

Technical Assistance Request

Exergi

Summary: Exergi is a student-led team of one clean energy engineering master's student and one business student with a concentration in finance from the University at Buffalo. They are working together to develop and commercialize a novel CSP system for small scale applications. The device can act as a cogeneration plant, and offers other alternative features to PV solar. Exergi is highly dedicated to the development of this solar energy system, and looking

Problem/Solution: There are barriers to entry with residential rooftop solar, resulting in underwhelming adoption rates. The deeper root of this problem is the limited capabilities of PV solar. Exergi aims to solve the former with an innovative solution to the latter, paired with a unique approach to marketing.

Needs:

- Engineering Support
 - Safety/standards compliance - for safe installation in a residential backyard
 - ASME
 - IEEE
 - etc.
 - Optimization
 - Fluid simulation - for improving turbine performance
 - Control systems theory - for implementing feedback control to the system
 - Generator design - for optimal energy conversion (AC power)
 - Waste heat recovery - for cogeneration capabilities
 - Materials selection - heat and vibration considerations
 - Testing and data collection - real world system measurements
- National Laboratory Assistance for testing, validation, and demonstrations
 - Oak Ridge National Laboratory
 - National Renewable Energy Laboratory
 - Lawrence Berkeley National Laboratory
 - SLAC National Accelerator Laboratory
- Regulatory and Legal Compliance
 - Safety
 - Building codes
 - Contracting
- Product life cycle analysis
 - Supply chain
 - Manufacturing
 - Maintenance
 - End of life
- Financial Support
 - Budget and financial planning
 - Customer Acquisition Cost

Mission: Exergi's mission is to build a team of capable individuals who are as passionate about expanding the capabilities of solar technology as much as we are. The creation of a cogeneration solar system for residential homes would significantly alleviate the energy burden faced by many Americans. We are open to working with people of all educational, cultural, and experiential backgrounds so long as they have a positive attitude and are dedicated to bringing this innovation to market.

Goal: Specifically, Exergi plans to bring this technology to market within the next 3-5, with a target system efficiency of 40%. The system should be functional in a multitude of environments ranging from tundra to desert. With current technology and materials, this is an achievable goal. It will just take the right people to make it happen.