Virtus Solis Technologies / Space Solar Power System

Technical Assistance Request for Ready! Phase

During the Ready! Phase of the American Made Solar Challenge Round 4 we will plan the proof of concept and build a first functional prototype. Evaluation of the design inputs to that design a number of assumptions will need to be tested as well as performance testing is a direct task. We believe a number of Power Connectors can assist us with not just physical testing but testing our design assumptions. Specifically, we believe test sites such as Washington Clean Energy Test Beds and the National Renewable Energy Laboratory can directly assist us. Additional sites such as NASA's Plum Brook test site could be leveraged for the thermal vacuum durability testing of our satellite.

Additional items that we would welcome assistance on are the following:

- Determining economic benefit to grids with instantaneous dispatchable power
- Evaluating market advantages of co-generation of terrestrial PV with space solar power
- Large area solar simulator (minimum 1.5m square) for CPV system performance evaluation
- Vacuum thermal test site for dissipation performance
- Light intensity measurement for solar concentrator performance
- Evaluating mechanical stress of rectenna arrays in severe weather
- Testing rectenna performance with dust accumulation
- Shared land use evaluation of rectennas over water, pastureland and cropland
- Cost and safety implications of low to medium intensity microwaves to maintenance workers not absorbed by rectenna (emergency maintenance when array is active)
- RF ISM band selection criteria and evaluation by FCC
- End of life deorbit demands on maintenance tug for individual satellites
- Estimate of orbital debris impact on replacement rate of individual satellites
- High power RF test sites of power beaming demonstration
- Radiation degradation estimate for power electronics, especially RF amplifier