

## **Technical Assistance Request For SunSweep, LLC.**

SunSweep's current technology is a low input, manually operated cleaning solution to commercial scale solar fields. This design requires only the use of two people on either end to push the brush along the panel's surface, eliminating dust and solar blocking particles. This no-water design was invented to serve commercial scale solar operations globally, but are more commonly purchased in arid regions where dust storms are prevalent, and have the potential to increase solar efficiency by up to 40%.

The MiniMax, constructed primarily from a lightweight aluminum modular frame, consists of a rubberized rolling tread system, soft rubber wheels, and a series of brushes to sweep the solar panel modules. This system comes with spring-loaded brushes, which provided consistent brush pressure while cleaning. The safety semi-pneumatic tires prevent our system from damaging the glass of the solar panels. The manual dry brush system cleans without electricity, and requires two operators to push it along the solar panels and move it from row to row.



**Figure 1.** Minimax for commercial solar panel cleaning

Through optimization strategies, consulting, and customer validation, we've discovered two modifications that would better suit our customer's needs, including making a more lightweight device that requires one person to operate instead of two. Our goal is to decrease the weight of the MiniMax by 30%. These two modifications would require a completely new product design, consulting from engineers, and prototyping and testing.



**Figure 2.** Two technicians pushing the MiniMax across an array of solar panels

The resources we are requesting in order to support these modifications and bring our new product to market are: market analyses and marketing assistance, manufacturing aid (sheet metal fabrication), consulting with FEA and industrial engineers, and access to solar fields for testing.

Connections to the solar farm operations in the Southwest region of the US would be extremely beneficial to us at this time in order to further validate, test our product, and establish a relationship as potential future customers. Regions within, but certainly not limited to, Southern and Central CA, AZ and NV are all desired locations for SunSweep to be involved with due to the high utilization of solar and quantity of solar farms.

FEA and industrial engineer support will be necessary to help design for the modifications of the product. Considerations for these improvements include: weight and amount of material used, design for easy placement and removal from panels, single person operation, and potentially the ability to collapse.

We intend on marketing by way of word of mouth, advertising in solar magazines, website and internet ad campaigns, and directly contacting regional solar field operators. We will need access to more people that will allow us to connect with their regions, such as solar installers, solar field operations, solar panel cleaners, and energy companies.