

## I. Solar Energy

An ultra-hybrid, triple boosting, bi-facial, partly transparent, PV thermal panel. Produces electricity and hot water from both sides, 5 functions in 1 unit, several generations beyond existing technologies. Integrated with a closed-loop water flushing system for dust cleaning of PV panel surfaces.

Combined with a unique energy accumulator integrated 60°-70° hot water system, without lithium battery at an unbeatable price. Generates stable electricity at evening/night throughout lifetime and without annual electric degradation.

## II. The Product



The innovative product has been developed to address the inefficiencies that PV panels and solar hot water collectors in hot climates around the world possess.



The new Ultra hybrid PV Thermal product is built by; connecting BIFACIAL double sided partly transparent PV to a covered anti-reflective transparent tempered glass at a millimeter gap, utilizing a simple water VACUUM cooling system by passing water beneath.



The overall efficiency of the photovoltaic panels increases by **15-20%** as a result of being cooled down, and additionally hot water is created. Shown to be over **45%** more energy efficient within the same dimensions and price of a traditional thermal (hot water) collector. A truly unbeatable win for the ultra-hybrid PV thermal panel.



The ultra-hybrid **bifacial** PV panel on the 'back side' is able to generate an additional **25%** of energy by simply absorbing light from the 'Albedo' as well as from the 'Internal Albedo' behind the transparency gaps in between the Photo Voltaic cells.



The only one of its kind in the world, which integrates into retrofitted production and assembly lines or new Bifacial PV panels assembly lines.



The ultra-hybrid bifacial PV panel is integrated with a game-changing autonomous solar water desalination & water treatment technology. Turns all water sources into freshwater due to the hot water remnant power of the **PV thermal panel's residual heat**.



The combination of all these technologies, configured into the same footprint, results in an ultra triple-boosting system, featuring an incredible 80% of additional energy efficiency.

## III. Benefits of the System



The ultra-hybrid bi-facial PV thermal partly Transparent Panels, offer 50% more electricity and hot water, and the fastest ROI. Its unbeatable cost-effective price compared with other renewable energy systems will lead to expedited urban implementation.



Longer life span than traditional hot water collectors & PV panels. Integrated vacuum water cooling and water heating system allows installation in the same area of hot water collector.



Can be used as an alternative to roof tiles due to its 3 encapsulated tempered glasses covering, as well as insulation for cooling the roof.



### AgriThermoVoltaic

The Ultra Hybrid Bifacial Pv Thermal panel is ideal for AgriThermoVoltaic to assimilate Triple Boosting of Electric production, cooling PV panel and Thermal Storage to warm the trees/ plants in winter.



### Financial Projection

The solar PV & Hot water collectors energy market is expected to reach about \$ 223 billion by 2026. After 2-3 years, the company expects a gross profit of about 300% -400% of products sales.



The initial funds for the research and production of pilots have been sponsored by Peter Graner (inventor and patent owner) and the Israel Innovation Authority.