



Capstone Design Project Abstract

Project Title: SolarShare by PowerSync

Sponsor: UGA Innovation District

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Abstract:

SolarShare is a platform designed to democratize renewable energy ownership by enabling individuals to collectively invest in utility-scale solar projects. Through a crowdfunding-based model, SolarShare aims to make clean energy infrastructure more accessible, transparent, and community-driven. This project represents the design and planning phase for a 1-megawatt (MW) pilot solar farm near Augusta, Georgia.

The goal of this project is to develop a conceptual site layout and supporting documents to guide early-stage development. While construction is not within scope, the design reflects realistic parameters for a utility-scale solar installation using single-axis tracking systems.

One of the primary design challenges was determining the optimal panel orientation to maximize energy output. Several configurations were evaluated to balance land use efficiency with solar access. A true-south orientation with single-axis tracking was ultimately selected to boost production during peak hours and increase overall annual yield. Another key decision involved choosing between fixed-tilt and tracking mounts. After assessing performance, cost, and site suitability, single-axis trackers were chosen for their enhanced output within the available space.

The main deliverables include a 3D civil site layout showing the placement of PV modules, inverter pads, access roads, and fencing. A detailed bill of materials (BOM) was also developed to estimate quantities of major system components including modules, inverters, racking, and cabling.

In addition to technical planning, an in-depth financial analysis was conducted to evaluate the viability of the SolarShare platform and its proposed revenue model. This analysis examines projected returns, investor payouts, and long-term financial sustainability, forming the foundation for future SolarShare deployments at scale.