

AIRPower Technical Assistance Request presented to American-Made Solar Prize

Deep tech innovation requires a complex infrastructure. It is particularly difficult in industries that require sophisticated hardware, such as renewable energy and transportation as these need more capital investment up front than digital ventures. However, getting alternative energy concepts – in our case solar energy – from a university lab to market, requires more than financial investments. Deep tech needs innovation orchards. The ability to connect with influential networks in an “all in” engagement can be a critical path to success. The cooperation brought by all stakeholders facilitates startup companies with disruptive solar power technologies to shorten the time to market.

As we make progress in building our prototype and reach different stages, so will our needs change.

Short term

- Non-dilutive financing to purchase equipment.
- Access to suppliers to obtain preferred pricing on equipment.
- Borrow equipment that will allow us to test our prototype.
- Advise from experts in flexible PV technology.
- Advise from experts in the electric transportation area.
- Access to organizations that are working with solar farms to avoid energy curtailment.
- Work with us to improve, test, and validate our prototype.
- Immediate need: Help preparing a full proposal to the NSF SBIR Phase I program Topic Area: SBIR: Energy and Power Systems (we were invited to submit)

Mid term

- Help us avoid Valley of Death through mentorship and coaching.
- Help us prepare patent applications.
- Help us identify market opportunities and implement go-to-market strategies.
- Non-dilutive financing including SBIR and other grants.
- Secure lab/incubator space in anticipation of moving out from our current Yale University lab.
- Help us reach agreements with solar farms.
- Help with fabrication and prototyping at full scale/POC.
- Testing and Validation.
- Introduction to potential customers.
- Feedback.
- Business development.

Long term

- Help us avoid Valley of Death through mentorship and coaching.
- Introductions to potential partners, suppliers, and customers. Help with contract preparation.
- Help with fabrication and prototyping the MVP.
- Testing and validation.
- Feedback.
- Source favorable VC financing.
- Prepare to launch.

We are specifically interested in working with: Wilton E. Scott Institute for Energy Innovation at CMU and Greentown Labs Power Connectors, Argonne National Laboratory, and the Oak Ridge National Laboratory.



Milestone #1	Milestone #2	Milestone #3	Milestone #4	Milestones #5 and #6
<p>Build a 1/14 scale electric Class-8 semi truck powertrain. Build the solar and air powered systems. Incorporate the solar and air system into the truck. Prototyping will be done from a Yale University lab. Go/No-Go decision.</p> <p>Needs include: Non-dilutive funding to purchase tools and equipment Technical expertise Guidance Strategy development</p>	<p>Test and refine our 1/14 scale prototype. Go/No-Go decision Incubate or reject.</p> <p>Needs include: Non-dilutive funding to purchase tools and equipment Fabrication and prototyping at a National Laboratory Mentoring and coaching Testing and validation Digital and design Business development</p>	<p>Apply to NSF grants. Apply to SBIR programs – DOD, DARPA, DOE, DOT to build a partial full-scale prototype. Go/No-Go decision.</p> <p>Needs include: Non-dilutive funding to purchase tools and equipment Fabrication and prototyping at a National Lab Mentoring and coaching Testing and validation Corporate test and feedback</p>	<p>Engage in joint ventures and corporate partnerships to build a proof of concept/MVP at full scale based on the prototype that we built. Go/No-Go decision to launch.</p> <p>Needs include: Non-dilutive funding to engage in ventures and partnerships Build POC/MVP at a Fabricator Corporate test and feedback</p>	<p>Obtain pre-orders and VC financing to begin manufacturing AIRPower powertrains and trucks. Explore and scale the use of the basic concept of the AIRPower system to other spaces including military and commercial buildings. Go/No-Go decision to market.</p> <p>Needs include: VC funding to begin manufacturing Scale to other spaces</p>

