

Instructions for Using ArcReader to View and Analyze Solar PEIS Geospatial Data

ArcReader is a software application that can be used to view and perform simple analysis on geospatial data that has been prepared in an ArcReader “project”. The “Core” and “Extended” downloads available on the Solar PEIS website include ArcReader projects which have been prepared to view the geospatial data used in the PEIS from your desktop. Before the ArcReader project can be used, the free ArcReader software application must be downloaded and installed from this site:

<http://www.esri.com/software/arcgis/arcreader/index.html>

Once you’ve installed ArcReader, you can download the “Solar_PEIS_Core_Data_Viewer.zip” or “Solar_PEIS_Extended_Data_Viewer.zip” files available here: <http://solareis.anl.gov/maps/arcreader/index.cfm>. Extract the compressed (.zip) file to an empty directory. To avoid problems, the project (.pmf) files must be kept with the same relationship to the data files (.gdb) as when they are first unzipped.

Once you’ve installed ArcReader and either the Solar PEIS Core Data Viewer.pmf project or the Solar PEIS Extended Data Viewer.pmf project as detailed above, click on the icon for the project (.pmf) file to open the project in ArcReader and view the data.

When either the Solar PEIS Core Data Viewer.pmf or the Solar PEIS Extended Data Viewer.pmf open your screen will be divided into three parts; the menu and toolbar along the top, the table of contents on the left side of the screen, and the data view (the map) on the right side of the screen.

Menu and Toolbar

The most important item in the menu bar is “Help”. There is a rich help system accessed either within the application or on-line. For details on the application itself, you are strongly encouraged to use “Help”.

A description of the tools in the toolbar appears if you hold your cursor over the icons. The most important tools are the zoom tools (there are five of them), the pan tool, the scale drop-down, the identify tool, the find tool, and the measure tool.

Click on the Zoom In tool to select it, then click and drag a box around the specific area of the map you’re interested in. The map will zoom to that area. Optionally, you can just click the area of the map you’re interested in and the map will zoom in, centering on the point you clicked. The Zoom Out tool works in approximately the same way.

To use the Continuous Zoom/Pan tool, left click and hold the cursor down on an area of the map and drag the cursor up to zoom out or drag the cursor down to zoom in. To pan, right click and hold the cursor down to move the map as if it were a sheet of paper on your desk.

The Fixed Zoom In and Fixed Zoom Out buttons work on the map as soon as you press them.

The Pan tool lets you move to a different part of the map without changing the scale (or zoom level). Click on it and use the hand in the map window like you would use your own hand to move a sheet of paper around on a desk.

To return to the original extent click the Full Extent button.

The Go Back and Go Next buttons let you return to previous zoom levels.

The scale drop-down lets you either fill in the window with the scale you would like to see the map at, or click the down arrow to pull-down to a common scale. Scale will be discussed later in these instructions.

The Identify tool (or “I” tool) lets you explore the attributes attached to features you see on the map. The first time you click the Identify tool, a box comes up to give you instructions on how to use it. When you click on a feature, the list of layers that are queried is listed on the left and the attributes for the features that were under the cursor in those layers are listed on the right. For example, if you click on Las Vegas, Nevada the layer on the left side of the box will list “Major Cities and Towns” as the layer queried, below the layer will be the name of the feature you clicked on; “Las Vegas”. Attributes for Las Vegas, such as name, population, state, and status, are listed on the right side of the box. If you right-click the layer name on the left side of the box, you’ll see a menu of things you can do next.

The Find tool lets you find features by querying their attributes. For example, if Las Vegas wasn’t visible on the map, you could find it with the Find tool. Click on the Find tool. In the “Find:” box type in “Las Vegas”, in the “In layers:” box pull-down to “Major Cities and Towns” and click the Find button. You’ll see a list at the bottom with the value that was found, the layer it was found in, and the field name it was found in. In this example just one feature – Las Vegas – was found. If you right-click on the found feature in the list, you’ll see a menu of things you can do next.

Lastly, the Measure tool lets you measure the distance between two points or along a route. Click on the Measure tool. Click your starting point on the map, then drag the cursor to the point you want to measure to. A box will appear showing the length of the segment you’ve drawn and the total length. Click once and measurement of a new segment will start, so the segment length and the total length will be different. Double click and you will clear the measurement values and be ready to start a new measurement.

The Table of Contents

For decades, maps have been made by grouping various types of information into layers. Digital maps such as this one are no different. The Table of Contents lists the layers and

groups of layers in the order in which they are drawn from the bottom layer (the first to be drawn) to the top layer (the last to be drawn). Because of this, the order of the layers listed in the Table of Contents has to do with the visibility of the bottom layers when the top layers are also visible.

When you open either of the ArcReader projects each layer or layer group in the Table of Contents will display a plus sign, a box (checked or unchecked), and the name of the layer or layer group.

The plus sign indicates that more information is available than is being shown in the list. Click on the plus sign and one of two things will happen: if the name in the Table of Contents is for a group of layers, the layers in that group will be listed below it, or, if the name in the Table of Contents is a single layer name, the symbol used to display the layer in the map will be shown. For example, click on the plus sign to the left of “Protected Resources Group”. This is a group of many layers. Click the plus sign to the left of “National Historic Landmark”. The red square used to symbolize National Historic Landmarks on the map is displayed below the layer name.

The checkbox next to each layer or layer group in the Table of Contents determines whether or not that layer or layer group is displayed on the map. A check in the box means the layer is being displayed on the map, an empty box means it is not. A gray check in a gray checkbox means the layer is not displayed because the map is not currently at the proper scale (scale is discussed later in these instructions).

If you right-click on a layer you’ll see a menu of things you can do next. Right-click on one of the layers and choose “Properties”. A box with the layer’s properties will be displayed. Scale Range is shown specifically in the middle section of the Layer Properties box.

CAUTION: Certain layers or layer groups at the top of the Table of Contents can block out layers or layer groups below them.

Map Scale

The amount of detail that can be shown on a map is largely dependent on map scale. Scale is displayed in the scale drop-down at the top of the screen as a ratio of distances on the map compared to distances on the ground. For example, a scale of 1:12,000,000 means that 1 inch on the map equals 12 million inches on the ground.

Scale is referred to as being “large” or “small” depending on the ratio. The ratio is also a number, so continuing the example, 1/12,000,000 would be a very small number – or small scale. 1/24,000 is a larger number – and represents a larger scale. Larger scale maps can show more detail than smaller scale maps.

If all the layers in the ArcReader projects could be turned on at the same time at a scale of 1:12,000,000 the result would be an unreadable mess. For this reason, “scale

dependencies” have been set for each layer to make sure that it displays at an appropriate scale. See Appendix L for a discussion of scale and data quality.

CAUTION: Although no limit has been set, maps at scales larger than 1:1,000,000 are incompatible with the intended use of several of the layers in the Table of Contents. The accuracy of such maps is questionable.

Making a Custom Map

Now that you have some understanding of layers and scale, you may want to make your own map. To do that, switch from the Data View to the Layout View (the icon that looks like a piece of paper in the lower left corner of the map).

You will see new tools on the toolbar for zooming in and out of the Layout View without changing the scale of the map. These are noted as Zoom In, Zoom Out, Pan, etc., the same as their Data View counterparts. The only way to tell the difference is that the tools meant to zoom in and out of the Layout View include the symbol of a white piece of paper.

The Layout View has been designed to fit your area of interest on an 8 ½ x 11 sheet of paper with a title, north arrow, and scale description.