

# Mid-Winter Shadow Length: 42°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	
7:39	58.206°	RISE	238.206°		Sunrise		
7:45	57.203°	0.393°	237.203°	145.677	78.908	122.455	West
8:00	54.651°	2.701°	234.651°	21.195	12.262	17.288	West
8:15	52.031°	4.936°	232.031°	11.578	7.123	9.127	West
8:30	49.335°	7.092°	229.335°	8.038	5.238	6.097	West
8:45	46.559°	9.161°	226.559°	6.201	4.264	4.502	West
9:00	43.698°	11.136°	223.698°	5.080	3.673	3.510	West
9:15	40.747°	13.008°	220.747°	4.329	3.280	2.826	West
9:30	37.704°	14.770°	217.704°	3.793	3.001	2.320	West
9:45	34.567°	16.414°	214.567°	3.395	2.796	1.926	West
10:00	31.335°	17.929°	211.335°	3.091	2.640	1.607	West
10:15	28.010°	19.309°	208.010°	2.854	2.520	1.340	West
10:30	24.595°	20.543°	204.595°	2.668	2.426	1.110	West
10:45	21.095°	21.625°	201.095°	2.522	2.353	0.908	West
11:00	17.519°	22.547°	197.519°	2.409	2.297	0.725	West
11:15	13.875°	23.301°	193.875°	2.322	2.254	0.557	West
11:30	10.175°	23.881°	190.175°	2.259	2.223	0.399	West
11:45	6.433°	24.284°	186.433°	2.216	2.202	0.248	West
12:00	2.664°	24.505°	182.664°	2.194	2.192	0.102	West
12:15	358.884°	24.542°	178.884°	2.190	2.190	0.043	West
12:30	355.108°	24.396°	175.108°	2.205	2.197	0.188	East
12:45	351.353°	24.068°	171.353°	2.239	2.214	0.337	East
13:00	347.634°	23.560°	167.634°	2.293	2.240	0.491	East
13:15	343.966°	22.876°	163.966°	2.370	2.278	0.655	East
13:30	340.361°	22.022°	160.361°	2.472	2.328	0.831	East
13:45	336.828°	21.005°	156.828°	2.604	2.394	1.025	East
14:00	333.378°	19.832°	153.378°	2.773	2.479	1.243	East
14:15	330.016°	18.511°	150.016°	2.987	2.587	1.493	East
14:30	326.745°	17.050°	146.745°	3.261	2.727	1.788	East
14:45	323.569°	15.458°	143.569°	3.616	2.909	2.147	East
15:00	320.488°	13.743°	140.488°	4.089	3.155	2.602	East
15:15	317.499°	11.915°	137.499°	4.739	3.494	3.202	East
15:30	314.602°	9.981°	134.602°	5.682	3.990	4.046	East
15:45	311.792°	7.950°	131.792°	7.161	4.772	5.339	East
16:00	309.064°	5.829°	129.064°	9.796	6.173	7.606	East
16:15	306.414°	3.625°	126.414°	15.784	9.370	12.702	East
16:30	303.835°	1.346°	123.835°	42.555	23.695	35.348	East
16:42:00	301.652°	SET	121.652°		Sunset		

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