PROJECT CASE STUDY

15MW PV FARM IN EASTERN MARYLAND

PROJECT SUMMARY

The Bridgestone Associates Team prepared a detailed feasibility study for a 15 MW_{AC} solar PV plant to be located on the eastern shore of Maryland, USA. The study included preliminary system design for three 5 MW_{AC} phases, equipment layouts, specifications and a detailed cost estimate. Work included site selection, landowner identification, permit and regulatory assessment, power export interconnection and power sales pricing assessment, valuation of Renewable Energy Credits, and preliminary assessment of financing alternatives.

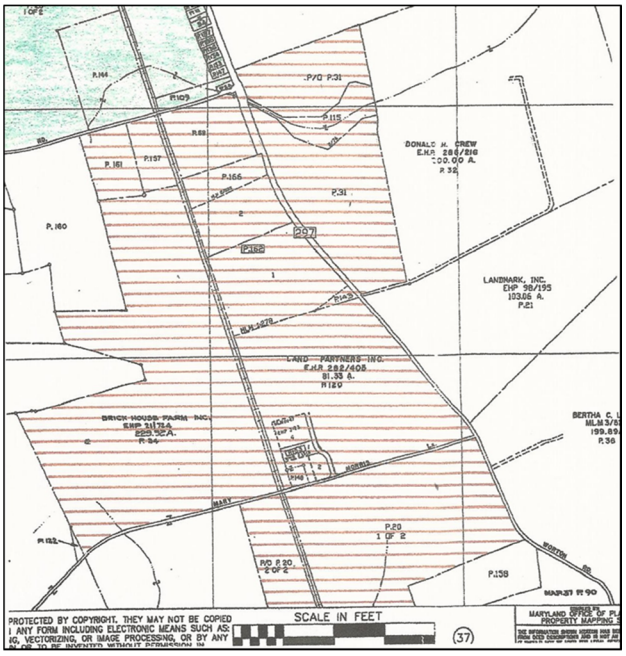
PROJECT STATISITICS

Client:	Confidential
Project Type:	Solar PV
Size:	15 MW_{AC} in three 5 MW_{AC} phases
Design Conditions:	Direct Normal: 1,410.1 kWh/m^2
	Global Horizontal: 1,455.0 kWh/m^2
	Dry Bulb: 13 ^oC
	Wind Speed: 4.2 m/s
Unit Sizes:	18,800 Sunmodule S265 1.68 m^2 mono Si
Energy Storage:	None
Estimated Turnkey Cost:	US$3.75/$Watt_{DC}$
Plant Locations:	Eastern shore, Maryland, USA
Plant Elevation:	Approx. 50 feet above sea level
Interconnection Voltage:	13.8KV
Cooling:	Cooling Fans for Inverters for excess outdoor temp and solar load
Winter heating protection:	Supplemental electric heat for freeze protection
Grid-tie Inverter Supplier:	Solaron 500 HE

PROJECT DESCRIPTION

A detailed feasibility study and development plan was prepared and preliminary development begun on this 15 MW_{AC} solar pv project to be constructed in three 5 MW_{AC} phases. As part of the scope of work, suitable land was identified, land ownership identified, and preliminary discussions held on acquisition of the land for the plant as well as rights-of-way to a nearby 13.8 kV utility line.

A complete analysis of alternative solar PV modules and inverters was conducted to determine the most technically and economically suitable for this location. The NREL System Advisor program was used in this analysis as well as proprietary economic modeling tools. As part of this analysis fixed, single and dual tracking mountings were evaluated, both technically and economically.

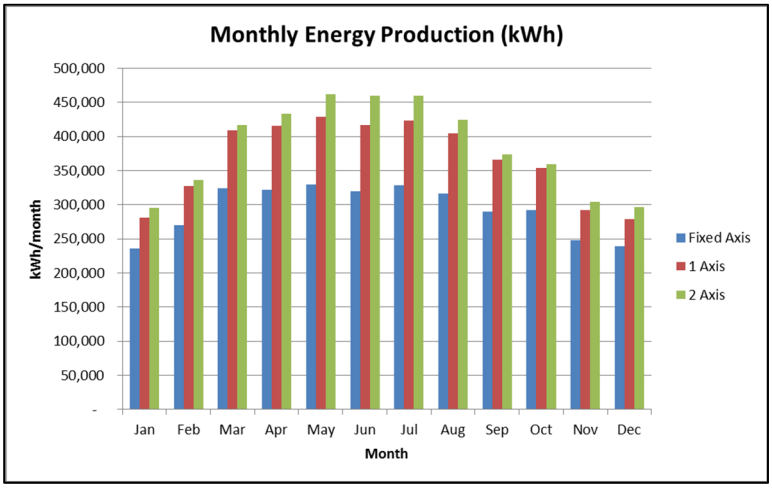


Monthly and annual energy production levels were estimated over the lifetime of the project allowing for equipment degradation, and these were used in the economic analysis.

Discussions were held with the local utility and grid operator on interconnection requirements, and a preliminary estimate of interconnection costs prepared.

A detailed capital cost estimate and operations and maintenance cost estimate were developed and used in the overall economic modeling of the project. Included in this economic modeling were a number of assumptions on taxes, repair and maintenance costs, equipment replacement costs, licenses and insurance, etc.

A detailed economic evaluation model was developed and used to determine 20-year pro-forma economic performance. The results included Income Statement, Cash Flow analysis, IRR and NPV (pre- and post-tax). The analysis included the impact of federal and local tax credits, and the value of Renewable Energy Credits which were discounted and used as part of the equity of the project.



In addition to the detailed cost estimate and performance, layout drawings, general arrangement drawings, and electrical one-line drawings were all prepared. Also prepared were a write-up of the plant design and major component specifications, an outline plan for plant operations and maintenance, an outline construction plan, a project construction schedule, and an operations and maintenance cost estimate.