Advocates for Herring Bay

Testimony of the Advocates for Herring Bay[1]
Regarding SB 983 – Solar Energy – DGCPCN
Submitted by Kathleen Gramp, March 4, 2025

Favorable, assuming adoption of technical amendment to stormwater provisions

SB 983 would establish a new regulatory framework for solar generation projects between 2 and 5 megawatts of capacity (or DGCPCN[2]), allowing those projects to be approved on an expedited basis if they meet standard conditions and procedural requirements. Those conditions include compliance with guidelines aimed at reducing impacts on forested lands and stormwater runoff.

The Advocates for Herring Bay (AHB) commend the sponsors for addressing those environmental impacts and recommend that the Committee issue a favorable report on SB 983 assuming it is amended to make certain technical corrections to the stormwater provisions. Benefits of enacting the bill as amended include:

Forest protection. The environmental preservation conditions in Section 7-207.4(B)(2)(III) would prohibit forest clearance except where necessary to reduce shading near the perimeter of the site or for certain specified needs. Linking that condition to expedited approval creates an incentive to avoid siting projects on parcels that are largely or completely forested while still allowing for incidental clearing. Without those protections, more projects like those shown in Attachment 1 will be built on forested land, including some in the jurisdictions that experienced the greatest forest loss over the 2013-2018 period according to a 2022 study by the Hughes Center on Agro-Ecology.[3]

Stormwater management. Section 7-207.4(B)(2)(IV) as amended would align Maryland's licensing conditions with best practices for estimating and minimizing runoff from solar projects. Those updates are urgently needed, especially in the state's MS4 jurisdictions. Maryland's existing solar stormwater guidelines were written over a decade ago, before the state began experiencing more intense rain events stemming from climate change or had experience with projects across Maryland's diverse geographic regions. They also predate recent studies that show that maintaining well-drained soils and deep-rooted vegetation under and between the panels—the site's "green infrastructure"—is key to reducing runoff from solar sites (See Attachment 2). [4]

The guidelines in SB 983 will encourage solar developers to take a holistic approach to estimating stormwater runoff, one that accounts for the characteristics of the soils at each site (before and after construction), the ground covers under and between the solar panels, and the impacts of the solar panels themselves, which may vary in size, distribution, and technology. That approach also allows for consideration of varied rainfall levels, unlike Maryland's current guidelines, which are designed for one inch of rain.

AHB is supportive of the stormwater provisions in SB 983, but we are concerned that the terminology in Section 7-207.4(B)(2)(IV) as introduced does not clearly require consideration of how the soil characteristics and ground covers will affect **runoff** from a site. (Calculations of the net

---

[1] The Advocates for Herring Bay, Inc. is a community-based environmental group in Anne Arundel County.
[2] DGCPCN refers to Distributed Generation projects receiving a Certificate of Public Convenience and Necessity.
[3] See Technical Study of Changes in Forest Cover and Tree Canopy in Maryland, November 2022.
[4] See National Renewable Energy Laboratory's (NREL) overview of the PV-SMaRT program, which includes a link to the PV-SMaRT calculator; Great Plains Institute, Best Practices: Photovoltaic Stormwater Management Research and Testing (PV-SMaRT), January 2023; and Penn State University, Solar Farms with Stormwater Controls Mitigate Runoff, Erosion, July 18, 2024.

runoff from a site determine whether other stormwater mitigation measures are needed.) Box 1 below provides illustrative language for amendments to address that concern. It is our understanding that other interested parties support making such technical changes.

Thank you for considering our views and supplemental information in Attachments 1 and 2. If you have any questions about our testimony or need additional information, please contact us at herringbay@gmail.com.

Box 1

Proposed amendment to Section 7-207.4(B)(2)(IV) in SB 983, page 5, lines 25-31

Strike canceled text and insert text in red

(IV) Stormwater management, erosion and sediment control, and site stabilization, accounting for:

1. *The effects ~~of~~ on runoff from solar panels and associated equipment;*
2. *The effects of soil characteristics and compaction on runoff ~~impacts of solar panels on soil density and compaction;~~ and*
3. *The effects of the ground cover under and between the solar panels on runoff ~~impacts of solar panels on ground cover under the panels~~;*

Attachment 1: Examples of Solar Projects Sited on Forested Parcel

Maps of ecosystems services values are from MD DNR's [Greenprint GIS]

7704 Croom Rd, Upper Marlboro MD (pending PSC review)

5 megawatts

Aerial image of parcel
Pre-construction

Highest Ecosystem Services Values
Greens- $900 to $2,800/acre/year
Blues – $2,700 to $3,600+/acre/year

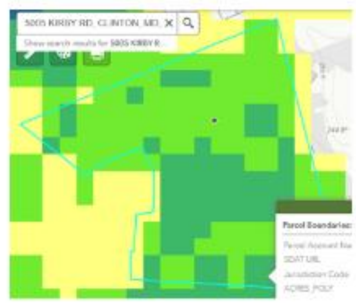
MD Habitat Connectivity Network
Shaded in green

5505 Kirby Road, Clinton, MD (in service)

1.32 megawatts

Aerial image of parcel
Pre-construction

Aerial image of parcel
Post-construction



Highest Ecosystem Services Values
Greens- $900 to $2,800/acre/year
Blues – $2,700 to $3,600+/acre/year

10711 Cross Trail Road, Brandywine, MD (in service)

0.875 megawatts

Aerial image of parcel
Pre-construction

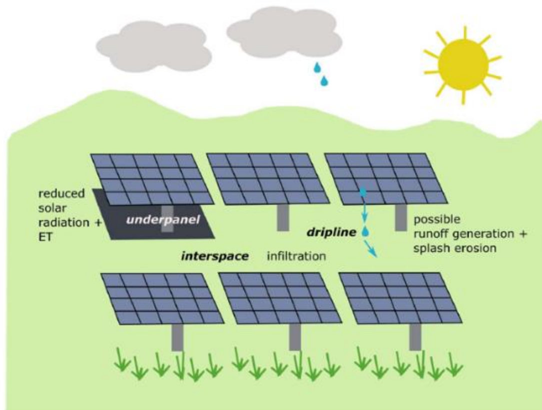
Aerial image of parcel
Post-construction

Highest Ecosystem Services Values
Greens- $900 to $2,800/acre/year
Blues – $2,700 to $3,600+/acre/year

AHB Attachment 2: Background Information on Solar Stormwater Issues (continued >)

The challenges for solar differ from other commercial and industrial sites

Ground-mounted solar arrays need acres of functional green infrastructure *under and between* the solar panels to absorb runoff over the multi-decade operating life of the projects



Graphic: Lauren McPhillips, Penn State

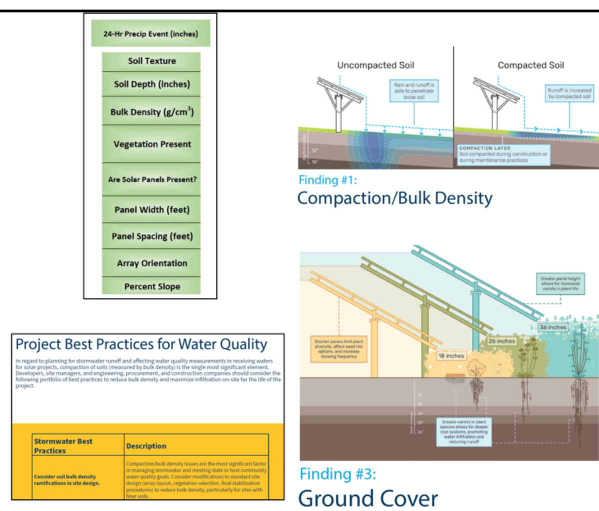
Recent Research Is Identifying Best Practices for Solar

Studies show that runoff can be reduced by maintaining well-drained soils and healthy vegetation under and between the panels

Maximizing the effectiveness of that **green infrastructure** also can lower the cost of stormwater mitigation

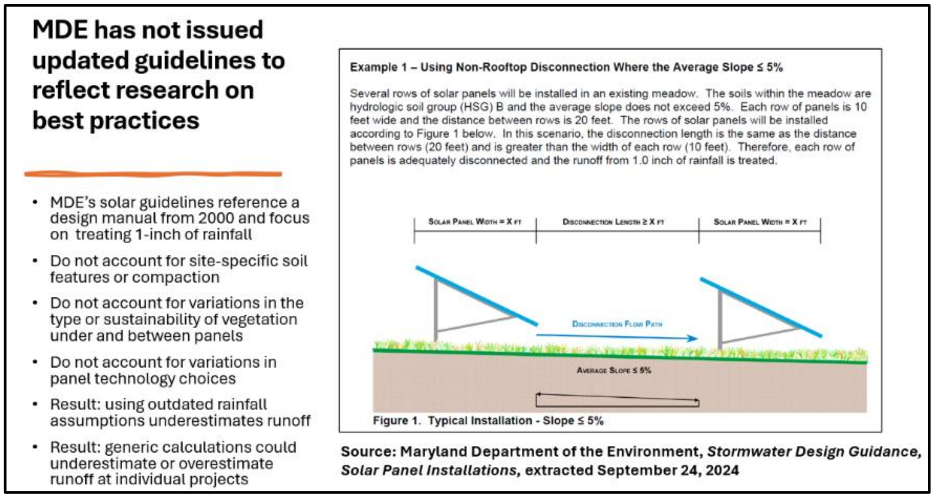
Those studies identify the key variables that affect runoff from solar projects

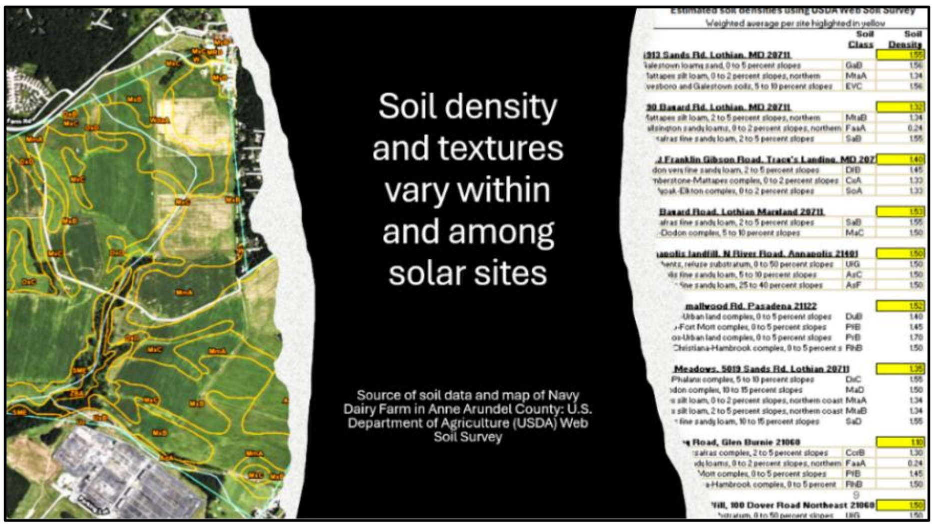
- Soil density—before and after construction
- Soil texture and depth
- Ground cover under and between panels throughout the life of the project
- Role of panels in amount and distribution of runoff
- Intensity of future rain events

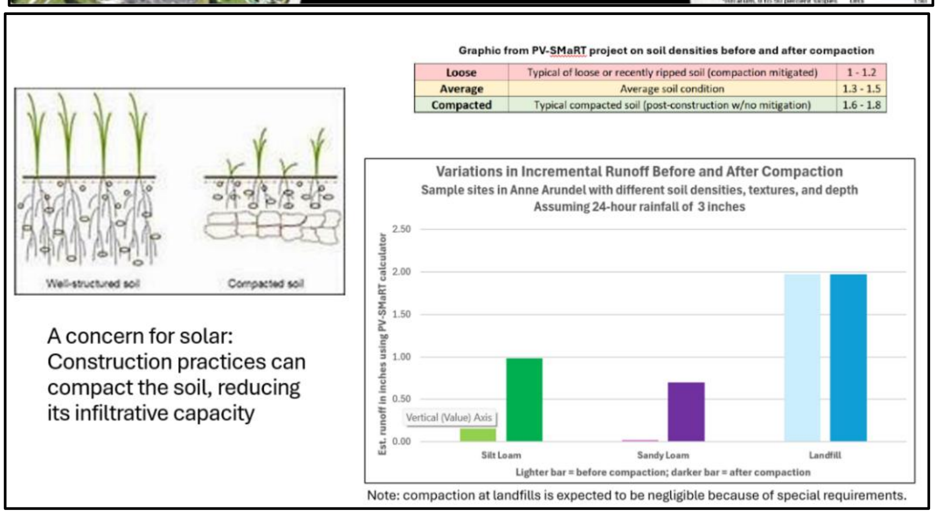


Graphics: PV-Smart project (NREL and Great Plains Research Institute)

AHB Attachment 2 (continued >)[5]







[5] The estimates of runoff presented in this Attachment were calculated using NREL's PV-SMaRT calculator, version 3.1. Unless otherwise noted, the estimates assume that the ground cover under the solar panels is turf grass. In addition, the estimates of runoff account for the mitigation benefits of the "disconnection" distances between rows of panels. That is, the amounts shown in the graphs are the incremental amounts of runoff not addressed by the vegetation between the rows.

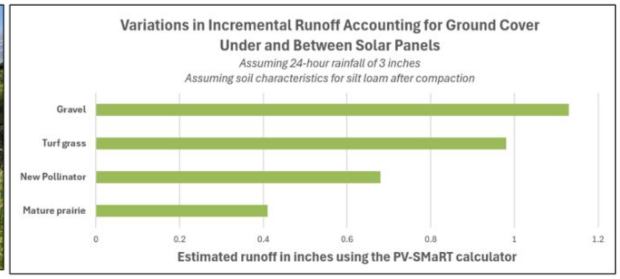
AHB Attachment 2 (end)

Runoff varies depending on the type of vegetation established under and between solar panels

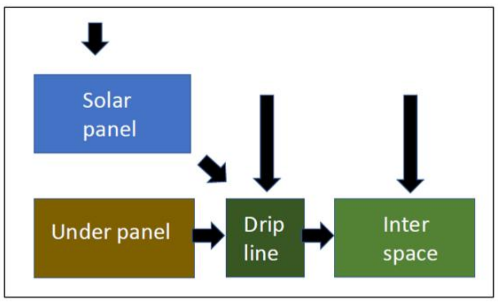
Summary of findings reported by Jeff Mulhollem, Penn State College of Engineering, July 18, 2024

In findings recently published in Journal of Hydrology, the team reported that healthy vegetation and well-draining soils can help manage runoff on solar farms, and where necessary on more challenging landscapes, engineered stormwater controls can manage any unmitigated runoff.

Photo credit: Penn State Creative Commons



Graphic: Lauren McPhillips, Penn State



Runoff also is affected by the size and location of the panels and developers' choice of panel technology

The panels are impervious and concentrate runoff. The extent and distribution of those impacts will be affected by the contours of the site as well as whether the panels are fixed or tilt in response to environmental conditions

Estimates of runoff at solar sites need to be stress-tested for variations in the severity of future rainfall events

Photo credit: https://esemag.com/stormwater/lessons-learned-solar-project-present-unique-stormwater-management-challenges