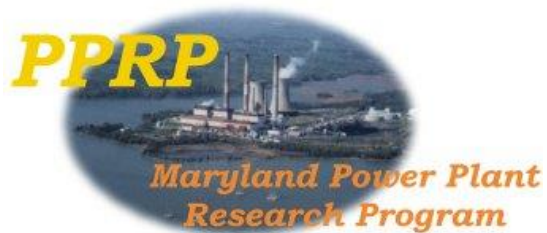# SmartDG+ User Guide

A Screening Tool for 2+ MW Distributed Generation and Renewable Energy Projects

Welcome to SmartDG+, the online interactive mapping tool that assists in identifying possible areas for 2+ MW distributed generation and renewable energy projects.

This is what you will first see when you access the site. The red circles indicate useful tools available.
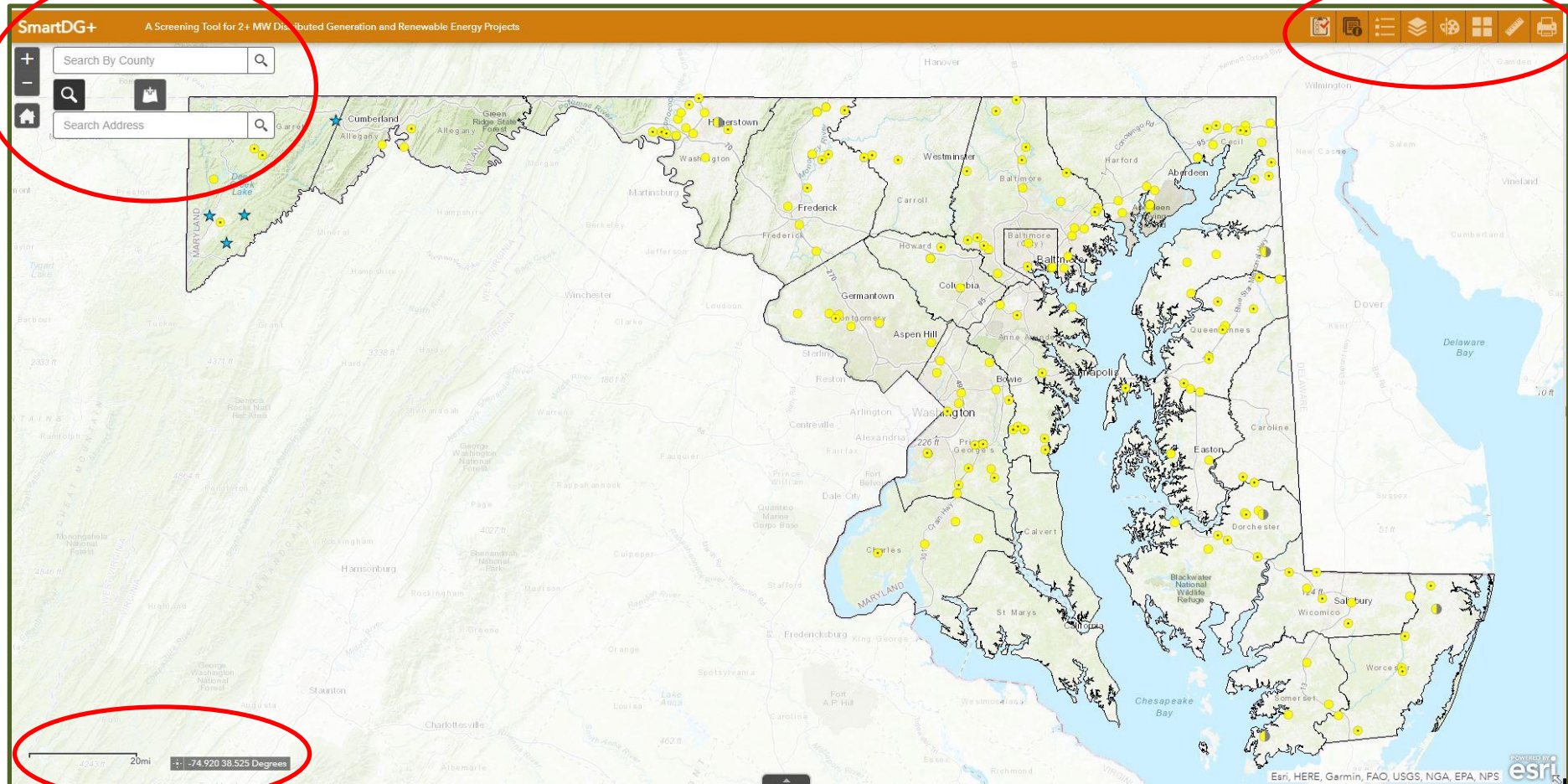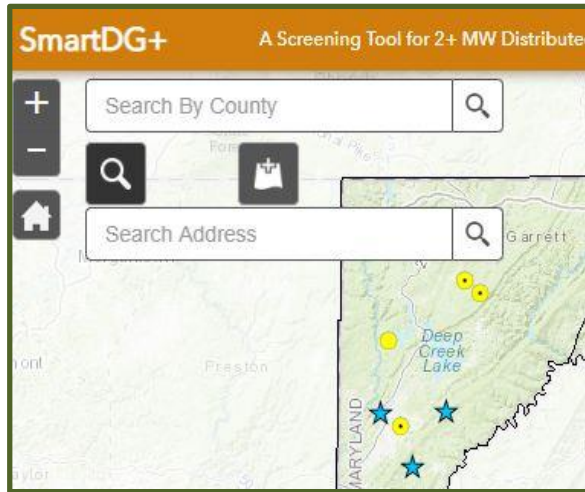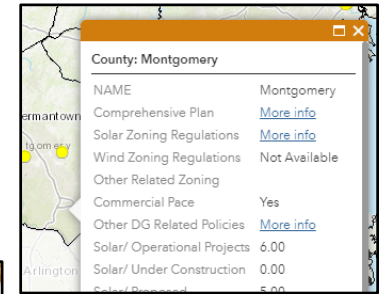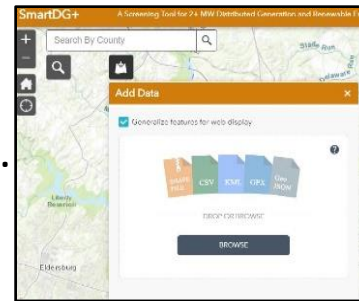
In the upper left-hand corner of the site, there are ZOOM IN ➕ and ZOOM OUT ➖ buttons, and a HOME 🏠 button which zooms back out to the entire state.

The mouse can also be used to zoom in, out, and pan around. Left mouse click to pan and use the wheel to zoom in and out.

By typing a county name into the SEARCH BAR, the view will zoom to that county. Note: the county will be 'selected' and an information box will be present. Simply click the X to close out of it.

By selecting the ADD DATA tool 📌 , users can add their own site specific data to view in the tool. This data can only be seen by the user and remains private.

In the lower left-hand corner of the site is a scale bar and coordinates in decimal degrees. When inquiring about coordinates of a specific location, simply hover the mouse over the desired area and the coordinates will be reflected in the tool.

The upper right-hand corner of the site has a group of 8 icons. Their uses are described below.

TAKE A SURVEY

This icon provides a short 3-question survey for the user to take. Knowing more about how the tool is being used helps PPRP continue to meet user requests and needs.
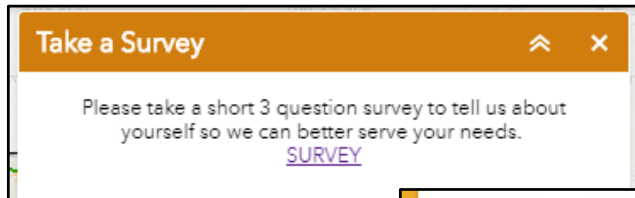
DATA DESCRIPTIONS

By clicking on this, a PDF document will open in another window tab. The user can click on any of the data layers from the list and they will be taken to the part of the document that provides a description of that layer.
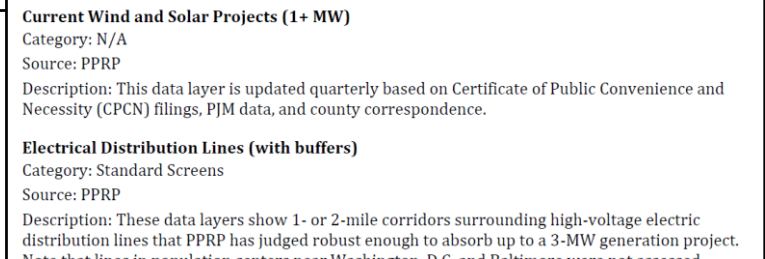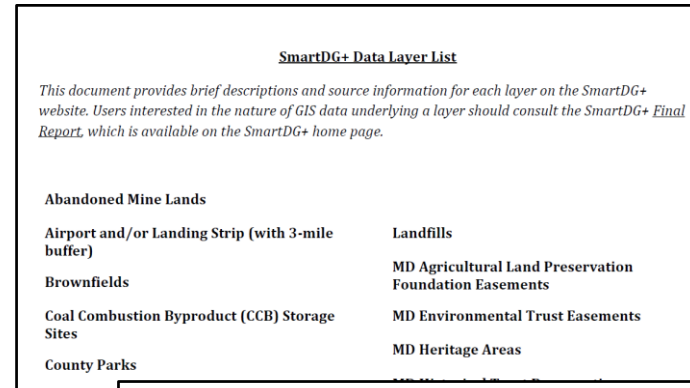
LEGEND

By clicking on this, a legend will appear that includes any layers that are turned on at the time. Simply click the X to close out of it.

LAYERS

By clicking on this, the list of layers will appear. Expand layers by clicking ▶. Turn layers on and off by clicking the box next to the layer

☑ Layer On   ☐ Layer Off

Note: Higher items in the Layer List will show up 'on top' of lower items. In some cases, it is necessary to turn off one layer to see information 'beneath' it.
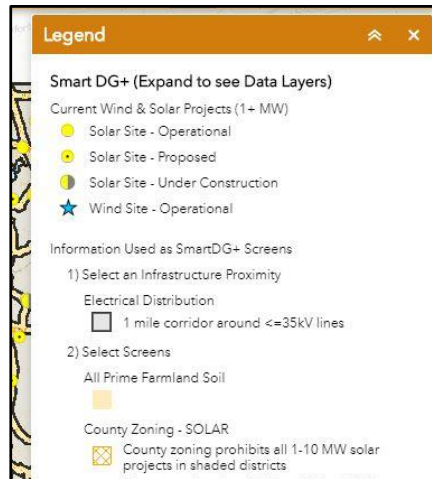
Within LAYERS, there is a TRANSPARENCY tool.
This adjusts the transparency of all layers at one time to make the basemap visible below the features. By clicking on the 3 dots to the right of 'SmartDG+ (Expand to see Data Layers)', a new menu appears. By selecting Transparency , a slide bar becomes visible to adjust the transparency.
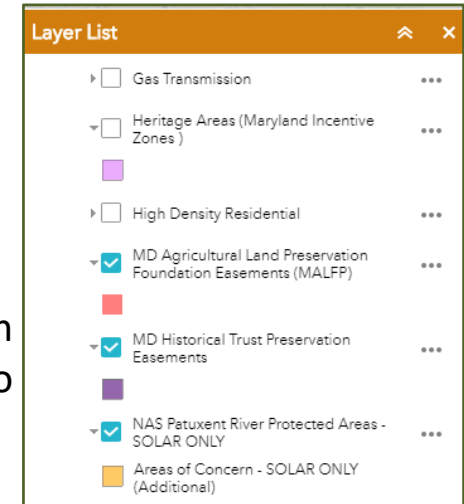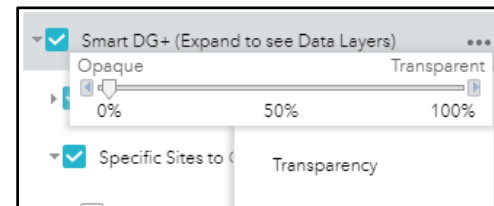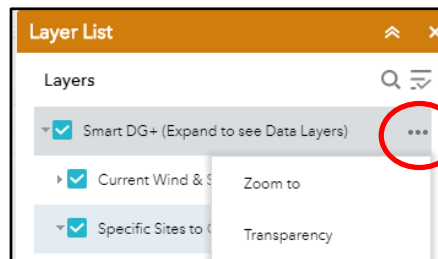
DRAW

This enables the user to draw a line or polygon, which could be used to communicate areas of interest. The shape will be added to LAYERS with the ability to turn on/off and include in print-outs. Use the CLEAR button to remove.
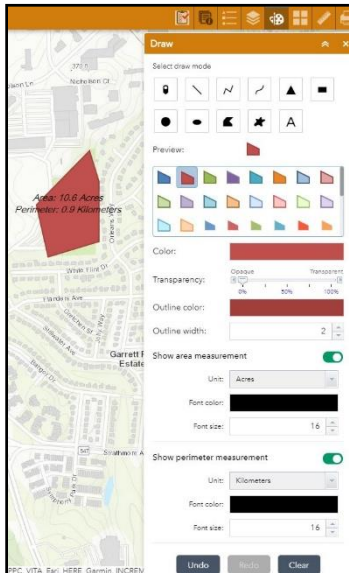
BASEMAP GALLERY

This provides a list of basemaps available. Select one and the basemap will change.
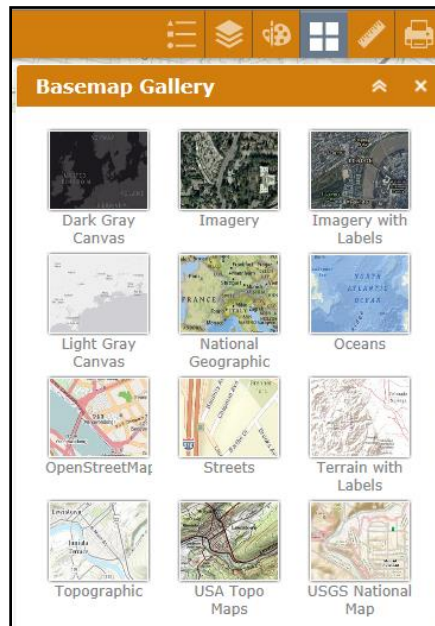
MEASUREMENT

This enables the user to calculate distance and area. It also provides coordinates for point locations.
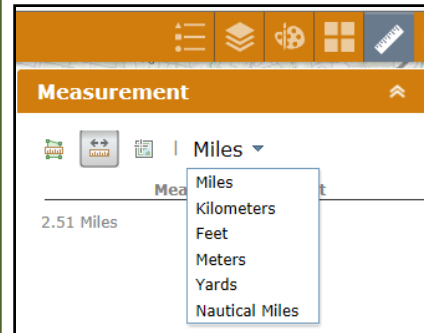
Want the area of a particular land cover? Select the icon and start to 'draw' by left mouse clicking.
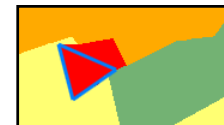
PRINT

This enables the user to make a map of the extent and layers that are user specific. Select a title and size to export a pdf.
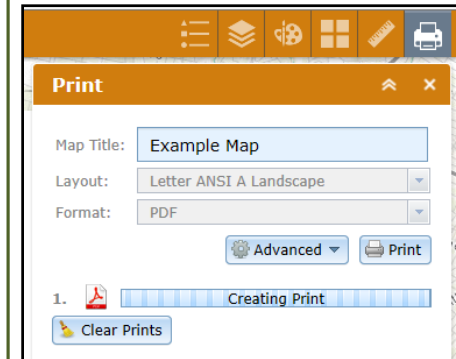
Explanation of the SmartDG+ Screening Process

In order to make use of SmartDG+, it helps to understand the basic screening process that was used.

1.
Find land near robust electrical lines

2.
Identify common barriers to construction

3.
Remove these areas from consideration

4.
Color-code remaining areas based on current land use
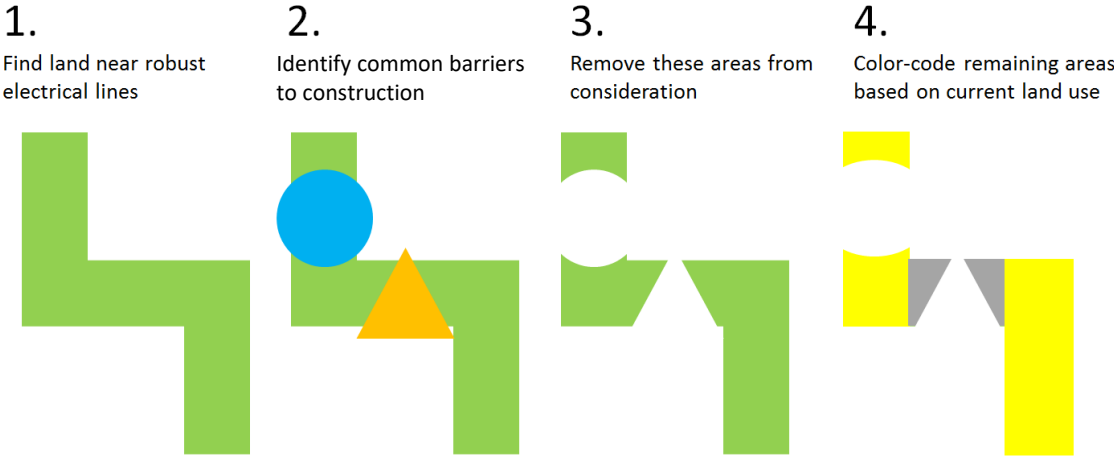
Explanation of the Viewing Options

SmartDG+ provides the information that PPRP used *during* the screening process, and the *results* of the screening process—as well as bonus information, such as landfills and wastewater treatment plants, where DG projects are often located. In most cases, data used for screening purposes came from Maryland state agencies and reflect some level of generalization. For data layer details, please see Data Descriptions on page 4.

There are two options of viewing the data:
1) Pre-run screening results or
2) User-selected screening

Layer List ⌃ ✕

Layers 🔍 ⩦

▾ ☑ Smart DG+ (Expand to see Data Layers) ⋯

  ▸ ☐ Current Wind & Solar Projects (1+ MW) ⋯

  ▸ ☐ Specific Sites to Consider ⋯

  ▾ ☑ Areas that Pass SmartDG+ Screens ⋯

    ▾ ☑ Possible Areas for SOLAR ⋯

      ▸ ☐ Additional Screens (Add to any Scenarios below) ⋯

      ▸ ☑ S1 - 1 mile corridor around <=35kV lines ⋯

      ▸ ☐ S2 - 2 mile corridor around <=35kV lines ⋯

      ▸ ☐ S3 - 2 mile corridor around 69+kV lines ⋯

      ▸ ☐ S4 - 4 mile corridor around 69+kV lines ⋯

Viewing Option 1
Results of the basic screening process. Users can add optional screens.

Viewing Option 2
Information used during the screening process. User adds screens individually.

Layer List ⌃ ✕

Layers 🔍 ⩦

▾ ☑ Smart DG+ (Expand to see Data Layers) ⋯

  ▸ ☐ Current Wind & Solar Projects (1+ MW) ⋯

  ▸ ☐ Specific Sites to Consider ⋯

  ▸ ☐ Areas that Pass SmartDG+ Screens ⋯

  ▾ ☑ Information Used as SmartDG+ Screens ⋯

    ▾ ☑ 1) Select an Infrastructure Proximity ⋯

      ▾ ☑ Electrical Distribution ⋯

        ☐ 1 mile corridor around <=35kV lines

      ▸ ☐ Electrical Distribution ⋯

      ▸ ☐ Electrical Transmission ⋯

      ▸ ☐ Electrical Transmission ⋯

    ▾ ☑ 2) Select Screens ⋯

      ▸ ☐ Airport ⋯

      ▸ ☐ Airport with 2 mile Buffer - SOLAR ONLY ⋯

      ▸ ☐ Airport with 3 mile Buffer - WIND ONLY ⋯

      ▸ ☐ All Prime Farmland Soil ⋯

      ▸ ☐ County Zoning - SOLAR ⋯

Viewing Option 1 – Pre-screened Results

1. How to see areas that passed SmartDG+'s standard screens for solar projects.

Turn on *Areas that Pass SmartDG+ Screens* and click the arrow to its left. Turn on *Possible Areas for Solar* and click the arrow to its left. A drop-down menu will appear with four scenarios to choose from: S1, S2, S3, and S4. (A layer at the top of the list, titled Additional Barriers, is discussed in the next section.) S1 and S2 are for those interested in 2-3 MW projects. They show areas within 1⁄2 mile and 1 mile of a 3-phase distribution line. S3 and S4 are for those interested in 3+ MW projects. They show promising areas within 1 and 2 miles of a transmission line, respectively. (Note: Only turn on one scenario at a time. Otherwise, information from one scenario may "block" information from another scenario.)

2. How to add additional screens for solar projects.

Once you have chosen and turned on one solar scenario (S1, S2, S3, or S4), click the arrow to the left of *Additional Screens*. A dropdown menu will appear with seven optional screens: County Zoning Restrictions, County Protected Lands, MALPF Easements (Maryland Agricultural Land Preservation Foundation), Forested Lands, NAS Pax River Areas of Concern, Heritage Areas, and Prime Farmland Soil. You can turn on any/all of these optional screens at once. If any of these barriers apply to the area you are viewing, this area will become faded, but will still be visible.

2a. A note about County Zoning Restrictions

Many of Maryland's counties have passed regulations to guide the siting of 2+ MW wind and/or solar projects. Usually, this guidance lists zoning districts where such projects would be permitted, and notes any special requirements that must be met. SmartDG+ simplifies matters by excluding areas where county zoning prohibits *all* 2+ MW wind or solar projects. Beyond this, further research will be needed to understand the specific nature of each county's regulations. Also, within municipalities, additional/other rules may apply. (Note that the Maryland PSC has the ultimate authority to approve 2+ MW projects throughout Maryland.)

2b. A note about NAS Patuxent River

Naval Air Station Patuxent River has issued maps showing where proposed wind or solar projects would need to be reviewed by Pax River officials. The first map shows a High Risk of Adverse Impact Zone (HRAIZ) for wind projects. The second map shows two smaller, circular Areas of Concern for solar projects around both Pax River and nearby Webster Field. Anyone considering development in these areas should contact Pax River at (301) 757-4822 christopher.jarboe@navy.mil or the DOD Siting Clearinghouse at osd.dod-siting-clearinghouse@mail.mil.

3. How to see areas that passed SmartDG+'s standard screens for wind projects.

Turn on *Areas that Pass SmartDG+ Screens* and click the arrow to its left. Turn on *Possible Areas for Wind* and click the arrow to its left. Then follow steps analogous to those described for solar, except using wind scenarios (W1, W2, W3, or W4).

Viewing Option 2 – User-selected Screens

1. How to see what areas are near robust electrical or gas lines.

Turn on *Information Used as SmartDG+ Screens* and click the arrow to its left. Turn on *Select an Infrastructure Proximity* and click on the arrow to its left. Select whichever type of electrical line (distribution or transmission) and corridor (1, 2 or 4 miles) is of interest for your project. A 2-3 MW project will usually connect to a distribution line. A 3+ MW project will connect to a transmission line. (Definitions of the distribution and transmission lines vary. In SmartDG+, distribution refers to lines <35 kV and transmission refers to lines >69 kV.)

2. How to see where there are barriers to 2+ MW generation projects.

Under *Information Used as SmartDG+ Screens,* turn on *Select Screens* and click the arrow to its left. Each barrier (e.g., protected areas, flood zones, high density residential areas, etc.) is a separate layer. Some apply only to one type of technology.

Have questions?

Emails can go to: pprp.dnr@maryland.gov

Maryland Department of Natural Resources
Power Plant Research Program
Tawes State Office Building
Annapolis, Maryland 21401
(410) 260-8660