

Chico State Capstone Design Program – Project Request Document

Project Title: **Automated Solar Panel Cleaning System**

Sponsor: Sierra Nevada Brewing Co.

Suggested team make-up: Mechanical students: 60% Mechatronic students: 40%

Background:

Sierra Nevada Brewing Co. has one of the largest privately owned solar systems in the US. The system includes over 10,500 individual panels and is spread across a number of buildings, all with various roof pitches. Cleanliness is an essential property for high solar panel power output – as panels become dirty, their electrical efficiency drops. There is currently only a handful of automated solar panel cleaning systems commercially available and they are not entirely suitable for our site. Sierra Nevada has hired manual laborers to clean the panels in the past which is very time intensive as well as expensive.

Statement of Work:

Students will research, design, build and test an automated solar panel cleaning system for a section of the Sierra Nevada rooftop solar system. The section to be tested will be decided during the consultation phase with the team. The system should, at a minimum, be completely automated, provide adequate cleaning in order to ensure high power output, include weather controls so the system does not run during rainy weather, and use brewery supplied soft water.

Contact information:

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Additional Information:

Please indicate if the project will require any of the following, or have other special circumstances.

- Non-Disclosure agreement
- Out of town travel
- On site work
- Other

Corporate Overview:

Located in Chico, California, Sierra Nevada Brewing Co. sits at the north end of California's Great Central Valley and ranks as the country's sixth largest brewer. Sierra Nevada helped pioneer the craft brewing industry and went on to build a company that has become a destination in its own right. In addition to state-of-the-art brewing equipment and facilities, Sierra Nevada also boasts an onsite restaurant and concert and banquet venue. We own an offsite rail and grain transfer facility and are engaged in a variety of agricultural projects. We act as our own distributor in the Chico area and employ drivers who travel Northern California delivering our products to distributors. Sierra Nevada Brewing Co. also operates an onsite waste water treatment facility, composting operations, truck and forklift repair shop, and retail shop. Needless to say, we are more than just a brewery!

