

# SOLAR SWEEPER: Automated Solar Panel Cleaning System

## PROBLEM

- Soiling occurs when particulates (dust, ash, pollen, etc) accumulate on solar panels
- Solar panel efficiency can be reduced more than **20%** due to soiling
- Soiling effects are greatest at equatorial latitudes and in arid environments
- Manual cleaning is inefficient, while current automated solutions are inflexible

## SOLUTION

- Cleaning Module that traverses panels while cleaning them with rotating brushes
- Cleaning Module is tethered to a ground-based Transportation Module providing power and transportation to additional groups of panels
- Water-based cleaning can switch to compressed air in water-poor environments

## BENEFITS

- Reduces cleaning maintenance cost, does not require additional hardware installation on panels, effectively cleans different panel arrangements, can travel between panel groups, does not require human interaction

**SOLAR PANEL SOILING**



**CURRENT SOLUTIONS**



**PROPOSED SOLUTION**

