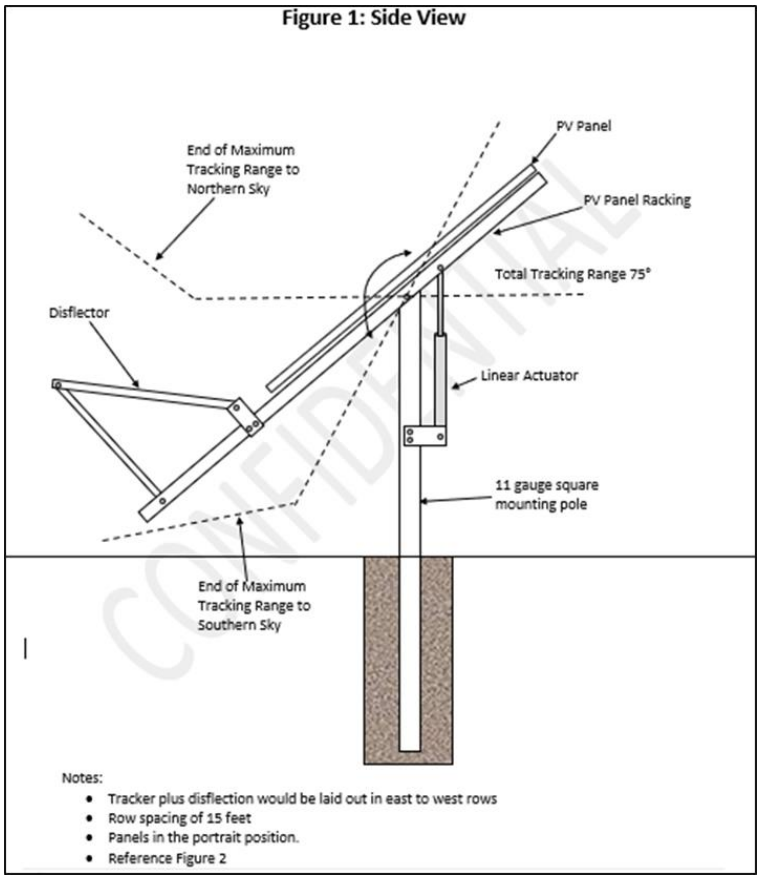
"Optically Enhanced Tilt Tracker"

The Optically Enhanced Tilt Tracker(OETT) is intended to provide low cost tracking in higher latitudes of the earth. Disflector are fixed at a predetermined angle to the PV Panel racking of the array. The rack assembly with disflectors track the sun along the horizontal tilt axis. This will provide for maximum illumination of the panels with direct sun rays for the greatest time during daylight hours. The excepted economic benefit is an increase of 30 to 50% production compared to a simple fixed tilt rack. The increase in capital cost is projected to be about $0.10/W to total array cost. The goal is to produce electric energy for $0.03/kWh based on a levelized cost of energy computation model with a term of 30 years. The premise is a utility scale array with a target installed cost of $1.20/w.



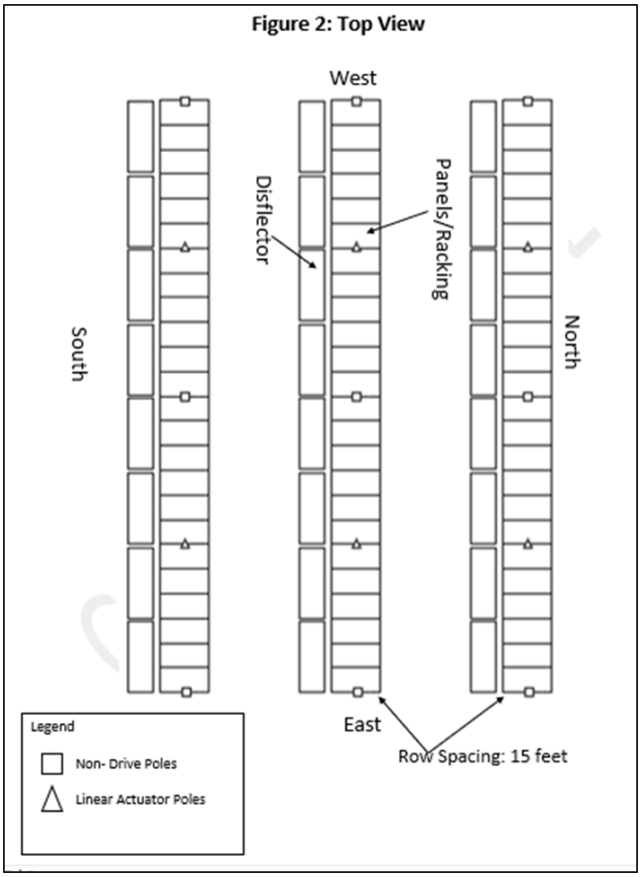


Figure 1 shows the side view of the OETT and the arrangement of the PV panels and disflector on their racking. The entire assembly tilts on pivot points provided by the vertical posts. The tilt is controlled by a linear actuator. The controls keep the PV panels perpendicular to the sun rays and the disflectors 45° to the sun rays through the solar day. This assures direct sunlight on the panels and added diffused light from the disflector. Figure 2 shows the typical row arrangement of the OETT arrays. It shows the south facing alignment of the trackers as well as the linear actuator equipped poles. The row length is determined by the solar site. Decoupled design allows for a wide range of row length and spacing to accommodate most site requirements. Each Tracker is decoupled from adjacent tracker to prevent galloping.