

Dexter Ingram's challenge details for challenge:

Solar Prize Round 6

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Explanation

Technical Assistance Request

The SOLSTAR Trailer System has some technical conditions that need to be addressed and tested. Starting with the integration of the solar paneling into the structure of the box of a dry van semi trailer, and the refrigeration semi-trailer unit that needs to be considered for the proper fit and application of this solar technology. I will need to consult with a structural engineer of box semi trailers to devise a method for the integration of the solar paneling with the semi-trailer that will ensure structural integrity that falls within the federal regulations of semi-trailer construction. Solar contractors will be needed to help with the proper installation of paneling on to the solar semi trailer. Access to a large enough facility to allow for construction and storage of the SOLSTAR Trailer System. To determine the type of solar paneling that will be best suited for the SOLSTAR Trailer System technology implementation, a testing facility will be needed to test for the best option of solar panels that will be used for this application due to the open road and varying climatic conditions that the SOLSTAR Trailer System will be exposed to. Identify a solar manufacturer that could supply the solar paneling needed for this application. UL certification will be needed to certify safety compliance for the electrical system of the SOLSTAR Trailer System technology. For this, an electrical engineer will be needed to assist in determining the best methods for designing the system for the power distribution using proper wiring techniques and electrical components needed in order to satisfy UL requirements. An engineer that is familiar with electrical grids to incorporate the grid capabilities of the SOLSTAR Trailer System. An expert in energy storage will be needed to determine the best fit for energy storage of the harvested solar energy. Equipment to gauge and calibrate power outputs and systems performance in various test conditions. To seek a partnership with semi-trailer manufacturers as well as semi-tractor manufacturers to develop strategies to implement connectivity between semi-tractor and SOLSTAR Trailer System. Develop programs to monitor and control power distribution, regulation, and communication between the semi-tractor and the SOLSTAR Trailer System. Manufacturers of control systems hardware will need to be contacted to design a physical interface to be used by the end user to have control over the trailer functions.

Program developers will be needed to develop programs that will work with the user interface in order to allow for a functional semi-tractor and SOLSTAR Trailer System communications. Also, grid applications will require this interface. Fabricators of metals will be needed, in particular iron, aluminum, and copper metal. Raw metal materials for the construction of the motors that will be used in the system will be needed, due to their absence in the marketplace. Most entrepreneurs who seek to pursue their goals in developing their proposed product inevitably encounter hurdles, such as access to capital, resources, testing facilities and access to talent. Being a minority poses more challenges to access these resources. The access to national labs, private facilities, and or members of the American Made Network will undoubtedly aid me in accomplishing and addressing the goals and needs stated above.

To summarize the needs of the project, I will need...

• A structural engineer of semi-trailers

• Solar contractors to help install solar paneling correctly

• A large enough facility for construction and storage of the Solar Semi Trailer • Access to testing labs for solar panel testing

• A consultation with an electrical engineer with grid specialization

• An expert in energy storage

• Partnership with semi-trailer manufacturer along with tractor manufacturer • Manufacturers of control systems hardware

• Program developers

• Metal fabricators

Key Needs

- Manufacturing (5 / 5): I need to find a way to manufacture my product and to know what tools and resources are available to help me manufacture the product.
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- Fabrication & Prototyping (5 / 5): Need to upscale fabrication and prototyping
- Testing and Validation (5 / 5): To determine real world application.
- Product Development (5 / 5): Help to develop product viability in the commercial sector.
- Science, Research and Development (5 / 5): I need help to conduct further research.
- Funding & Investments (5 / 5): Need funds to further exploration into this endeavor

Matches

1. [Larta Institute](#): 87.66%
2. [GoSun](#): 86.39%
3. [Circuit Launch](#): 85.21%
4. [Positive Deviancy](#): 85.19%
5. [Georgia Institute of Technology](#): 85.16%
6. [Solar Inventions](#): 85.14%
7. [Center for Future Energy Systems \(CFES\) at Rensselaer](#): 85.00%
8. [BlochSoft Technologies Inc](#): 83.89%
9. [D2Solar](#): 82.70%
10. [IoT Conduit](#): 82.69%