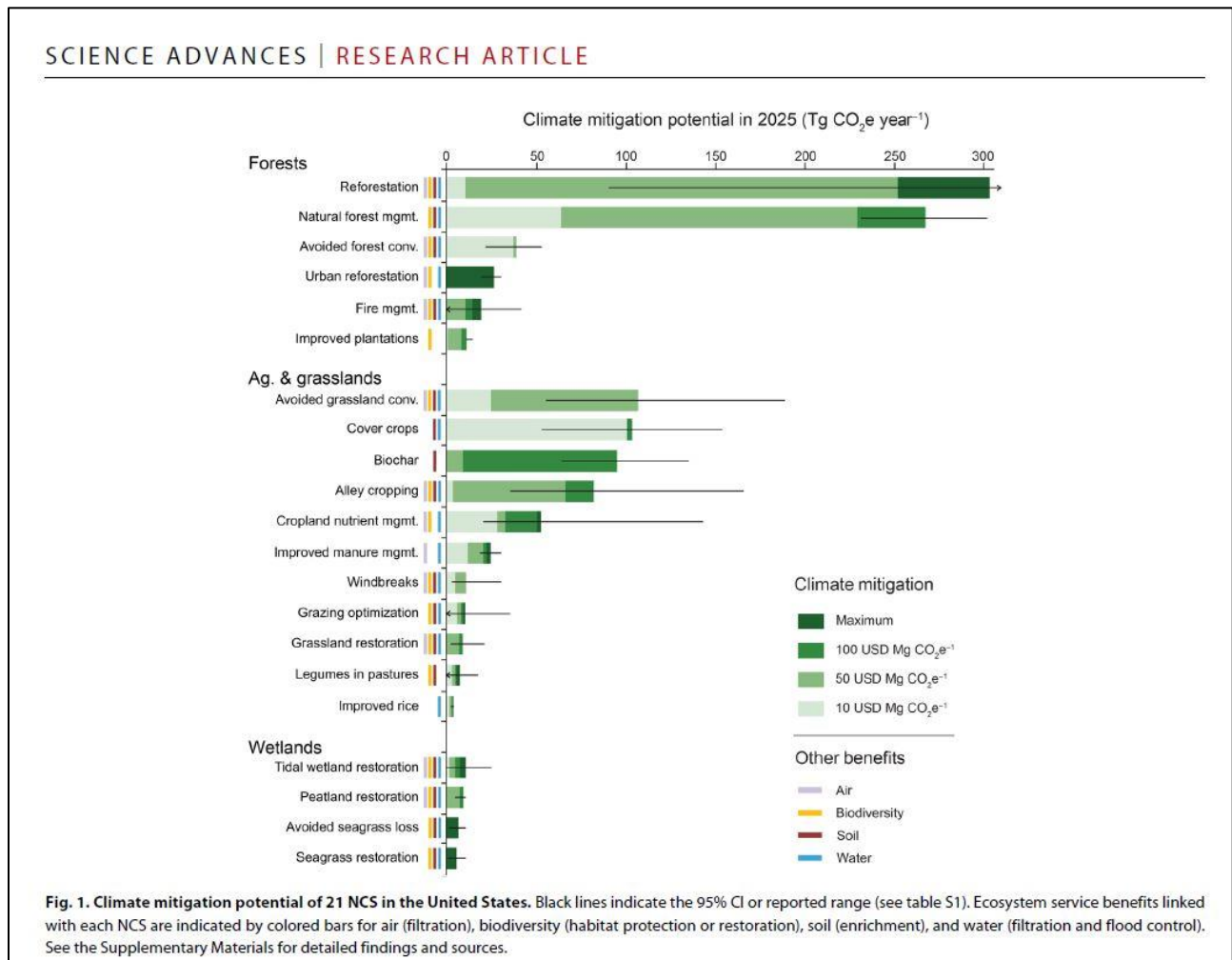
2. *Initiate a study of “preferred siting” for solar projects in Anne Arundel County.* A key lesson learned from the 2018 debate is that there is a lack of data on the availability and suitability of the various spaces and types of surfaces for solar development in Anne Arundel. We believe that the county’s success in expanding solar energy will hinge on doing a study that would better inform policymakers, residents, and developers on siting options. The study would:
 - Identify and characterize the various types of spaces and surfaces in the county that are technically feasible for solar development;⁴
 - Estimate the aggregate solar production potential of those sites and surfaces;
 - Use those results to estimate the potential for solar production from all “preferred sites” in Anne Arundel County over various time horizons (e.g., 10 or 20 years);
 - Identify barriers to developing solar on “preferred sites” in the county, focusing on barriers that could be addressed through economic, regulatory, or logistical support from the county government or the community; and
 - Inform land-use policies in the General Development Plan.

Initiate programs—informed by the study— that will achieve long-term goals (next 6-18 months)

1. *Develop a long-term goal for “in-county” solar production.* Adding solar capacity is challenging in Anne Arundel, because many of the undeveloped parcels sought by developers for greenfield projects are priority forests or small farms, and many of those are under protective easements. Achieving our solar goals with smaller, dispersed systems built by individuals and businesses will take leadership from the top. We urge the county to set a visionary but realistic target for in-county solar production in collaboration with communities and stakeholders. Such goals should support other county efforts to reduce greenhouse gas emissions and fossil fuel use.
2. *Remove unintended legal or procedural barriers to solar development at preferred surfaces.* Because the 2018 law focused on policies for protecting priority areas like forests and farmland, it may include provisions that would impede solar installations on preferred sites. For example, the terms of some zoning districts and other geographic restrictions may preclude the use of some reclaimed mines or other impaired lands (see Attachment 4). Similarly, it may be appropriate to review some preferred sites as a conditional use rather than special exception.
3. *Add solar capacity on government—county, state, and federal—property.* Over a quarter of the impervious surfaces in Anne Arundel—roughly 9,000 acres—are on land owned by county, state, and federal agencies (see attachment 5). Government agencies also control another 8,500 acres that are maintained as open land, roughly half of the countywide total. Capacity could be added quickly by revising and re-issuing the 2015 RFP for solar facilities at the county’s Sands Road Park and Millersville landfill and possibly other sites, potentially as community solar projects or direct power procurements.
4. *Engage with the business community.* Investigate and implement programs that would reduce barriers and incentivize commercial, industrial, and governmental entities to install solar arrays on preferred sites. As shown in Attachment 6, capitalizing on those opportunities will involve specialized planning, permitting, and financing by dozens of individual companies and agencies.

⁴ Note: A recent report for the Maryland Public Service Commission has analyzed the technical feasibility of siting solar on agricultural and forested parcels in Anne Arundel County. See Daymark Energy Advisors, *Benefits and Costs of Utility Scale and Behind the Meter Solar Resources in Maryland*, November 2, 2018, appendices I and J.

Attachment 1:
Research results demonstrate the effectiveness of natural climate mitigation measures



Source: *Natural Climate Solutions for the United States*, Fargione, et al., *Science Advances*, 2018:4, November 14, 2018

**Attachment 2:
Current land cover in Anne Arundel County**

DISTRIBUTION OF ANNE ARUNDEL ACREAGE BY LAND COVER
EXCLUDING CITY OF ANNAPOLIS, AIRPORTS, AND TRANSPORTATION
SOURCE: NPDES REPORT, 2017, TABLE 2



Source: AHB, using data from Anne Arundel County Department of Public Works, *National Pollutant Discharge Elimination Systems, Fiscal Year 2017 Annual Report*, Table 2, page IV-16.

Note: These data reflect the current characteristics of the land use, not zoning categories.

Attachment 3:

Best practices for landscaping solar arrays

Source: AHB, based on a review of solar standards enacted by counties across Maryland

Solar Landscaping Performance Standards

- **Screening:**
 - 50 -75 ft. buffer to provide a natural-looking screening that blends into the surrounding landscape
 - The vegetation shall screen the solar array within five years of the date on which the array becomes operable.
 - Design should use staggered rows or triangular spacing and be comprised of a diverse mix of evergreens and deciduous trees with no single species accounting for more than 25% of plant material:
 - Native evergreens
 - Native deciduous planted in clusters
 - Native understory trees
 - Native shrubs

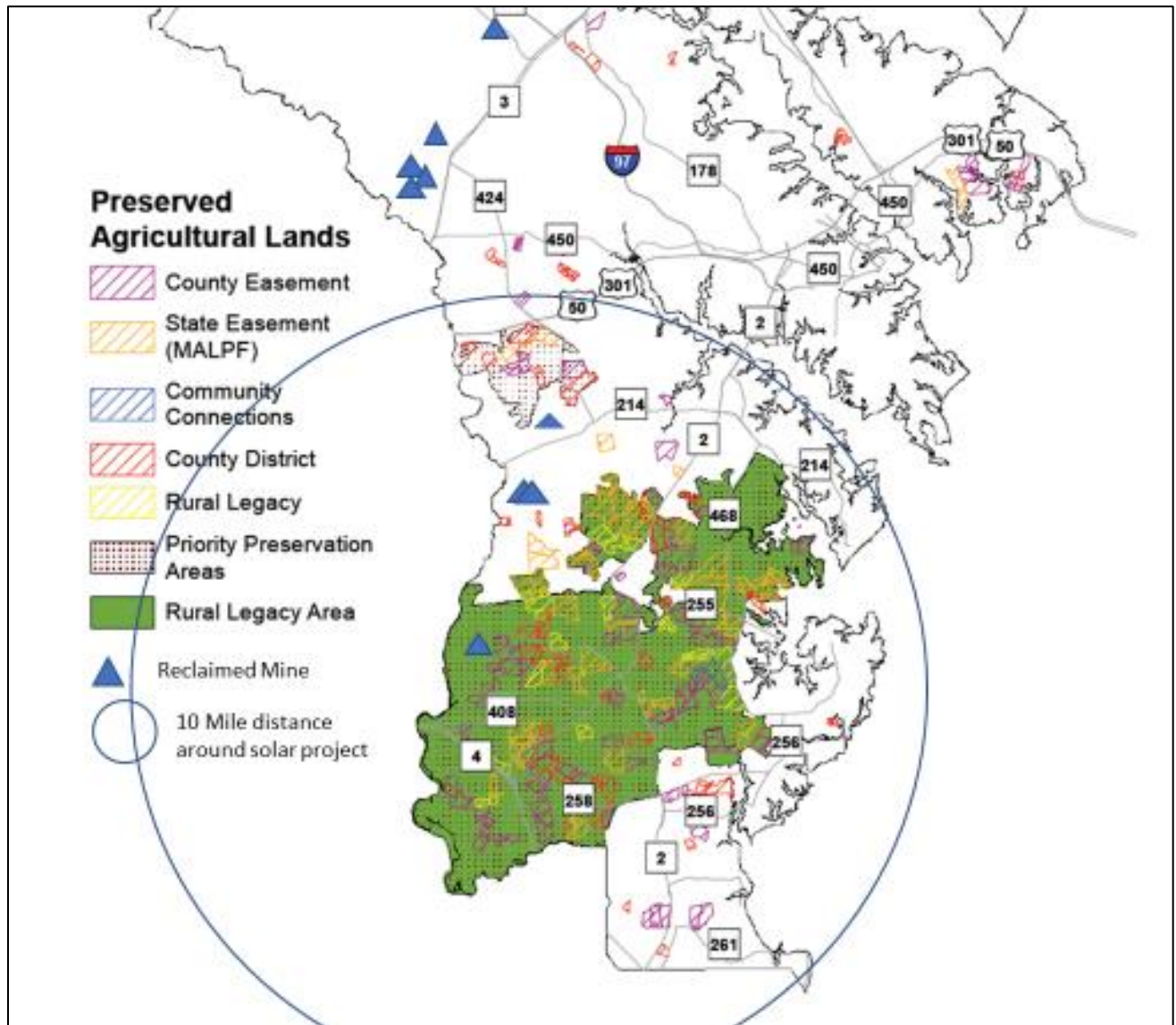
- **Ground Cover:**
 - Landscape Plan preparation is performed by a licensed 3rd party landscaping professional
 - Top soil and existing native ground cover should be preserved or replanted if removed during the construction of the facility
 - Native warm-season, low-growing grasses should be planted under the panels

- **Pollinator-Friendly Plantings (can be planted in the buffer):**
 - Flora should consist of a diversity of species
 - Limit the coverage of any single species to 25%
 - 100% should be non-invasive, native species
 - 2-3 species should flower in each season (spring, summer and fall)
 - In addition to pollinator plants, native grasses should also be planted

- **Maintenance agreement should be in place for the operational life of the facility and include:**
 - Maintenance of all plantings that provide screening and ground cover, including irrigation/watering to establish and sustain vegetation
 - Replacement of failed plantings and/or irrigation systems
 - Enforceable through a performance bond for 3-6 years to ensure vegetation is established
 - Certification by Maryland DNR as Pollinator Friendly in accordance with State Bill SB 1158 should be required through the County permitting process

Attachment 4:

Illustration of reclaimed mining sites in relation to the boundaries of the Rural Legacy Area and 10-mile radius, which may limit their use as sites for solar arrays



Source: AHB, adapted from maps in Anne Arundel County's *Plan2040 Background Report on Environmental Protection and Resource Conservation*. Most of the mines in Arundel extract sand, gravel, or clay.

**Attachment 5:
Major sources of acreage for solar development in AA County, by ownership**

**ACREAGE OF POTENTIAL SURFACES FOR NEW SOLAR CAPACITY
(ESTIMATED)**



Source: AHB, using land use estimates derived from data in Anne Arundel County’s 2017 NPDES report. Estimate of acreage needed to provide “in-county” solar capacity based on the 14.5 percent goal in legislation proposed in 2018.

Attachment 6:

Examples of solar installations on in-county “preferred sites” through 2028

The following table presents an illustrative set of solar installations in Anne Arundel County. In this example, the county does not meet a hypothetical goal of producing 14.5% of the county’s electricity consumption with in-county solar.

Site Ownership	Location of solar panels	Example or source of estimation	Capacity per installation (MW)	Hypothetical # of new installations by 2028	New solar capacity by 2028 (MW)
Residential	Rooftops	AA averaged 10 mw/year from 2015-2018	.005	16,000	80
Multiple Types	Brownfields (e.g., RCRA sites)	USSEC analysis			38
	Reclaimed mines	6 reclaimed mines, total ~ 500 acres	2	3	6
Commercial & Industrial	Canopies	AACC parking lot (panels ~ 54,000 sq. ft.)	.8	20	16
	Small rooftops	CBF building (panels ~ 6,700 sq. ft.)	.1	10	1
	Large rooftops	Staples Hanover (~ 200,000 sq. ft. building)	1.0	10	10
	Huge rooftops /malls	IKEA-Perryville (1.7 million sq. ft. building, solar panels ~ 456,000 sq. ft.)	4.9	2	10
County/ State/ Federal	Rooftops	Schools, other buildings (~100,000 sq. ft. each)	.8	10	8
	Canopies	Large park & rides, etc.	1.2	5	6
Multiple Types	Open land	Assume 1 % of open land and 7 acres per MW			25
Subtotal from these locations					200
Shortfall relative to the state solar target proposed in 2018 (14.5 % of all electricity use by 2028)					100+
<i>If shortfall, additional incentives required to increase installations above</i>					