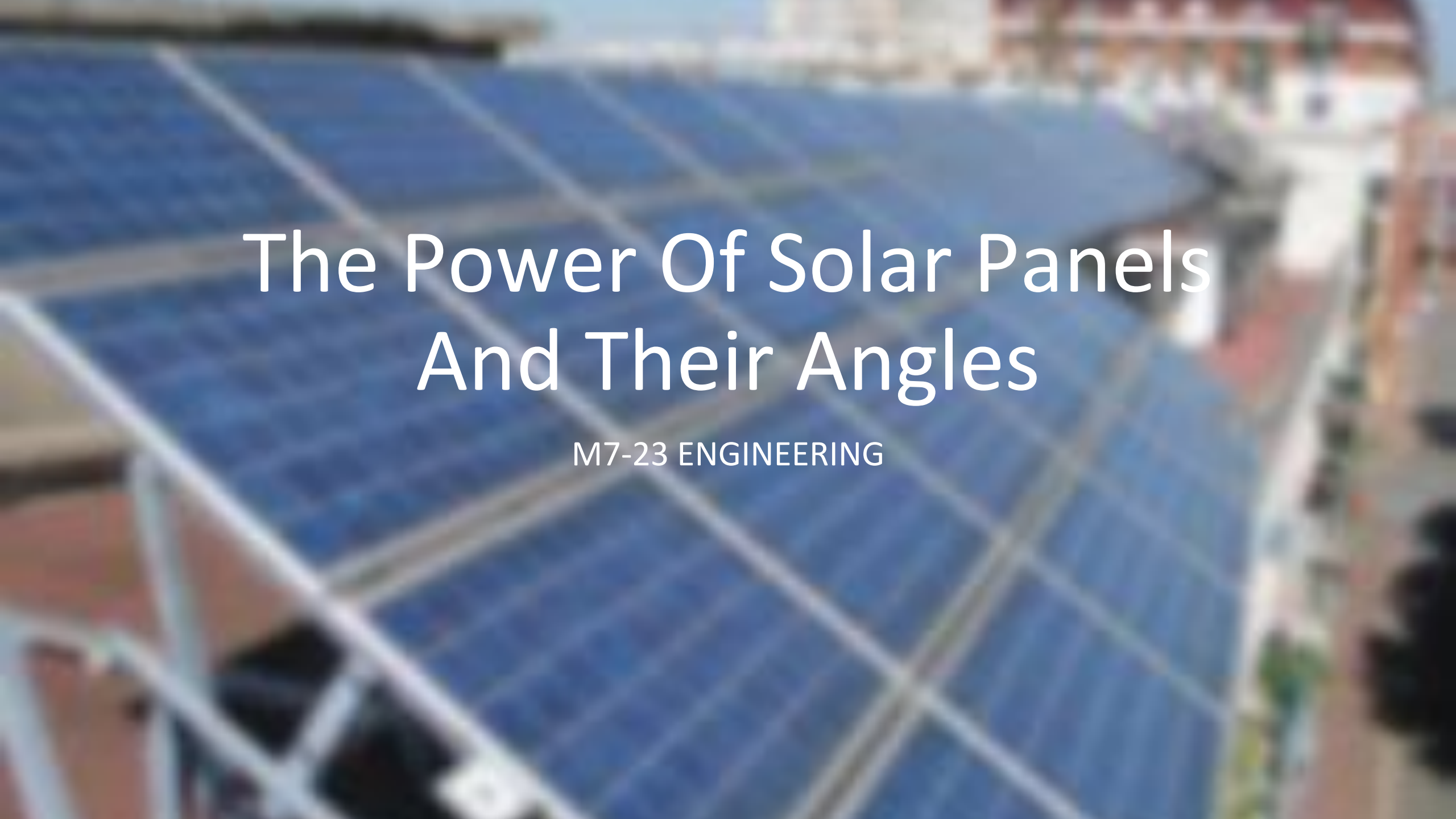


The Power Of Solar Panels And Their Angles

M7-23 ENGINEERING

Question

What affects do the different angles on a solar panel have on the amount of energy it absorbs?

Abstract

- In this experiment we will be using 5 solar panels, testing them in the same conditions and testing which angle outputs the most electricity. I will test this by having the 5 solar panels at 5 different angles. My hypothesis is that the most upward facing solar panel will collect the most energy. From my data I can conclude that my hypothesis was supported.

Hypothesis

- If I put 5 solar panels outside and different angles then I can see if a specific angle collects the most sun because of the amount of energy it outputs.

Procedure

- Put all 5 solar panels outside
- Change the angels to 90, 180, 40, 360, and 140 this is degrees
- Then measure the solar panels after 5 minutes to se what power is being outputted
- Repeat 20 times

Materials

- 5 Solar Panels
- 1 Roll Of Electrical Tape
- 1 Pair Of Scissors
- Popsicle Sticks
- Glue
-
- Solar Cells
- Voltmeter

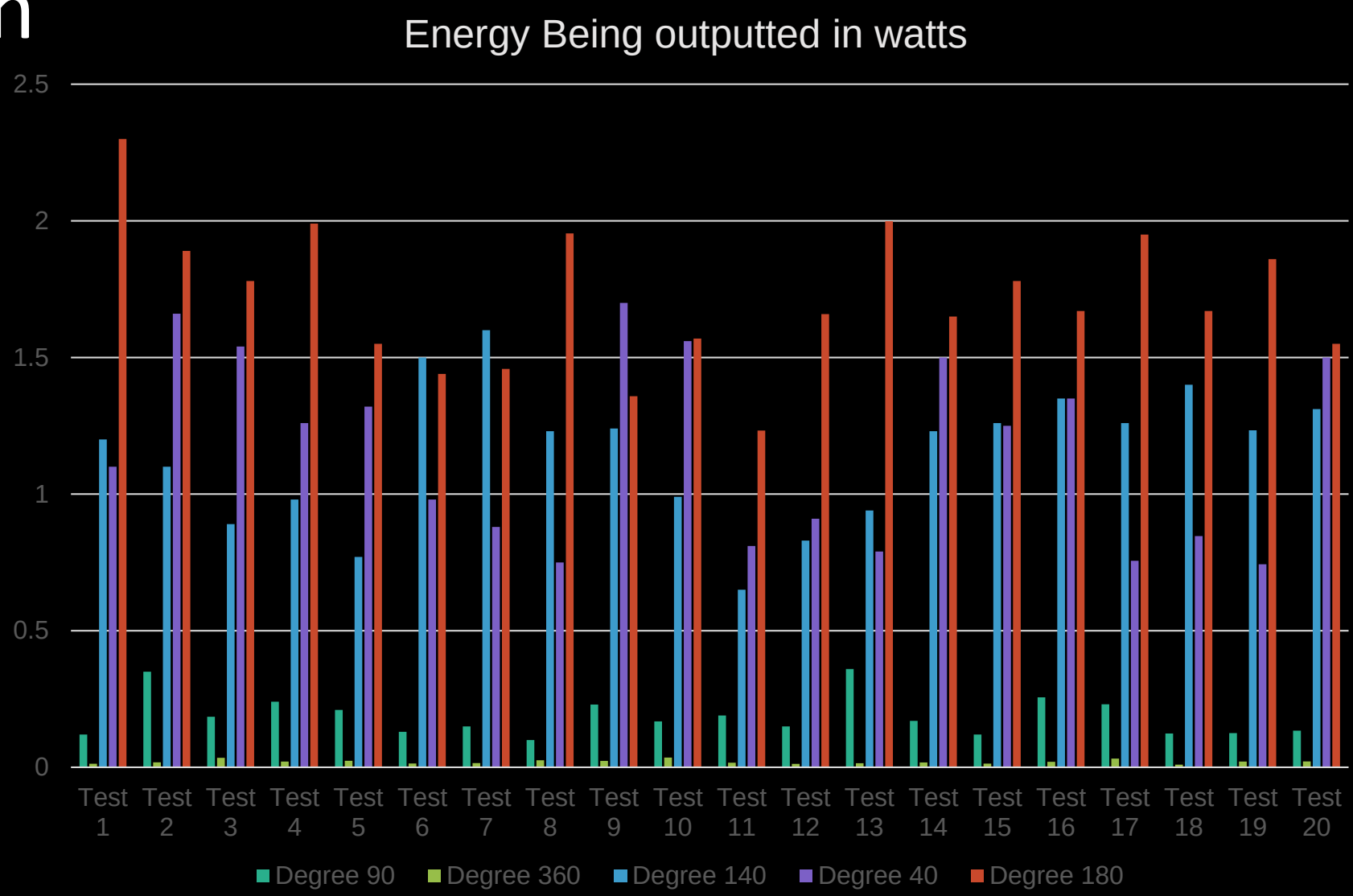
Results and Data

Over all the solar panel with a degree of 180 had the most energy being outputted and was the most efficient at collecting power.

	Degree 90	Degree 360	Degree 140	Degree 40	Degree 180	
Test 1	0.12	0.013	1.2	1.1	2.3	
Test 2	0.35	0.0185	1.1	1.66	1.89	
Test 3	0.185	0.035	0.89	1.54	1.78	
Test 4	0.24	0.021	0.98	1.26	1.99	
Test 5	0.21	0.024	0.77	1.32	1.55	
Test 6	0.13	0.014	1.5	0.98	1.44	
Test 7	0.15	0.0156	1.6	0.88	1.458	
Test 8	0.1	0.026	1.23	0.75	1.954	
Test 9	0.23	0.0235	1.24	1.7	1.3585	
Test 10	0.168	0.036	0.99	1.56	1.5694	
Test 11	0.19	0.017	0.65	0.81	1.2326	
Test 12	0.15	0.01254	0.83	0.91	1.659	
Test 13	0.36	0.015	0.94	0.79	1.999	
Test 14	0.17	0.018	1.23	1.5	1.65	
Test 15	0.12	0.0135	1.26	1.25	1.78	
Test 16	0.256	0.0201	1.35	1.35	1.67	
Test 17	0.231	0.032	1.26	0.756	1.95	
Test 18	0.124	0.01	1.4	0.84645	1.67	
Test 19	0.1254	0.021	1.2333	0.743135	1.86	
Test 20	0.134	0.02168	1.3113	1.5	1.55	

These are measurements in watts

Graph


Energy Being outputted in watts
2.5
2
1.5
1
0.5
0
Test 1
Test 2
Test 3
Test 4
Test 5
Test 6
Test 7
Test 8
Test 9
Test 10
Test 11
Test 12
Test 13
Test 14
Test 15
Test 16
Test 17
Test 18
Test 19
Test 20
Degree 90
Degree 360
Degree 140
Degree 40
Degree 180

Conclusion

The solar panel at angle 180 was easily in the lead with it maxing out at 2.3 watts. It was followed by degree 40 and degree 140. Based on this data I would say that my hypothesis was supported by my data.

Bibliography

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