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TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.

Flexible Photovoltaics: An Update

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Presented to JOCOTAS
3 November 2011*

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Report Documentation Page

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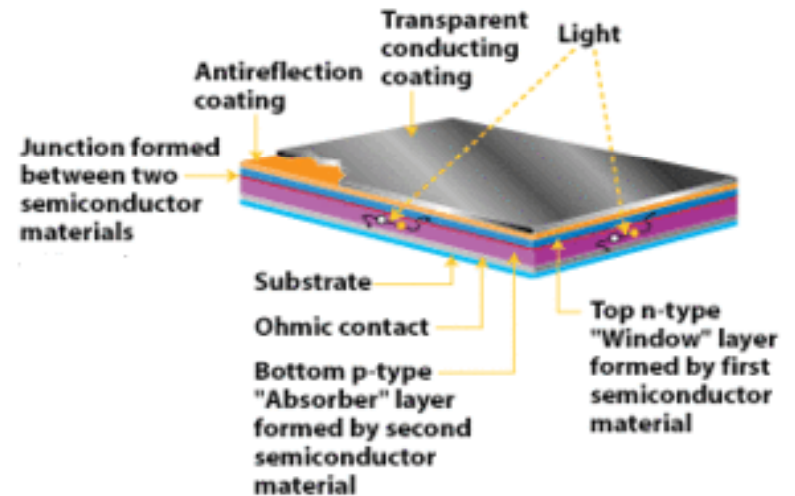
- **Convert the sun's light energy into electricity**
 - **No Noise**
 - **No Moving Parts**
 - **No Fuel Consumption**
 - **No Pollutants**
- **Flexible Materials**
 - **Amorphous silicon**
 - **Small Units are Lightweight**
 - **Packable**
 - **Redeployment**
- **Additional Benefits**
 - **Solar Shading**
 - **Passive Collection**



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- **Developments**

- Research into increasing efficiency of panels
- Research into textured substrates
- Balance of systems development
- Micro grid integration



- **Evaluations**

- Net-Zero Plus JCTD

- **Deployments**

- AFRICOM
- Afghanistan



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Net-Zero Plus Joint Capability Technology Demonstration



- *Saves up to 1.52 kW/hr over the baseline tent*
- *Generates and stores enough power to sustain billeting mission overnight*
 - *Mission loads were <1 kW/hr*



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AFRICOM Deployment



- *Camp Lemonnier, Djibouti*
- *Natick conducted two day training*
- *Year-long, limited military user assessment*
 - *Very positive feedback from users*
 - *Added to HOA property book*
 - *Request for additional units*
- *24/7 exposure, including harsh wind, high temps, extreme dust*
 - *Minor de-lamination in corners*
 - *Current plan to investigate and resolve in upcoming funded effort*



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Current Challenges/ Industry Opportunities



- **Cost**
 - Initial price could be prohibitive for short term deployment
 - Mission based decision
 - ROI could be months or years depending on location
- **Efficiency**
 - Less efficient compared to mono- and poly-crystalline silicon
- **Durability**
 - De-lamination
- **Footprint**
 - Currently designed for most shelters
 - Different configurations based on mission, location, shelters, etc.
- **Requirements Document is Undefined**

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Questions?



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