Energy Trust Shade Effect Evaluation Form	70° ⊢								461							
	-	(c) Univ. of (Dregon SRML	1					12h				Esti	 mated	annua'	l AC outpi
Job Name:	_	Sponsor: Ene	rgy Trust			11h	2.0	6		3.0	13h		0.9]	ςWh/W	att DC	per year
Contractor:		Lat: 44.92; Lo (Solar) time			. 32						\bigvee	\$				
Date:	60°	Tilt: 45; Asp∈			<u>/1.8</u>	36		3.5	- 3	0 ,		35				
Array Tilt:	-	Salem, OR		\int_{10h}		87	\			/	(4))14h			
Array Orientation:	_			A		1.7	\				3.7		Δ			
Zip Code of Site:				1.1	$^{\prime}\setminus\mid$	<i>(</i> 3)	1				7740	/ `	3.7			
The sun path chart to the right is for a solar electric	50° –		01	///		PS.	+	2.2	2.9		30 25	$\downarrow /-$	$+ \setminus -$	151	+	
system located in Salem, Oregon tilted 45 degrees			9h	0.9	9 X	1.4					3.4	3	3.7	15h		
with a 270 degree azimuthal orientation. The				\wedge		\					3.4		+	+		
annual AC output for a system with these	ation 40°		<i>f</i> 0.8/		/		150			136	/	\	\setminus	3.5		
characteristics is about 0.9 kWh/Watt DC per year.	7ati		8h / 0.	6 X	0.6	10		1.6	2.1		X 63	3.5	X :	3.6	λ16h	
For comparison, annual production capacity per	Eleva		—/X	-/-	/		1.0		_	2.4	4 / \		$/ \setminus$	\perp \times	\	
Watt of an optimally oriented system (32 degree tilt			$A/\setminus A$	/	\		(e) (2)			Per.			/ \	\langle / \rangle	1	
and 189 degree azimuth) is 1.14 kWh/Watt DC per	Solar -		<i>9.5</i> \	0.4	$X \rightarrow$.5		1.0	1.3	1 8		.3 X	3.2	\bigvee	7.1	
year.	SS -	71	$_{\scriptscriptstyle 1}$ $/$ $/$ $_{\scriptscriptstyle 0.3}$ \wedge		/\	X	0.7	2.0	1.0		1	T /\		Д 3.	$_1 \setminus \setminus_{17}$	'h
Local Production Capacity = 1.14 kWh/Watt DC per year.	_		\mathcal{N}	$\setminus A$	-		2			$t_{o_{\underline{\nu}}}^{1.4}$		+/-	\wedge	4	$+$ $\!$	
	_		$^{\prime}$ / \backslash \backslash $/$ \backslash	\/ 6	.з 🗸	0.3	0.3	0.7	0.9	100	/ `	V ,	.9 \			
	20° –	/	/ 0.2	-		0.5	∠0.3			1.1	1.0	$\frac{1}{1}$. J	2.5	¥.4	
At Salem, a system oriented as in the sun path chart to the right will produce 79% of the annual	_	6h //	′ <u> </u>	$/ \setminus $			1 Sec			(c)		$/ \setminus$	/ \	/	2.3	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
electricity produced by an optimally oriented	-	/ X		$\overline{}$							10.	0.6	\bigvee	\setminus		X\
system.	100	//\	(Λ		$V \mid$					V		\bigwedge 1.1		, \ /	1.4
	10	- //	\bigvee									(0.3)				
	-	5h //	$/\setminus / \setminus$		V/							\		$/ \setminus$	\perp / \setminus	$1.1 \setminus 19h$
	-	/ X /		Υ /	///							$ \bigvee \rangle$	$\left \right _{0.1}$	(_ \	\langle / \rangle	/
Draw the horizon on the sun path chart and shade obstructed areas. To calculate the percent reduction			<u>, , V , , /</u>	$^{\prime}$										0.1	V LOU	\$.b/ \ \ \
due to shading, enter the percentage of system		60°	90°	120) ^O	150)°	180	0°	21	.0°	2.	40°	2	:70°	300°
power output shown on the sun path chart for areas		East < Solar Azimuth> West														
shaded by obstructions into the table on the right.		Period/Hr	5-6 6-7	7-8	8-9	9-10	10-11	11-12	12-13	13_14	14-15	15-16	16-17	17-18	18_19	Period/Hr
		May-Jun	3-0 0-7	7-0	0-7)-10	10-11	11-12	12-13	13-14	14-13	13-10	10-17	17-10	10-17	Jun-Jul
For example, assume the percentage of system		Apr-May														Jul-Aug
power output from 7:00 to 8:00 between September		Mar-Apr														Aug-Sep
22 and October 21 is 0.4%, and 50% of that period is should be seen 0.20% in the column and on 7.8 and		Feb-Mar														Sep-Oct
is shaded. Enter 0.2% in the column under 7-8 and the row labeled Feb-Mar on one side and Sep-Oct		Jan-Feb														Oct-Nov
on the other. Enter zero for each box where there is		Dec-Jan														Nov-Dec

Sum of

Hourly

Shading

Sum of

Hourly

Shading

Sum the shading values in each column and enter the total in the bottom row. Sum the bottom row to determine the percent annual shading.

no shading. Note that hours are in solar time.

Percent Annual Shading: