



TRACKING TEAM

MISSION: To find out the effect of using a tracking system to follow the sun through the sky. Does it matter if the array is stationary or tracking?

PROBLEM: The sun moves throughout the day, but solar panels work best when they are directly facing it. What efficiencies are gained with tracking technology and which tracking systems are the most effective?

SOLUTION: Several different tracking systems have been installed using the same solar panels so that we can compare the added efficiency gained by different methods of tracking, as well as comparing their costs.



*Above: Kyocera Solar Forest (single axis tracker)
Right: Degerenergie Large Scale Tracker array*





ACTIVITY: Tracking System comparison

Fill out the table below from information on the signs associated with each of these solar power systems. Use the map to find your way to the correct locations.

Array	Company	Tracking Method	System Size (kW)	Array Area (m ²)	Efficiency (%)	Annual Electricity Generation (MWh)
4	Kyocera	control - fixed				
5	Kyocera	single-axis				
6	Kyocera	dual-axis				
	Kyocera	passive				

As you read the signs, jot down any notes about cost, material production, effect of temperature, etc. that you think might affect the usefulness of the different technologies:

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Based on your data, which technology is most efficient? Which is the least efficient?

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What did you find out about cost or temperature effects? Is there a reason to use the less efficient technologies in general? What about in Alice Springs specifically?

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Solar array efficiency and electricity generation estimates on these signs are often based on ideal conditions and laboratory tests – not the real world. That’s why this large testing facility was built – to see what works best for Alice Springs and our typical climate and weather conditions. You can see real time data about how much power is *actually* being generated at any given time by going onto the Desert Knowledge Solar Centre website. These data are also available on the touch screens at the Interpretive Centre (check the map).

ACTIVITY – REAL TIME DATA:

Fill out the data sheet below from data gathered on the touchscreens (or website). Go to the interactive map and select the same systems you just looked at to fill out the chart below.

Array	Company	Tracking Method	Current Output (kW)	Powering # Houses	Normalized Output (kW/kW peak)
4	Kyocera	control - fixed			
5	Kyocera	single-axis			
6	Kyocera	dual-axis			
	Kyocera	passive			

Are any of the solar arrays producing as much power as indicated by the signs? If not, what might be affecting them?

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Can you tell which type of material is more efficient based on this limited data? Explain your answer.

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