

# Mid-Winter Shadow Length: 18°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	Direction	Length	Cast Shadow		
					South	East/West	
6:49	65.414°	RISE	245.414°				
7:00	64.549°	1.953°	244.549°	29.332			
7:15	63.293°	5.156°	243.293°	11.083			
7:30	61.940°	8.322°	241.940°	6.836			
7:45	60.482°	11.447°	240.482°	4.938			
8:00	58.908°	14.526°	238.908°	3.859			
8:15	57.206°	17.552°	237.206°	3.161			
8:30	55.364°	20.519°	235.364°	2.672			
8:45	53.366°	23.417°	233.366°	2.309			
9:00	51.198°	26.239°	231.198°	2.029			
9:15	48.840°	28.971°	228.840°	1.806			
9:30	46.275°	31.603°	226.275°	1.625			
9:45	43.483°	34.120°	223.483°	1.476			
10:00	40.445°	36.505°	220.445°	1.351			
10:15	37.144°	38.740°	217.144°	1.246			
10:30	33.563°	40.804°	213.563°	1.158			
10:45	29.694°	42.675°	209.694°	1.085			
11:00	25.535°	44.329°	205.535°	1.024			
11:15	21.095°	45.741°	201.095°	0.974			
11:30	16.399°	46.888°	196.399°	0.936			
11:45	11.486°	47.748°	191.486°	0.908			
12:00	6.409°	48.303°	186.409°	0.891			
12:15	1.237°	48.541°	181.237°	0.883			
12:30	356.047°	48.457°	176.047°	0.886			
12:45	350.916°	48.051°	170.916°	0.899			
13:00	345.917°	47.335°	165.917°	0.922			
13:15	341.111°	46.322°	161.111°	0.955			
13:30	336.546°	45.033°	156.546°	0.999			
13:45	332.252°	43.491°	152.252°	1.054			
14:00	328.244°	41.721°	148.244°	1.122			
14:15	324.527°	39.746°	144.527°	1.203			
14:30	321.094°	37.589°	141.094°	1.299			
14:45	317.932°	35.273°	137.932°	1.414			
15:00	315.025°	32.817°	135.025°	1.551			
15:15	312.355°	30.238°	132.355°	1.716			
15:30	309.901°	27.552°	129.901°	1.917			
15:45	307.645°	24.771°	127.645°	2.167			
16:00	305.568°	21.908°	125.568°	2.487			
16:15	303.654°	18.973°	123.654°	2.909			
16:30	301.887°	15.974°	121.887°	3.493			
16:45	300.254°	12.920°	120.254°	4.359			
17:00	298.742°	9.816°	118.742°	5.780			
17:15	297.340°	6.668°	117.340°	8.553			
17:30	296.038°	3.482°	116.038°	16.434			
17:45	294.829°	0.262°	114.829°	218.946			
17:48:00	294.521°	SET	114.521°				

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.

Sunset



## RAINBOW POWER COMPANY LTD

1 Alternative Way, Nimbin, NSW 2480, Australia

phone: (02) 6689 1430  
international: phone: +61 2 6689 1088  
sales@rpc.com.au

fax: (02) 6689 1109  
international: fax: +61 2 6689 1109  
www.rpc.com.au