

RISE ENERGY SYSTEMS TECHNICAL ASSISTANCE REQUEST

Rise Energy Systems (RES) is developing a novel approach to residential and commercial solar arrays. Instead of permanent fixtures on the roof or ground, RES aims to create ground-mounted, remotely deployed solar arrays. This approach allows areas such as driveways, parking lots, and back yards to be utilized for solar generation without sacrificing their original intended purpose. Benefits of this approach include providing solar access to those without suitable roofs, reducing soft costs, increasing opportunity for cleaning cycles, reducing required racking costs, and improving solar purchasing for renters. There are several main categories in which the American Manufacturing Network could assist RES in this venture.



Figure 1: RES 4kW array (array continues off of image)

Prototyping and Manufacturing

RES would benefit from reduced-cost access to the following materials for prototyping: standard-sized photovoltaic panels, tube steel, steel c channel, DC gear motors, welding equipment, and various electrical supplies. Access to a makerspace at or below cost would be invaluable for prototyping. We are moving into full-scale prototype development, which will require a large space, as the full extended prototype will require more than 200 sq ft of workspace. We continue to welcome feedback about our 600W prototype and our proposed full-scale design as we move forward in the build process.

Later in development, access to a small-scale manufacturing line, aid in designing for large-scale manufacturing, and assistance in researching manufacturing partners would significantly improve the timeline of our venture.



Figure 2: Transition from proof of concept (left) to 600W prototype (middle). (Right) shows the footprint comparison between the proof of concept, 600W, and full scale prototypes

Electrical and Wind Load Testing

RES's units will need to undergo several rounds of testing before being introduced into the market. We request assistance from national labs that can perform UL testing on our full-scale prototype. In addition, assistance from national labs with large-scale wind tunnels would be very helpful. We will need to test our units in a large-scale wind tunnel to determine the maximum safe wind speed at which to retract our panels into the storage container, as well as the wind speed at catastrophic failure if the automatic retraction mechanism was to malfunction. This wind tunnel testing would be an excellent complement to our full-scale system testing and computational fluid dynamics study planned with NREL.

Business Plan Development

Our team leans heavily towards design, fabrication, and prototyping, without a wealth of experience in business development. We are planning to add another team member with expertise in these areas, but we still feel that our team could benefit from AMN assistance in the following areas: business plan development, marketing, and market research. In addition, access to large data sets regarding roof-based and ground-mounted solar would be invaluable as we research how to best position ourselves in the residential/commercial solar space.

We are excited to leverage the expertise of the American Made Network as we progress towards a commercial product. We appreciate your willingness to be a part of the AMN, and look forward to hearing from you.