



Maricopa County, AZ, USA

Facility Summary

Photovoltaic Solar Facility
125 MWe

Arlington Valley Solar Energy II Project



Aerial View of Arlington Valley
Solar Energy II



Arlington Valley
Photovoltaic Solar Panels

ARLINGTON VALLEY SOLAR ENERGY II PROJECT

The Arlington Valley Solar Energy II (AVSE II) facility is located in Maricopa County, AZ, USA. There is a total of 125 MWe generation from more than 600,000 PV panels on approximately 516 football fields and was at the time one of the largest solar power projects in Arizona.

Project Issues

A contract was awarded an engineering, procurement, and construction (EPC) company to design and build a new, 125-megawatt turnkey solar photovoltaic (PV) facility in Arizona. The EPC augmented their project team with McHale's to gain experience and expertise. This collaborative effort aided in contractual negotiation and project planning to mitigate commercial risks while providing accurate test methods for determination of plant performance milestones that were completed for each construction phase.

McHale Contracted Tasks

Research methods to optimize performance assessment of the project, develop performance test plans and protocols, and create independent models for the Net Capacity test (MW) and Annual Energy Production test (MWh). The research aided in evaluating different techniques for use in testing PV fields utilizing cutting edge industry testing techniques to minimize uncertainty while meeting project schedule and budgetary constraints. The research included a comparative analysis of various methods, instruments, and the associated uncertainty to optimize the testing plan. The Test Plan was used for contractual negotiations to convey the expected testing goals and approach for clarity during project execution.

Problem Resolution

The work performed in contractual negotiations and project planning expedited the demonstration of plant performance with early establishment of clear and concise goals and methods. The test goal for Net Capacity included tests conducted in granular phases at constructions completion of each inverters electrical feed. The test goal for Annual Energy Production was based on tests conducted annually using permanent instrumentation designed and specified particularly for this function.

The approach that was adopted mitigated commercial risks, while providing accurate test methods for determination of plant performance milestones at the completion of each construction phase.

Work Outcome

The test plan was implemented to fulfill the client's performance test obligations per the EPC contract. Additionally, the plan had sufficient granularity for verification and enforcement of sub-supplier performance guarantees. The Net Capacity tests were conducted in phases as construction was completed for each construction phase, which maximized revenue generation during the commissioning process. As each phase was finished, it was immediately tested and brought on line. The Annual Energy Production tests were performed over a 5 year period.

Documents provided by McHale were utilized in client's proposals, bid packages, and contracts.