

Senior Design Project Description for SPRING 2016

Project Title: Reducing the BOS of Rooftop PV Solar Projects Part 2 (EPIC_PV2)

Supporter: EPIC

Supporter Technical Representative: ASSIGNED

Faculty Mentor: ASSIGNED TBD (check one)

Single Team Dual Team (check one)

Personnel (EN/ET): 1 E, Cp, 2 Cv, 2 M, 1 SE

(Complete if the number of students required is known)

Expected person-hours: (250 per student)

Description of Project:

Distributed Energy Resources (DER), using Photovoltaic (PV) power generation, are currently installed at high volumes in North Carolina and the USA. PV generation needs to compete with traditional power generation and have to be “Grid Parity”, around 6c/kWh, without incentives. Currently the biggest opportunity lies in reducing the Balance of System (BOS) cost, especially for Rooftop Solar installations. A first generation prototype that would replace a roof system with PV panels was just completed in a previous senior design project. This project will continue the commercialization on reducing the BOS cost associated roof structure in large commercial and even residential rooftops.

Filing preliminary patents and incubator startup company opportunities exist with successful prototype designs and solid business case and plan.

Initial Project Requirements (e.g. weight, size, etc.):

The prototype solar roof will be installed as a “parking structure” to test and evaluate the technology. The project will include the design of a simple parking structure. A simple energy storage system must be designed. The fabrication must allow for disassembly at the completion of the project. The project will include micro-inverters, energy storage and a reduced BOS to validate the principals via a formal testing program.

Expected Deliverables/Results:

The deliverable will be the “parking structure” and energy storage system and evaluation of the technology. The results of the testing program will be provided in a report.

List here any specific skills or knowledge needed or suggested (If none please state none):

None