Mid-Winter Shadow Length: 26˚S

When Installing a solar array behind or generally to the south of an object, such as another solar array, you may need to know how far to the south of the object the new solar array may need to be in order to not be shaded. Since mid winter is when the longest shadows occur, the table below gives the direction of the shadow for each 15 minute interval. The horizontal distance of the shadow can then be calculated by multiplying the height of the object (eg solar array) by the shadow length multipliers provided in the table. It is recommended that these calculations be performed for both the eastern and the western end of the obstacle.

Local Time	Sun Azimuth	Sun Altitude	Cast Shadow Direction	Length			South	East/West
6:41	63.981˚	RISE	243.981˚	**Sunrise**				West
6:45	63.543˚	0.327˚	243.543˚	175.253	The length is in the direction indicated in the previous column. The shadow length is a multiplier. For example, if the height of the object is 0.75 metres, then multiply the multiplier in each line by 0.75 to give the horizontal shadow length in metres.	The south and east/west components of the shadow show how far south of the object the shadow will be cast and how far east or west of the object the shadow will be cast on a horizontal plane. The south and east/west components are multipliers as for length.	78.080	156.899 West
7:00	61.849˚	3.321˚	241.849˚	17.231			8.130	15.193 West
7:15	60.068˚	6.268˚	240.068˚	9.105			4.543	7.891 West
7:30	58.189˚	9.160˚	238.189˚	6.201			3.269	5.270 West
7:45	56.204˚	11.993˚	236.204˚	4.707			2.618	3.912 West
8:00	54.102˚	14.759˚	234.102˚	3.796			2.226	3.075 West
8:15	51.872˚	17.450˚	231.872˚	3.181			1.964	2.502 West
8:30	49.503˚	20.058˚	229.503˚	2.739			1.779	2.083 West
8:45	46.983˚	22.572˚	226.983˚	2.406			1.641	1.759 West
9:00	44.300˚	24.982˚	224.300˚	2.146			1.536	1.499 West
9:15	41.445˚	27.275˚	221.445˚	1.940			1.454	1.284 West
9:30	38.405˚	29.438˚	218.405˚	1.772			1.389	1.101 West
9:45	35.174˚	31.457˚	215.174˚	1.635			1.336	0.942 West
10:00	31.746˚	33.315˚	211.746˚	1.521			1.293	0.800 West
10:15	28.120˚	34.997˚	208.120˚	1.428			1.259	0.673 West
10:30	24.299˚	36.486˚	204.299˚	1.352			1.232	0.556 West
10:45	20.294˚	37.765˚	200.294˚	1.291			1.211	0.448 West
11:00	16.122˚	38.819˚	196.122˚	1.243			1.194	0.345 West
11:15	11.807˚	39.633˚	191.807˚	1.207			1.181	0.247 West
11:30	7.382˚	40.195˚	187.382˚	1.184			1.174	0.152 West
11:45	2.886˚	40.496˚	182.886˚	1.171			1.170	0.059 West
12:00	358.361˚	40.533˚	178.361˚	1.169			1.169	0.033 East
12:15	353.853˚	40.304˚	173.853˚	1.179			1.172	0.126 East
12:30	349.404˚	39.813˚	169.404˚	1.200			1.180	0.221 East
12:45	345.056˚	39.068˚	165.056˚	1.232			1.190	0.318 East
13:00	340.841˚	38.079˚	160.841˚	1.276			1.205	0.419 East
13:15	336.788˚	36.861˚	156.788˚	1.334			1.226	0.526 East
13:30	332.915˚	35.428˚	152.915˚	1.406			1.252	0.640 East
13:45	329.234˚	33.797˚	149.234˚	1.494			1.284	0.764 East
14:00	325.752˚	31.986˚	145.752˚	1.601			1.323	0.901 East
14:15	322.467˚	30.010˚	142.467˚	1.731			1.373	1.055 East
14:30	319.375˚	27.885˚	139.375˚	1.890			1.434	1.231 East
14:45	316.470˚	25.626˚	136.470˚	2.085			1.512	1.436 East
15:00	313.741˚	23.247˚	133.741˚	2.328			1.610	1.682 East
15:15	311.177˚	20.761˚	131.177˚	2.638			1.737	1.986 East
15:30	308.767˚	18.178˚	128.767˚	3.046			1.907	2.375 East
15:45	306.500˚	15.509˚	126.500˚	3.604			2.144	2.897 East
16:00	304.364˚	12.763˚	124.364˚	4.415			2.492	3.644 East
16:15	302.348˚	9.948˚	122.348˚	5.702			3.051	4.817 East
16:30	300.441˚	7.071˚	120.441˚	8.062			4.085	6.951 East
16:45	298.634˚	4.139˚	118.634˚	13.820			6.623	12.130 East
17:00	296.917˚	1.157˚	116.917˚	49.516			22.416	44.152 East
17:08	295.927˚	SET	115.927˚	**Sunset**				East

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