



# Low-cost tandem isoscell with geometrical boost for high efficiency performance

T3DP Inc.



## Problem Summary:

- Majority of Silicon PV technology is manufactured in Asia
- Silicon flat solar panel are selling at .35 cents per watt
- USA and EU do not manufacture much PV anymore
- Environmental laws prevent the Western World from manufacturing silicon effectively

## Solution Summary:

- Test Monolithic Perovskite with High and Low Bandgaps in Tandem
- Tandem CdTe or CIGS + Perovskite in 3d arrangement 40-50% Module Power Efficiency
- Thin "films" processed on "10" micron "deep" structured "glass"
- Tandems have two separate materials with complimentary bandgaps to absorb more sunlight from different color spectrums
- Increased efficiencies reduce PV installation costs and footprint

## Proposed Goals:

**Set!** Create six 16-18% efficient 5.5" inch isoscell thin film solar triangles and invert in three-dimensional sub-module arrangement at 50 degrees and replicate recent success. Upon validation we hope to realize a 32.4% Sub-Module Efficiency per volumetric m<sup>2</sup>

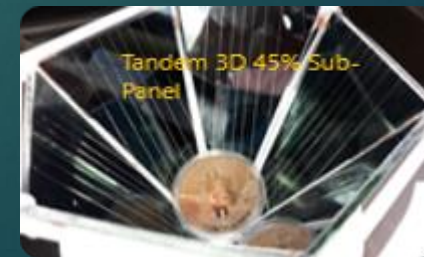
**Go!** Create 6, 22-25% efficient tandem 5.5" solar triangles and place in 3D arrangement at 50degree angle. Validate potential 40-50% Volumetric 3D Panel Power Efficiency with NREL. Compare results and commercialize

**1-year** Create full-sized 3-Dimensional Solar Panel and have UL Certified. Then obtain letters of intent and MOU's from prospective investors, partners, and customers,

Problem: Crystalline Si Panels take 9 years to achieve Roi



Solution: High-efficiency 3D solar panels can in some cases obtain Roi in 3-4 Years



**Plan:** Validate high efficiency Isoscell in sub-panel arrangement then demonstrate full system test in 3D solar panel arrangement with geometrical panel efficiency boost. UL test and certification. Market introduction.