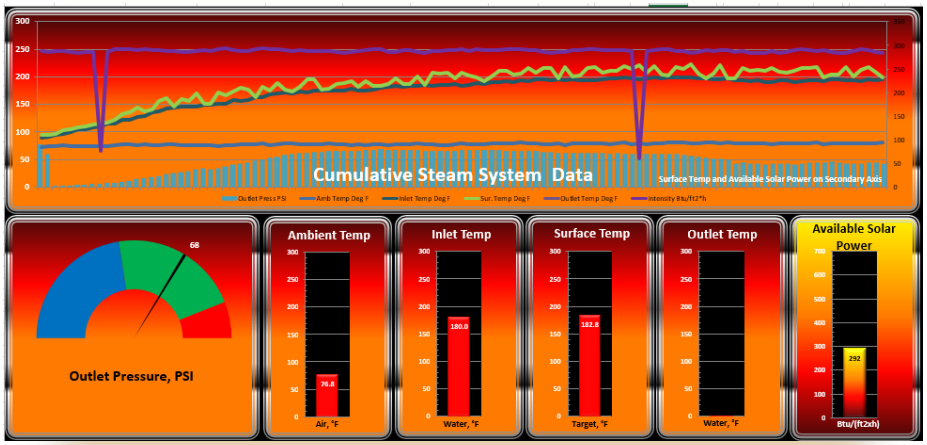
12/04/2019

Prometheus

ELEMENTAL DYNAMICS

Project Summary

The aim of this project is to develop a high efficiency concentrated solar thermal steam generator, coupled with a steam turbine, in order to produce an electrical power output. A simplistic approach has achieved promising results, focusing a 1/10 size series of linear Fresnel lenses on a flattened copper tube, with water flowing through it, has produced 68% of the required steam pressure needed for the turbine/generator power output. This pressure was achieve with off-the-shelf lenses, within 45 minutes, in Ohio on 9/24/2014, results will be significantly better in more solar friendly areas. Our current focus is on a custom, patented, tubular lens design which will allow for easier focusing and self cleaning



Key Personnel/Organizations

David Allen Austin Sluder
Patrick Wyse
Scott Szewcyk
James Peoples

Budget and Timeline

Investment funds: $ 100,000 Cost-share: $ 20,000 Total: $ 120,000

Key Milestones & Deliverables

Year 1:	Complete assembly and testing of 6 Element prototype. Achieve pressure output = 10Kva power generation.
Year 2:	Design for manufacturing/market acceptance. Build size, 6 cell array, 60Kva, a practical size for hotels.

Project Impact

The Elemental Dynamics Focused Concentrated Solar Power system can meet the needs of industry as well as communities, it is compact, cost effective, and multifunctional, generating primary electrical power and secondary space heating. Deployable on any flat roof or ground surface, uses a recirculating water system, and is most efficient during peak power consumption hours, making it highly desirable for the hotel industry, factories, hospital, universities, etc. any facility that wants to put the surface area of their roof to work for them.