FESC Technology Commercialization Project

FESC technology commercialization funding program is modeled on the very successful Florida High Tech Corridor Council (FHTCC) Matching Grants Research Program which has been ongoing at USF and UCF since 1996 and at UF since 2005. In this program, FESC core universities proposed energy related projects for FESC funding that is matched on a 2:1 basis by industry funds. FESC provided up to $50K per project attracting around $400K of industry support to these FESC funded projects. Four industry contracts are already in place. One of the projects is given below:

Development of a Low Cost Concentrating Solar Energy System Using Solar Sausages

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Industry Partner: Hunter and Harp Holdings (HHH)

First full-sized inflatable mirror

Traditional systems of solar concentration involve heavy parabolic mirrors that focus sunlight on fragile vacuum-sealed tubes. The mirrors and vacuum sealed tubes are very expensive and require constant maintenance and detailed cleanings in order to remain productive. Recognizing the need for a 21st century approach to solar collection, a research team at Florida State University has developed a collection system based on the same principles as its past counterparts, yet is 1/20th of the cost to fabricate and is 1/50th the weight. This technology can produce temperatures of over 400ºC after a few moments of exposure to sunlight. The results have drawn attention from Department of Energy as well as major utility companies who are in the business of harnessing energy.

The Inflatable Solar Energy Collector is a transparent cylindrically shaped pressurized polyester membrane that supports a light reflective film lengthwise inside. This creates two opposing chambers that can be differentially pressurized to change the shape of the reflective film. This differential pressure is adjusted to optimize the shape of the reflective film to maximize the amount of light focused on the energy receiver, which is typically filled with flowing water or oil.

Beginning in late 2010, weekly meetings have been held at HHH offices in Tallahassee that include representatives of the several entities involved in deploying the “Solar Sausage” concentrating system at the Yulee St. site in Tallahassee. The entities include Pro Solar Inc., Barkley Consulting Engineers Inc., Winton Engineering PA, and Applied Research and Design Inc. A series of 50-foot long prototype sausages were made and inflated on site. Many issues

were identified that needed to be resolved before manufacturing and deploying several hundred solar sausages on site including methods of constructing, mounting, and operating the balloons, distribution of air and electricity, and removal of heat.

As can be seen in the photo, the project is well along in terms of deployment of the technology on the Yulee St. site. The project has involved full and part-time employment of approximately 100 individuals over the last 8 months doing construction, site development, and manufacturing.