



# Instructions for: Truckee Donner PUD Simplified Sun Chart Evaluation Form (Manual method)

The Truckee Donner PUD has produced sun path charts that contain estimates of the percentage of annual PV system energy production for various times of year and for specific hours during the day. The sun path chart is a plot of the path of the sun across the sky using the sun's elevation in the sky for one axis and the azimuthal position of the sun as the other.

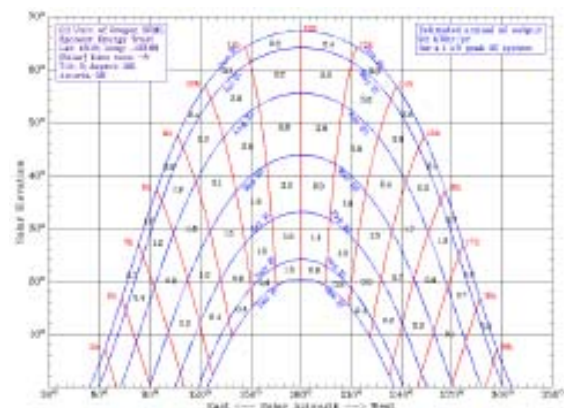
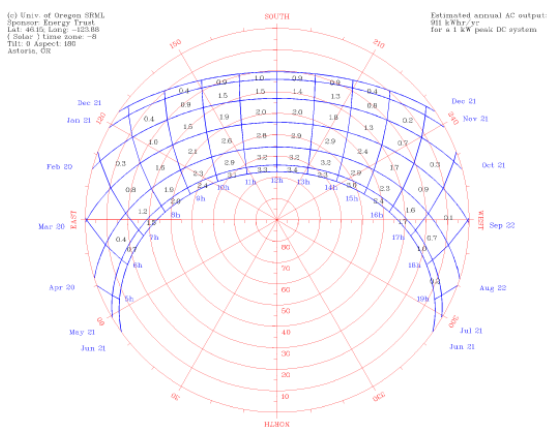
These sun path charts were created estimating PV system energy production on a tilted, south-facing surface.

Two forms of sun chart are provided: Polar Coordinates (for easy transfer of information from Solar Pathfinder or similar field instrument), and Cartesian Coordinates (Standard "sun chart" for easy transfer Solar Site Selector, camera/horizon methods, or compass/inclinometer method).

## Choosing the correct form, determining shading, and determining annual energy production

The following steps show how to use the Truckee Donner PUD Simplified Sun Chart Evaluation Form to derive the annual percent of shading for a specific site within Truckee Donner PUD territory:

Step 1: Choose the type of form applicable to the field instrument you're using (polar or Cartesian).

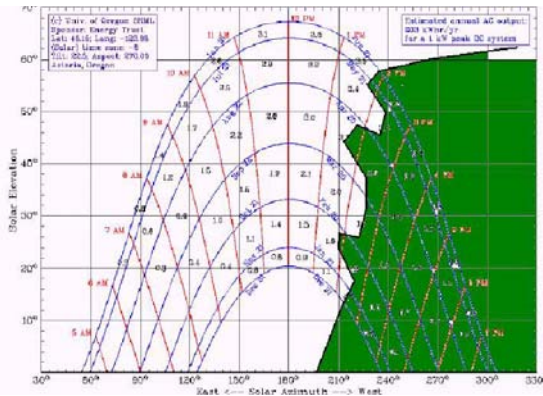
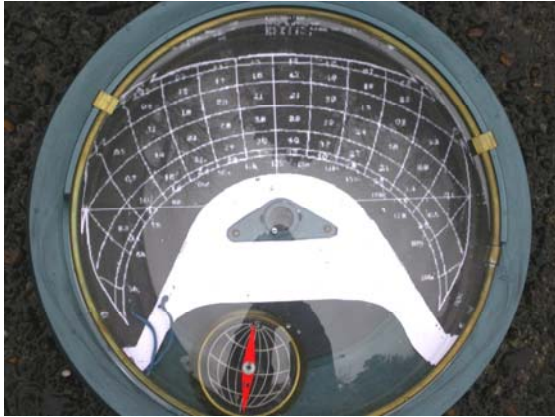


Step 2: Obtain field information for the site using a standard instrument such as Solar Pathfinder (polar coordinate system), Solar Site Selector (Cartesian), or compass/inclinometer method. Be sure to correct for due south from magnetic south by using a compass and



correcting the reading for deviation of the magnetic pole from the true north pole. NOTE: Truckee Donner PUD requires site sun chart information from the “worst”, usually lowest and most shaded, location of the proposed array.

Step 3: Transfer the visual field information to the chart. NOTE: Field information can be entered into several charts for comparison of different tilts/azimuths.



Step 4: Calculate the percentage of annual shading. For a completely shaded square, use the entire % loss. For a partially shaded square, estimate the % loss of that square. For example, if the loss of energy in a square is 2.4%, and about 1/4 of the square is shaded, then 0.6% is the annual energy loss.

| Percent Annual Shading (derived from Sun Chart) | Shading Factor     |
|---|--------------------|
| 0% to 15%                                       | 1.0                |
| 15% to 25%                                      | 0.9                |
| 25% to 35%                                      | 0.75               |
| >35%  | 0.0 (no incentive) |

Step 5: Sum the values in each time period to obtain the Percent Annual Shading. To obtain the Shade Factor, refer to the following Table:

Step 6: Enter the appropriate Shade Factor in the Truckee Donner PUD PV Buy Down Application Form in order to calculate the Design Factor.