Instructions for Using ArcReader to View and Analyze Exclusions to BLM's Solar Energy Program

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 downloads available on BLM's Solar Energy Program Web site include ArcReader projects which have been prepared to view the geospatial data used as exclusions to BLM's Solar Energy Program 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 the ArcReader application, you can download the ArcReader projects (in .pmf; Portable Map Format) and the necessary geospatial data to support them available here: http://blmsolar.anl.gov/maps/arcreader/. 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 one of the "Exclusions.pmf" files for the state you're interested in as detailed above, click on the icon for the project (.pmf) file to open the project in ArcReader and view the data.

When the ArcReader project opens 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. Optionally, you'll have the ability to open the Layout View to make your own maps.

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.

The Bookmarks menu has been set to make it easy to change the view to various BLM Field Offices in the state or to individual Solar Energy Zones.

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. This set of ArcReader projects, however, contain data with few, if any, attributes.

The Find tool lets you find features by querying their attributes. Although the lack of data attributes limits the utility of the Find tool, it can be used to find geographic locations with the aid of the Internet. Click on the "Locations" tab after you open the tool, and you can enter the name of a city or other geographic location. Choose a geocoded database to search from, and the tool will list locations it has that match your entry. Right-click to bring up a context menu that will allow you to pan or zoom to the location.

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 "Exclusions". This is a group of groups; individual exclusions are divided into "Habitat", "Land Use", "NLCS", and "Physical" groups. If you click on the plus sign to the left of "Land Use", you'll see the individual exclusions listed under this group. Click the plus sign to the left of "Areas of Critical Environmental Concern (3)". The map symbol for Areas of Critical Environmental Concern 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 (visible) on the map. A check in the box means the layer is being displayed on the map, an empty box means it is not. Important; to make an individual layer visible its checkbox must be checked along with the checkboxes of all the groups it belongs to.

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. A description of the table referencing Table A-2 in the Solar PEIS Record of Decision is available under these properties.

Certain layers or layer groups at the top of the Table of Contents can block out layers or layer groups below them. To mitigate this situation, either turn off layers, or use the transparency tool (located in the Main Menu bar). Choose the layer you want to make transparent from the drop-down menu, then use the slider to adjust the transparency of the layer.

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.

These particular ArcReader projects have been designed without scale dependencies. It's up to you to decide whether display of certain layers is appropriate at a given scale.

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, legend, north arrow, and scale description. The legend is designed to show only those exclusion layers which are visible on the map you've made.

Internet Base Maps

To enhance the portability of the ArcReader projects, base data such as towns, roads, rivers, physical features, etc., have been omitted from the data download but are available through Esri Base Maps if you have an Internet connection. The Basemap group is at the bottom of the Table of Contents. The street base map is at the top, with topographic and imagery base maps underneath. Only one base map can be viewed at a time.