TECHNICAL ASSISTANCE REQUEST

1. **Unique challenge and need** - Testing and quantification of the efficiency gains realized with the use of the Omnisole technology.

   Proposed assisting entity – National Renewable Energy Lab, Boulder CO

   NREL is uniquely equipped to measure changes in solar module output with controlled variable such as temperature, wind velocity, irradiance, etc. This test is essential to verify production for financing and product warranty purposes and includes temperature monitoring at various key areas on the unit including the pockets that accommodate J-boxes and panel level electronics like optimizers to verify the extent of the thermal efficiencies gained by a water ballasted heat sync vs. traditional methods like air-flow and fins.

   Estimated funding required: $20,000.00

2. **Unique challenge and need** – Development of wind performance models for the final Omnisole product.

   Proposed assisting Entity – Oak Ridge National Lab, Oak Ridge TN

   Oak Ridge National Laboratory has the required wind tunnels and computation fluid dynamics computer modeling capabilities to complete a thorough wind performance model. In order to optimize the weight of a grouped array of panels overall several roofing types, thorough testing is required, allowing us to develop a tool for local engineers to use when moving a project through permitting and assessing the structural viability of a subject property.

   Estimated funding required: $20,000.00

3. **Unique challenge and need** – Verifying Omnisole response to seismic conditions. Need a test lab capable of generating suitable seismic conditions on a scale of a mounted solar panel.

   Proposed assisting entity – Lawrence Berkeley National Labs, Berkeley CA

   Lawrence Berkeley National Labs has vast experience and adequate shake tables to verify performance during a full range of seismic events. Seismic performance

verification is essential to safety, permitting, and market confidence in coastal markets like California.

Estimated funding required: $10,000.00

4. **Unique challenge and need** – UL2703 certification prior to commercialization.

   Proposed assisting entity – INTERTEK laboratories, Boxborough MA

   INTERTEK has facilities and programs to complete and certify solar products to UL2703 standards. Our past work with Intertek on this product has garnered good results and a strong working relationship and INTERTEK has provided the best of the competitive bids for this portion of the testing.

   Estimated funding required: $28,850.00 ($25,000 requested from voucher)