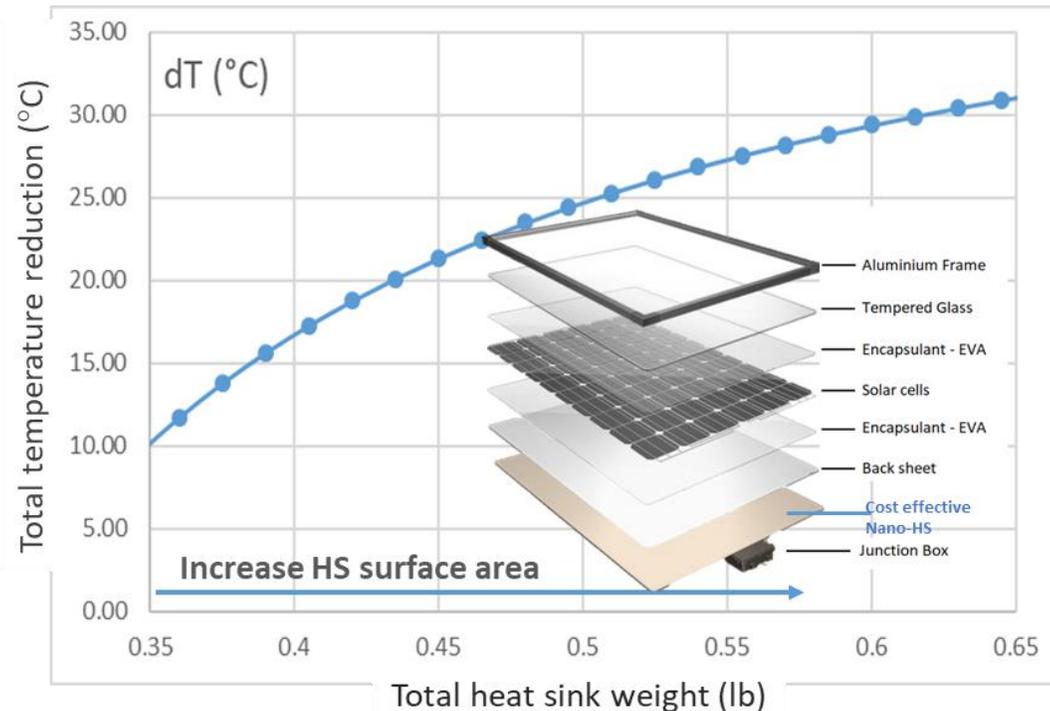


Low-cost, Effective Nano-Heat Sink for Solar Panel Thermal Management and LCOE Reduction

Team: Cool Tech Solar

Problem/Challenge: The levelized cost of energy (LCOE) of solar needs to be reduced by another 50% by 2030.



Solution – NanoHS reduces LCOE for solar in the field by both increase conversion efficiency (CE) and reduce solar panel peak temperature. NanoHS:

1. increases surface area for heat dissipation, reduce peak temperature
2. increases CE by up to 10%
3. extends lifetime of the solar panel by more than 30%
4. reduce LCOE by 30% or more
5. extremely low cost: <1C /Watt, recoup return within the first year.

Team – Strong R&D team with outstanding innovation/deliverable record:

- Distinguished research team, Univ. Profs, Fellow IEEE and Fellow of National Academy of Inventors, Industry R&D and product implementation leaders.
- Dedicated Solar Lab. with multiple side-by-side test facilities for conversion efficiency (CE), surface temperature distribution and other test and characterization capabilities.
- Award winning prototype development team, with most recently as the only small business who received electricity industry technology and practice innovation challenges award from office of electricity in 2019.
- IP: fundamental understanding, design/process//materials patents/trade secrets, model/software

Set: Demonstrate NanoHS reduce solar panel peak temperature by >10°F and improve CE by >2%.

- Build prototype device for concept demonstration in Lab.
- Complete side-by-side measurement to validate technology.

Go: Full size panel demonstration of NanoHS improve CE and lifetime, reduce peak temperature.

- Complete full size demo. Build.
- Complete both in field test by our team and independent Lab.
- Optimize process for manufacture.
- Establish partner for product demonstration.