

# Mid-Winter Shadow Length: 10°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	
6:48	66.256°	RISE	246.256°				
7:00	65.716°	2.233°	245.716°	25.651			
7:15	64.960°	5.588°	244.960°	10.220			
7:30	64.106°	8.922°	244.106°	6.370			
7:45	63.148°	12.231°	243.148°	4.613			
8:00	62.078°	15.509°	242.078°	3.604			
8:15	60.883°	18.754°	240.883°	2.945			
8:30	59.551°	21.959°	239.551°	2.480			
8:45	58.066°	25.118°	238.066°	2.133			
9:00	56.410°	28.224°	236.410°	1.863			
9:15	54.563°	31.267°	234.563°	1.647			
9:30	52.499°	34.237°	232.499°	1.469			
9:45	50.192°	37.121°	230.192°	1.321			
10:00	47.608°	39.904°	227.608°	1.196			
10:15	44.714°	42.568°	224.714°	1.089			
10:30	41.473°	45.092°	221.473°	0.997			
10:45	37.848°	47.450°	217.848°	0.918			
11:00	33.808°	49.613°	213.808°	0.851			
11:15	29.327°	51.547°	209.327°	0.794			
11:30	24.399°	53.218°	204.399°	0.748			
11:45	19.040°	54.585°	199.040°	0.711			
12:00	13.302°	55.615°	193.302°	0.684			
12:15	7.271°	56.275°	187.271°	0.668			
12:30	1.071°	56.544°	181.071°	0.661			
12:45	354.845°	56.413°	174.845°	0.664			
13:00	348.741°	55.885°	168.741°	0.677			
13:15	342.891°	54.979°	162.891°	0.701			
13:30	337.394°	53.723°	157.394°	0.734			
13:45	332.315°	52.152°	152.315°	0.777			
14:00	327.680°	50.304°	147.680°	0.830			
14:15	323.490°	48.216°	143.490°	0.894			
14:30	319.727°	45.921°	139.727°	0.968			
14:45	316.358°	43.451°	136.358°	1.056			
15:00	313.349°	40.833°	133.349°	1.157			
15:15	310.663°	38.088°	130.663°	1.276			
15:30	308.264°	35.237°	128.264°	1.416			
15:45	306.120°	32.295°	126.120°	1.582			
16:00	304.201°	29.275°	124.201°	1.784			
16:15	302.483°	26.190°	122.483°	2.033			
16:30	300.942°	23.049°	120.942°	2.350			
16:45	299.559°	19.859°	119.559°	2.769			
17:00	298.319°	16.627°	118.319°	3.349			
17:15	297.207°	13.359°	117.207°	4.211			
17:30	296.211°	10.061°	116.211°	5.636			
17:45	295.323°	6.735°	115.323°	8.468			
18:00	294.534°	3.386°	114.534°	16.899			
18:15	293.837°	0.018°	113.837°	3191.2			
18:17	293.709°	SET	113.709°				

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.



## RAINBOW POWER COMPANY LTD

A.B.N. 74 003 323 420

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