Helioscope – Creating a Solar Resource Assessment for Energy Trust Incentive Applications

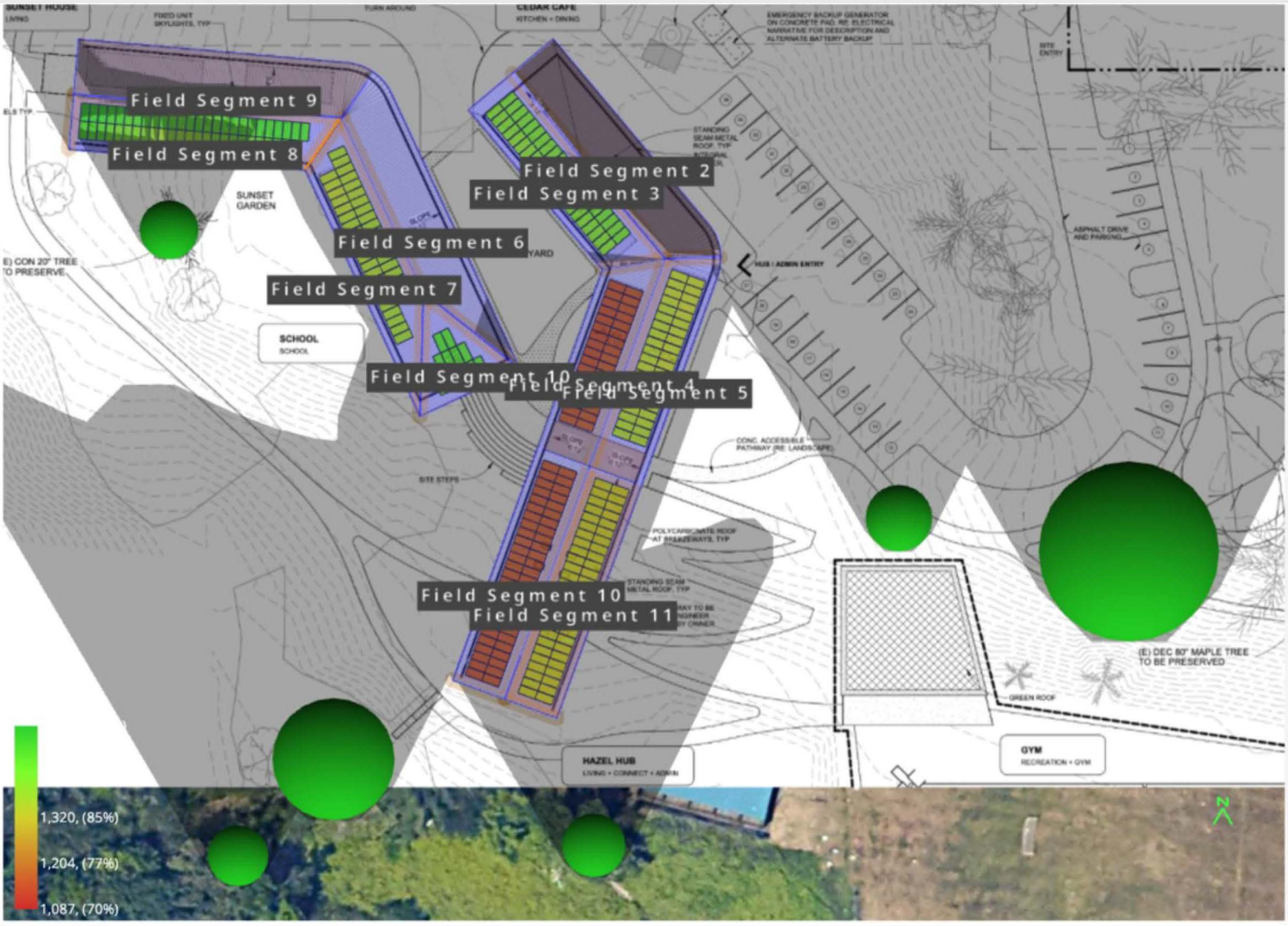
Energy Trust requires that each incentive application include a solar resource assessment using an approved site analysis tool. Solar resource assessments evaluate the impact of shading and array tilt and orientation on the annual production of the solar electric system. For remote shade analysis tools such as Aurora Solar, Energy Trust requires that each individual array on a site have a Total Solar Resource Fraction (TSRF) of 80% or greater to be eligible for Program incentives.

For more information: www.helioscope.com

1. **Prior to using Heliscope to create a solar resource assessment, each member of your sales or system design team must go through an official training with Helioscope Staff.**
2. Select the customer's site and draw the complete roof structure.
3. Draw any shade obstructions on the roof surface or surrounding trees that will effect system performance.
4. Where LiDAR imaging is available adjust the shape and height of shade obstructions to best match available imaging.
5. Design a solar electric system that provides the customer with maximum performance and mitigates the effect of any shade that may be present.
6. Generate a Production Report and a Shade Report for the site. Adjust each of the fields as required in the attached example.
7. Enter either the TSRF for each individual field segment or the lowest overall field segment TSRF value into the PowerClerk incentive application.
8. Submit the production report and shade report as an attachment to the incentive application in PowerClerk.
9. Share a copy of the final site design in Helioscope with solar@energytrust.org for review.

Design 2 (050624)

Shading Heatmap



Shading by Field Segment

Description	Tilt	Azimuth	Modules	Nameplate	Shaded Irradiance	AC Energy	TOF[2]	Solar Access	Avg TSRF [2]
Field Segment 3	26.0°	230.2°	42	20.2kWp	1,434.9kWh/m²	23.8 MWh[1]	93.5%	98.8%	92.4%
Field Segment 4	26.0°	290.1°	34	16.3kWp	1,167.9kWh/m²	15.8 MWh[1]	75.7%	99.3%	75.2%
Field Segment 5	26.0°	110.0°	40	19.2 kWp	1,348.0kWh/m²	21.4 MWh[1]	89.2%	97.3%	86.8%
Field Segment 7	26.0°	245.0°	40	19.2 kWp	1,372.0kWh/m²	21.7 MWh[1]	89.9%	98.3%	88.3%
Field Segment 8	26.0°	185.1°	51	24.5 kWp	1,456.1kWh/m²	29.3 MWh[1]	99.0%	94.7%	93.8%
Field Segment 10	14.0°	154.9°	12	5.76kWp	1,479.0kWh/m²	7.02 MWh[1]	96.1%	99.1%	95.2%
Field Segment 10	26.0°	290.1°	52	25.0 kWp	1,170.7kWh/m²	24.3 MWh[1]	75.7%	99.5%	75.4%
Field Segment 11	26.0°	109.9°	52	25.0 kWp	1,359.5kWh/m²	28.1 MWh[1]	89.2%	98.2%	87.5%
Totals, weighted by kWp			**323**	**155.0 kWp**	**1,338.6kWh/m²**	**171.3 MWh**	**88.1%**	**97.9%**	**86.2%**

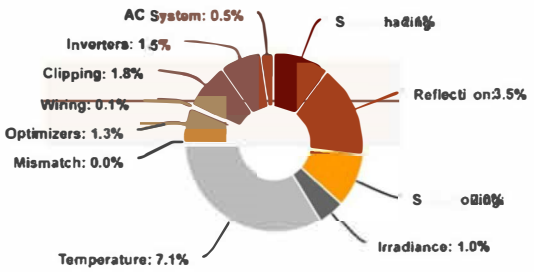
[1] approximate, varies based on inverter performance
[2] based on location Optimal POA Irradiance of 1,553.0kWh/m² at 35.3° tilt and 182.7° azimuth

Solar Access by Month

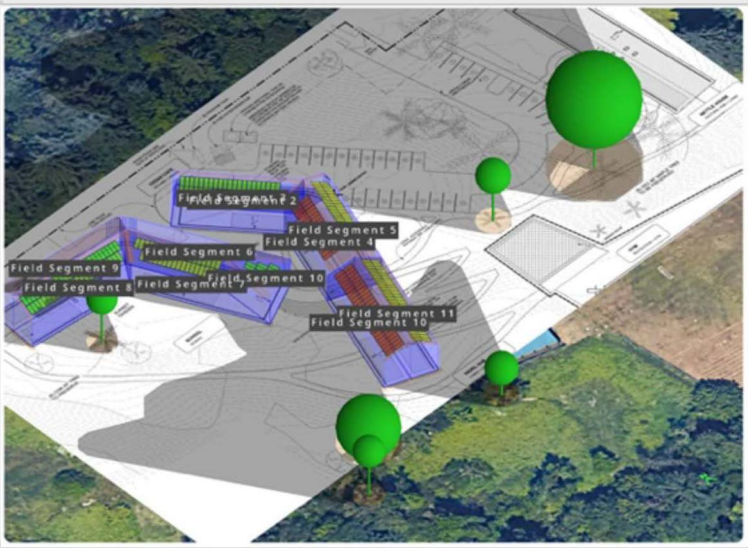
Description	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec
Field Segment 3	97%	99%	98%	99%	99%	99%	99%	99%	99%	99%	98%	97%
Field Segment 4	99%	99%	99%	99%	99%	99%	99%	99%	100%	100%	99%	99%
Field Segment 5	95%	93%	96%	99%	98%	99%	99%	99%	96%	93%	94%	95%
Field Segment 7	99%	99%	98%	97%	99%	99%	99%	98%	97%	99%	99%	99%
Field Segment 8	83%	83%	94%	98%	98%	98%	98%	99%	98%	88%	83%	83%
Field Segment 10	97%	99%	98%	99%	99%	99%	100%	100%	99%	98%	98%	97%
Field Segment 10	97%	99%	100%	100%	100%	100%	100%	100%	100%	100%	98%	96%
Field Segment 11	99%	99%	99%	97%	98%	99%	98%	97%	98%	99%	99%	99%
AC Power (kWh)	5,505.2	8,581.9	12,675.5	16,563.6	20,106.2	21,680.2	24,640.6	23,227.1	17,473.9	10,664.9	5,726.5	4,461.8

Monthly Production

Sources of System Loss



Southwestern Angle



Southeastern Angle