SIU Micro Wind Turbine Competition

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and
SIU Green Roof Team
Challenge Statement

We challenge students in higher education to collaborate in teams of undergraduate/graduate students to **design a micro wind turbine that mounts onto an existing structure** by using SIU’s Green Roof as the site for implementation.
Objectives

- Provide university students an **opportunity and incentive** to work on a renewable energy project.
- Incentives of possible funding for design, monetary award, professional networking.
- **Inclusive** to all university students regardless of financial opportunity.
- **Showcase SIU’s culture** of innovation and transition to renewable energy.
- Contribute to aiding higher education’s renewable energy curriculum.
- **Increased number of students** pursuing a renewable energy pathway.
The Difference

SIU Carbondale
- International
- All-inclusive
- Micro Wind Turbines Mounted on Existing Structures

DOE’s CWC
- Domestic
- Limited participation
- Wind Farms
Design Criteria

- Site Assessment of SIU’s Green Roof provided
  - Virtual Reality view of the SIU Green Roof
  - CAD of the Roof and approved structures by SIU’s Plant Service Operations
- Shipping capability to Clarkson University/Southern Illinois University Carbondale or host test facility
- Must mount onto an existing structure on SIU’s Green Roof
Competition Contests

1. Simulation Program
2. Data Collected Normalization
3. In-Person Testing
4. Technical Research Paper
5. Design Presentation
1. Simulation Program

- Everyone will submit their technical specifications which will be entered in a program for evaluation.
- Inclusive to all students regardless of financial availability.
- The goal is to include as many students as possible by minimizing obstacles such as funding.
2. Data Collected Normalized

• Teams who are financially capable of building a design will submit data which will be normalized for evaluation.
3. In-Person Testing

• Teams who are unable to travel (financially or COVID-19) to Clarkson or the designated testing facility hosting the testing portion of the competition, may ship their design with assembly instructions for evaluation.
4. Technical Research Paper
5. Design Presentation

- Both will have a rubric based evaluation.
Award

- Design funded and installed onto SIU’s campus, specifically the Green Roof
- Monetary award starting at $1000
Our Team Strengths

• Networking
  • University Innovation Fellows – 2200+ Fellows and 250+ Institutions in the World

• Team Diversity
  • 14 SIU students
  • 1 student from the following: Texas A&M, IIT Chicago, UIUC, Inter-American Puerto Rico, Clarkson University, Case Western Reserve, University of Twente Netherlands
Our Team Needs

• Technical Expertise
  • Advising our team to design our micro wind turbine
  • Curating the competition’s criteria and evaluation process
• Credibility
  • Quality check
• Testing Facility
  • Clarkson University’s Blade Testing Facility, pending
Sponsorship Opportunities

• Provide technical subject matter experts
  • Aid the SIU’s Green Roof Team’s design
  • Contribute to developing the competition
• Promoting a student-initiated project and competition
• Display company’s logo on marketing material
• Access to SIU’s Green Roof Team members and competitors
Current Professional Contacts

• Blade Testing Facility at Clarkson University
  • 1.2-million-dollar testing facility for up to 14-meter testing long blades
  • Potential competition testing host
• Certified Safety Specialist for wind turbines at GE
• Wind Turbine expert at SIU Edwardsville
• Principal Engineer with PE and LEED AP at UrbanStrong
• Addictive Manufacturing Engineer at S&C Electric in Chicago
• Gas Infrastructure Directors at Dominion Energy