Mid-Winter Shadow Length: 14˚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
6:53	65.929˚	RISE	245.929	Sunrise				West
7:00	65.503˚	1.026˚	245.503	55.850	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.	23.158	50.823 West
7:15	64.524˚	4.323˚	244.524	13.227			5.689	11.941 West
7:30	63.450˚	7.593˚	243.450	7.501			3.353	6.710 West
7:45	62.273˚	10.831˚	242.273	5.227			2.432	4.627 West
8:00	60.985˚	14.032˚	240.985	4.001			1.941	3.499 West
8:15	59.573˚	17.192˚	239.573	3.232			1.637	2.787 West
8:30	58.026˚	20.304˚	238.026	2.703			1.431	2.293 West
8:45	56.328˚	23.362˚	236.328	2.315			1.284	1.927 West
9:00	54.463˚	26.356˚	234.463	2.018			1.173	1.642 West
9:15	52.412˚	29.279˚	232.412	1.784			1.088	1.414 West
9:30	50.153˚	32.118˚	230.153	1.593			1.021	1.223 West
9:45	47.663˚	34.860˚	227.663	1.436			0.967	1.061 West
10:00	44.916˚	37.491˚	224.916	1.304			0.923	0.921 West
10:15	41.887˚	39.992˚	221.887	1.192			0.887	0.796 West
10:30	38.550˚	42.342˚	218.550	1.097			0.858	0.684 West
10:45	34.881˚	44.518˚	214.881	1.017			0.834	0.582 West
11:00	30.862˚	46.493˚	210.862	0.949			0.815	0.487 West
11:15	26.486˚	48.240˚	206.486	0.893			0.799	0.398 West
11:30	21.759˚	49.728˚	201.759	0.847			0.787	0.314 West
11:45	16.708˚	50.928˚	196.708	0.812			0.778	0.233 West
12:00	11.381˚	51.812˚	191.381	0.787			0.772	0.155 West
12:15	5.853˚	52.357˚	185.853	0.771			0.767	0.079 West
12:30	0.217˚	52.550˚	180.217	0.766			0.766	0.003 West
12:45	354.576˚	52.385˚	174.576	0.771			0.768	0.073 East
13:00	349.036˚	51.865˚	169.036	0.785			0.771	0.149 East
13:15	343.691˚	51.007˚	163.691	0.810			0.777	0.227 East
13:30	338.617˚	49.830˚	158.617	0.844			0.786	0.308 East
13:45	333.864˚	48.363˚	153.864	0.889			0.798	0.392 East
14:00	329.461˚	46.635˚	149.461	0.944			0.813	0.480 East
14:15	325.415˚	44.676˚	145.415	1.011			0.832	0.574 East
14:30	321.719˚	42.514˚	141.719	1.091			0.856	0.676 East
14:45	318.357˚	40.177˚	138.357	1.184			0.885	0.787 East
15:00	315.306˚	37.687˚	135.306	1.294			0.920	0.910 East
15:15	312.539˚	35.066˚	132.539	1.425			0.963	1.050 East
15:30	310.030˚	32.331˚	130.030	1.580			1.016	1.210 East
15:45	307.754˚	29.499˚	127.754	1.768			1.083	1.398 East
16:00	305.688˚	26.583˚	125.688	1.998			1.166	1.623 East
16:15	303.809˚	23.593˚	123.809	2.290			1.274	1.903 East
16:30	302.099˚	20.540˚	122.099	2.669			1.418	2.261 East
16:45	300.541˚	17.432˚	120.541	3.185			1.618	2.743 East
17:00	299.120˚	14.275˚	119.120	3.930			1.913	3.433 East
17:15	297.822˚	11.077˚	117.822	5.108			2.384	4.518 East
17:30	296.637˚	7.842˚	116.637	7.261			3.255	6.490 East
17:45	295.556˚	4.575˚	115.556	12.498			5.392	11.275 East
18:00	294.570˚	1.279˚	114.57	44.794			18.626	40.738 East
18:08	294.021˚	SET	114.021	Sunset				East

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