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Solar Concentration for Electricity and Cooking MIKE KIM, CONNOR FOURT, PETE SCHWARTZ, MICHAEL LEE, TAYLOR FROSTHOLM, JOSH FERNANDES, JARED TOWER, Cal Poly San Luis Obispo — Over 8000 Schefflers exist worldwide, mostly in Africa and Asia. Having constructed the first Scheffler reflector in North America 2 years ago, the next goal was to make it less expensive. The original model took 4 students 2 months and about $1000. In order to lower the cost and construction time the design was minimized, less expensive materials were used, and the construction process was automated. The original complex frame took 1000 people-hours and it was minimized to a day. Instead of using aluminum for the reflective dish, we turned to using aluminized Mylar, which cut the cost by over 90%. A thermal storage unit was added to extend cooking time well into the evening. Finally, a concentrated solar module of High Efficiency Photo Voltaics (HEPV) is to be placed at the focus of the concentrator to generate electricity and water as a byproduct. The final cost is estimated to be about $200 ($0.10 per thermal watt) including the HEPV, an 80% cost reduction. Such technology is practical in the U.S. as well as developing nations.

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