American Made Solar Prize - Ready! Round 3

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Lightwing Solar-Powered UAV
An Affordable Tool for Climate Research and Natural Disaster Early Warning

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Facility Connections:	Theta Composites, Nova Labs
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Video Link:	http://www.thetacomposites.com/solar

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The Lightwing program is dedicated to building a product that meets customer needs. This task requires an end-to-end solution. Some of the easy to overlook requirements will be the out team needs to ensure we address. The following is a list of connections which would benefit the program.

Safety and certifications
The product will eventually need to be certified for sale (CE, UL, etc) in order to obtain import licenses, insurance, and other regulatory requirements. A connection to a testing lab would help to inform our design and manufacturing decisions to save time and cost with revisions down the road.

Airspace access
The aircraft is light enough to fly in the US under FAA Part 107 requirements. This makes testing easy, but operators will need a higher level of approval for flights beyond line of sight, or in fully autonomous mode. Connections to the FAA to create a process for obtaining COA waivers would be of great help once the aircraft begins full length mission testing. Connections to UAV operations training centers would be helpful in providing a path to certifications for researchers looking to use the product in the future.

Payload rental
The sensors for many mission types are expensive and unique to a specific experiment. The program would benefit from being able to borrow some of these advanced sensors from universities or manufacturers for mission testing.

Data processing
The data captured is usually in a raw format that needs to be processed before it can be analyzed. There are many great post-processing software packages available, but they are often expensive or require some expertise to use. The program would benefit from a connection to an experienced user who has access to the software and is capable of processing the data for us.

Tooling materials and CNC operations
The composite airframe requires tooling for layup. A machine center and professional CAM programmers would be helpful in ensuring the tools meet the fabrication needs and a fair price. A local supplier would be beneficial to our timeline and provide valuable feedback to prevent issues from communication barriers.

Electronics design and fabrication
The MPPT development requires custom boards be designed and printed. This process is fairly common, but takes several weeks when ordered from overseas. A local supplier could save time and costs by producing low rate production runs and providing advice to reduce the likelihood of failures.