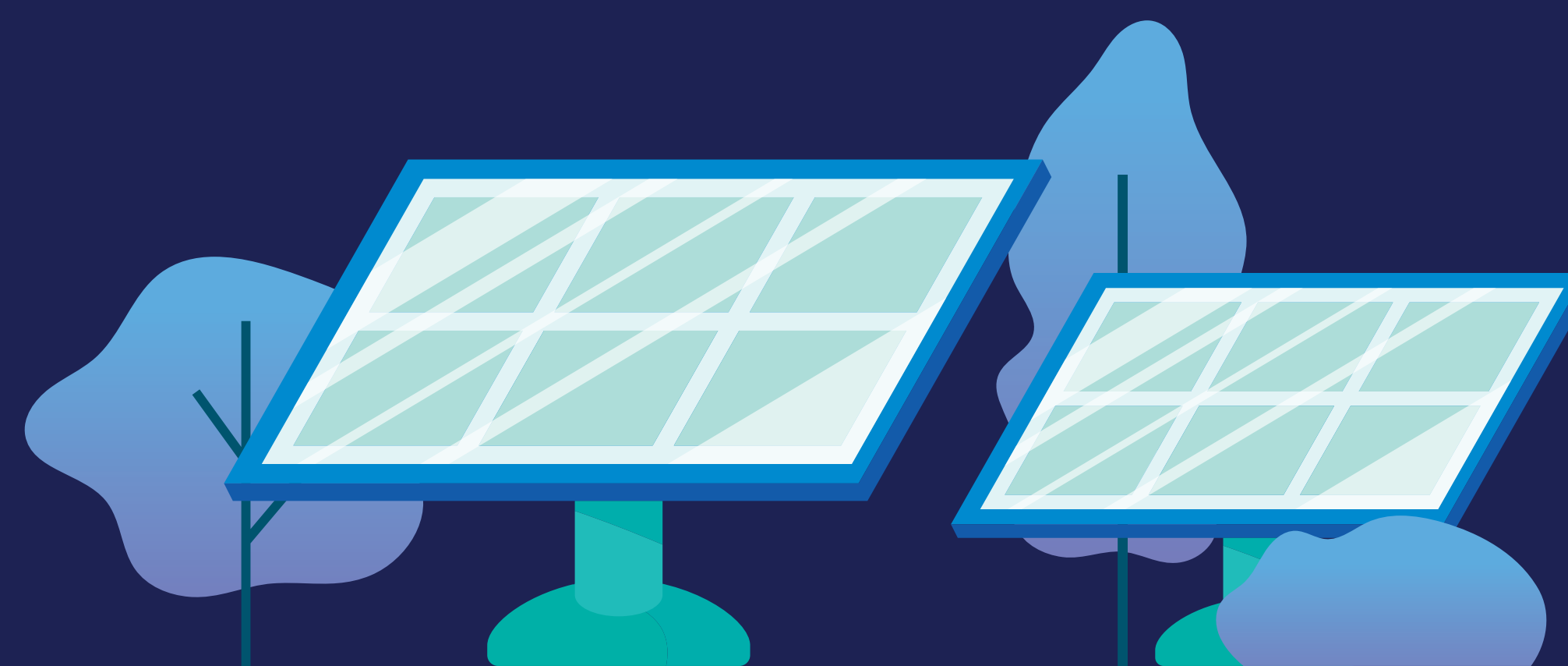


Solar Panel Cleaning

The First Step in NextGen PV Soiling Mitigation

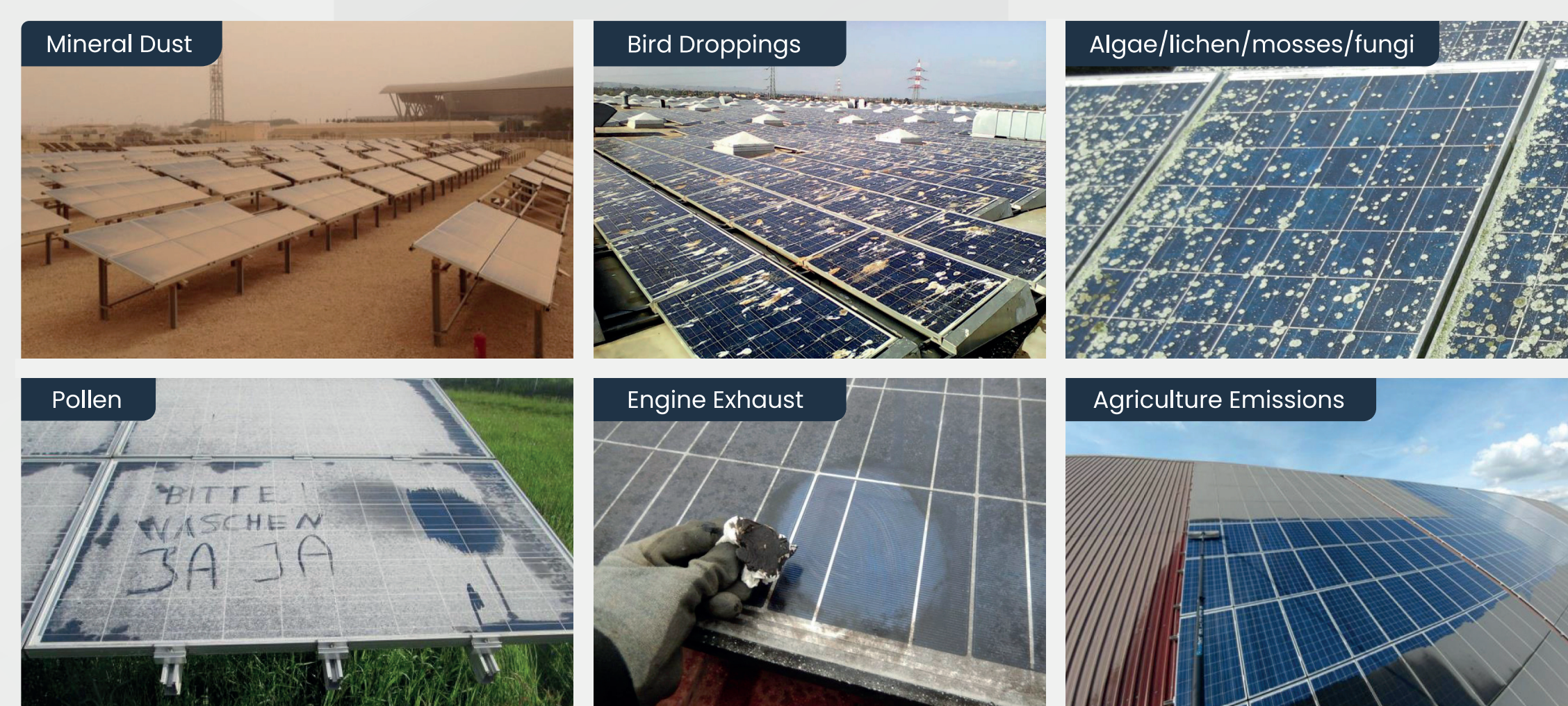


The problem

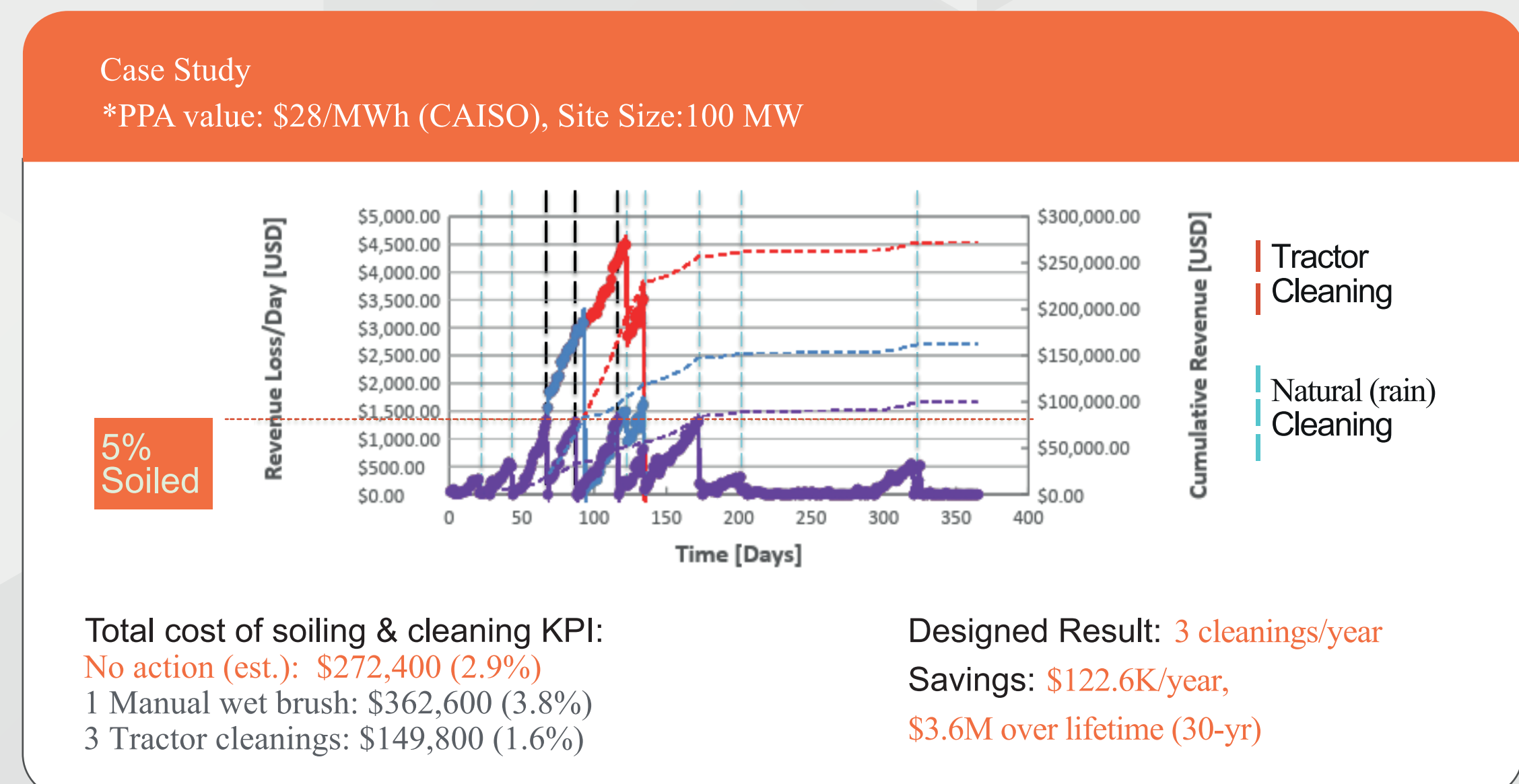
Soiling on PV modules reduces:

- 1) Performance
- 2) Reliability
- 3) Asset Life

The accumulation of dust, soot, or other particulates causes a drop in the efficiency of photovoltaic (PV) panels, which translates to a decline in the amount of power produced and lost income for their operators. But cleaning these solar panels carries a cost as well. "Site analyses are finding that PV Module soiling is a leading cause of recoverable underperformance." The cost of performance loss is real however the cost of cleaning is also significant. Cleaning represents



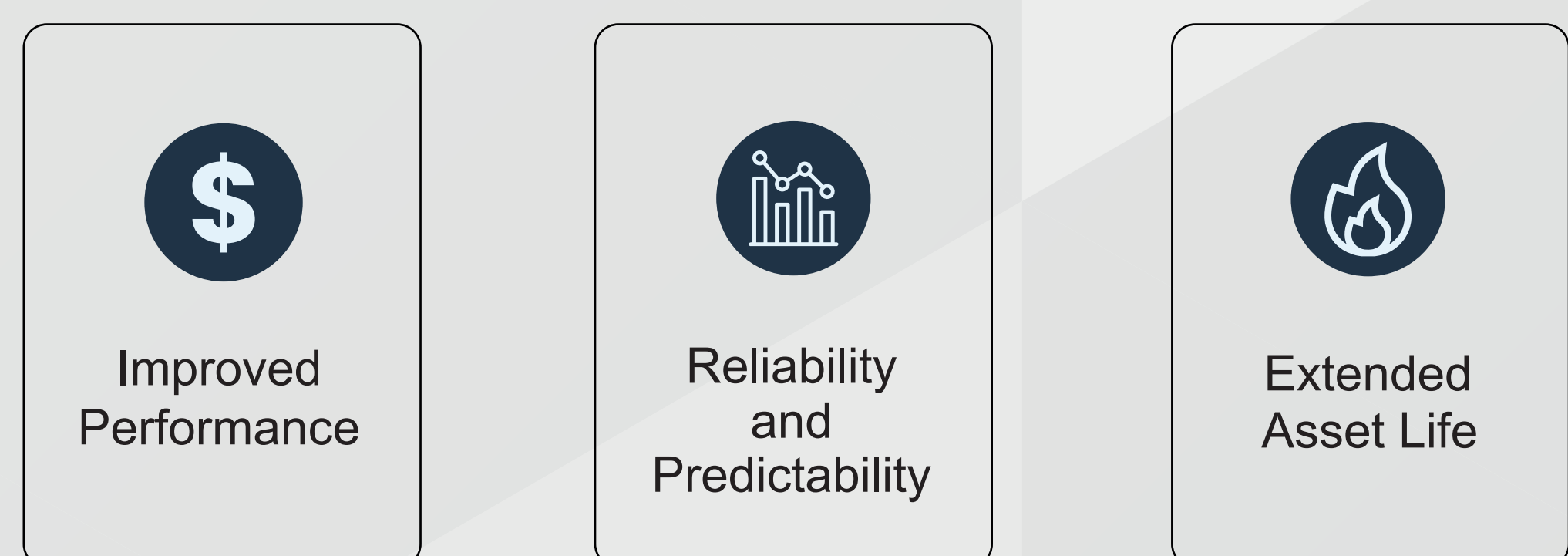
According to NREL, Performance loss due to soiling is estimated to be 2-25% annually.



Average soiling rate est.: 0.08%/day
Average yearly soiling: 2.86%

CASE STUDY: 10-YEAR FINANCIAL ESTIMATES	NO ACTION	SEMI-AUTOMATED		
		MANUAL Wet Brush	Solar Panel Cleaning Robot	Tractor Brush
Cleaning frequency (per year)	0	1/yr	3/yr	3/yr
Cleaning CapEx	\$	\$	\$ 160,000	\$ 315,000
Cleaning OpEx	\$	\$ 2,000,000	\$ 657,000	\$ 185,000
Total Cleaning Cost	\$	\$ 2,000,000	\$ 817,000	\$ 500,000
Module soiling loss	\$ 2,723,000	\$ 1,626,000	\$ 1,067,000	\$ 998,000
Total soiling & cleaning cost	\$ 2,723,000	\$ 3,626,000	\$ 1,884,000	\$ 1,497,000
Savings (compared to no action)	\$	\$ (904,000)	\$ 840,000	\$ 1,226,000
Total revenue (zero soiling)	\$95,046,000	\$ 95,046,000	\$ 95,046,000	\$ 95,046,000
Total soiling & cleaning cost	2.9%	3.8%	2.0%	1.6%

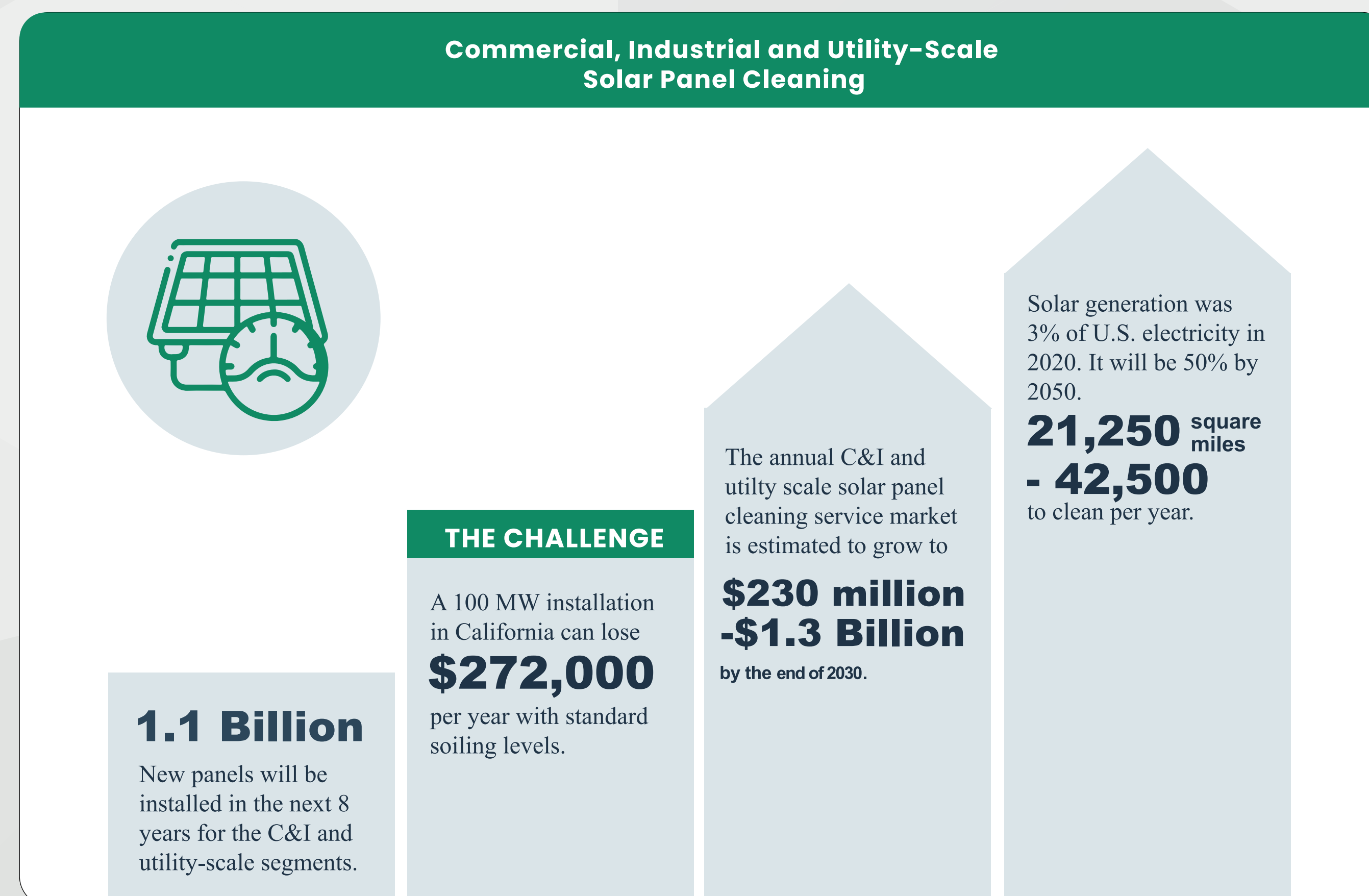
What value does solar panel cleaning create?



Business Opportunity

The adoption of smart solar panel cleaning practices:

- Savings equivalent to 1% - 4% of your solar farms revenue.



The Solution

Start by Cleaning



NextGen PV Soiling Mitigation

