

# SVERDRUP ENGINEERING SERVICES

## PROJECT EXPERIENCE



### ABB/Baldor 1MWAC PV Facility

Belton, SC

Electrical System Design for 1MWAC 1.3 Fixed Tilt Solar Facility near Belton, South Carolina for owner ABB. Facility was designed with ABB inverters to show case the string inverters to prospective clients. Due to limited land space the system has a modest 1.3 DC/AC ratio and a 25° fixed tilt angle. Design included energy production estimate using PVsyst and involved shading analysis to include nearby historical tree line that could not be removed. DC field layout and rack/post layout was complicated by existing underground utilities. Incorporating above ground ballast blocks to the mostly driven pile foundation design helped with maximizing the limited usable space. A major gas pipeline with 50-foot right-away split the solar field in two and required a 14' deep jack and bore design to install a 24" steel casing for the seven electrical and communication conduit crossing.

Design included standard silicon modules, string sizing, AC one-line, DC wiring diagrams, cable/conduit schedule, cable/conduit routing, weather station, grounding, and detail sheets. A full material list was provided with manufacturer's part numbers to ensure cost control and that contractor purchased and installed quality components that would last 25 years. Calculations include; string sizing, voltage drop, row to row spacing (shading), conduit fill, cable ampacity, cable/conduit pull, grounding, short circuit, protection device coordination, and arc flash calculations. Major system components were ABB 50KW string inverters, Heliene 340-watt modules, and Solar Flex Rack racking. Provided construction and startup support.

**Owner:** ABB/Baldor

**Design:** December 2017

**Inservice:** May 2018