Mid-Winter Nimbin Shadow Length

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
06:42:00	63.330˚	0.000˚	243.330˚	**Sunrise**				West
06:45:00	62.972˚	0.125˚	242.972˚	457.60	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.	207.946	407.625 West
07:00:00	61.134˚	3.033˚	241.134˚	18.871			9.110	16.526 West
07:15:00	59.211˚	5.889˚	239.211˚	9.695			4.963	8.329 West
07:30:00	57.194˚	8.687˚	237.194˚	6.545			3.546	5.501 West
07:45:00	55.073˚	11.421˚	235.073˚	4.950			2.834	4.058 West
08:00:00	52.839˚	14.083˚	232.839˚	3.986			2.408	3.177 West
08:15:00	50.482˚	16.665˚	230.482˚	3.341			2.126	2.577 West
08:30:00	47.992˚	19.158˚	227.992˚	2.878			1.926	2.139 West
08:45:00	45.358˚	21.553˚	225.358˚	2.532			1.779	1.802 West
09:00:00	42.572˚	23.839˚	222.572˚	2.263			1.667	1.531 West
09:15:00	39.624˚	26.003˚	219.624˚	2.050			1.579	1.307 West
09:30:00	36.506˚	28.033˚	216.506˚	1.878			1.510	1.117 West
09:45:00	33.215˚	29.915˚	213.215˚	1.738			1.454	0.952 West
10:00:00	29.747˚	31.635˚	209.747˚	1.623			1.409	0.805 West
10:15:00	26.105˚	33.177˚	206.105˚	1.529			1.373	0.673 West
10:30:00	22.295˚	34.527˚	202.295˚	1.454			1.345	0.552 West
10:45:00	18.330˚	35.670˚	198.330˚	1.393			1.322	0.438 West
11:00:00	14.227˚	36.593˚	194.227˚	1.347			1.306	0.331 West
11:15:00	10.010˚	37.285˚	190.010˚	1.313			1.293	0.228 West
11:30:00	5.711˚	37.735˚	185.711˚	1.292			1.286	0.129 West
11:45:00	1.363˚	37.938˚	181.363˚	1.283			1.283	0.031 West
12:00:00	357.003˚	37.891˚	177.003˚	1.285			0.067	1.283 East
12:15:00	352.669˚	37.595˚	172.669˚	1.299			0.166	1.288 East
12:30:00	348.397˚	37.053˚	168.397˚	1.324			0.266	1.297 East
12:45:00	344.220˚	36.273˚	164.220˚	1.363			0.371	1.312 East
13:00:00	340.166˚	35.266˚	160.166˚	1.414			0.480	1.330 East
13:15:00	336.257˚	34.044˚	156.257˚	1.480			0.596	1.355 East
13:30:00	332.509˚	32.620˚	152.509˚	1.562			0.721	1.386 East
13:45:00	328.932˚	31.010˚	148.932˚	1.664			0.859	1.425 East
14:00:00	325.531˚	29.228˚	145.531˚	1.787			1.011	1.473 East
14:15:00	322.305˚	27.288˚	142.305˚	1.938			1.185	1.533 East
14:30:00	319.252˚	25.206˚	139.252˚	2.124			1.386	1.609 East
14:45:00	316.365˚	22.995˚	136.365˚	2.356			1.626	1.705 East
15:00:00	313.637˚	20.667˚	133.637˚	2.651			1.919	1.829 East
15:15:00	311.059˚	18.234˚	131.059˚	3.035			2.288	1.993 East
15:30:00	308.620˚	15.706˚	128.620˚	3.556			2.778	2.219 East
15:45:00	306.310˚	13.093˚	126.310˚	4.300			3.465	2.546 East
16:00:00	304.120˚	10.403˚	124.120˚	5.447			4.509	3.055 East
16:15:00	302.039˚	7.645˚	122.039˚	7.450			6.315	3.952 East
16:30:00	300.058˚	4.824˚	120.058˚	11.848			10.255	5.934 East
16:45:00	298.168˚	1.948˚	118.168˚	29.398			25.916	13.878 East
16:57:00	296.597˚	0.000˚	116.597˚	**Sunset**				East

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