

JOINT COMMITTEE ON TACTICAL SHELTERS (JOCOTAS) MEETING. On 18 Nov 2014 Natick Soldier Research Development and Engineering Center – Expeditionary Basing and Collective Protection Directorate (EB/CP) briefed JOCOTAS on the latest technology being developed to meet NETZERO Contingency Basing applications. EB/CP pioneered flexible and foldable textile based amorphous silicon (A-Si) photovoltaic panels (PV) with its industry partner Iowa Thin Films. The systems range from 2000 watt PowerShades that include both power storage and AC conversion subsystem to Warfighter portable PV power supplies and battery charges. The Power Shade is integrated into an 800 square foot solar cover providing both power and passive cooling. The Warfighter portable systems are being fielded through PEO Soldier to multiple infantry brigades. The Army Small Business Innovative Research (SBIR) Office and Special Operations Command are the driving forces that support these programs. The A-Si based PV panel is referred to as planar structures and consists of groups of printed cells formed into modules using a substrate base. The next advance in PV that the EB/CP team is pursuing is developing a more flexible structure that mimics the physical characteristics of traditional fabrics and provides a more natural form fitting drape. A concurrent effort is focused on delivering a colored version of PV based on naturally occurring color patterns similar to camouflage. EB/CP also briefed on the Redeployable, Solar, Combined Heat and Power (RSCHP) demonstration system that produces hot water and electrical power. Utilizing twin, power dishes and a Sterling engine the RSCHP produces 6Kw of electric power. A full scale demonstration unit will be completed for further evaluation in FY 15. EB/CP closed out the briefing with an overview of a tubular wind energy generator concept and a passive, non powered solar lighting system. Both of the latter programs are also funded by the SBIR office.

