First Solar®

Thin Film Module Performance in Senegal

First Solar®

Higher Energy Yield. Lower LCOE. Superior Return.

First Solar Cadmium Telluride (CdTe) photovoltaic (PV) technology continues to set performance records in both research and real-world environments. As a field-proven technology, First Solar modules offer a clear advantage over silicon-based modules by delivering higher energy yield, long-term reliability and the best environmental profile.

GREATER ENERGY YIELD DRIVES LOWER LCOE

When evaluating return on investment for a solar power plant, energy yield has one of the biggest impacts on the overall Levelized Cost of Electricity (LCOE).

First Solar's high efficiency modules are proven to deliver significantly more usable energy per nameplate watt than conventional silicon-based modules. For an installed power plant priced at the same $/watt, a First Solar plant will produce more energy, resulting in a lower LCOE ($/MWh).

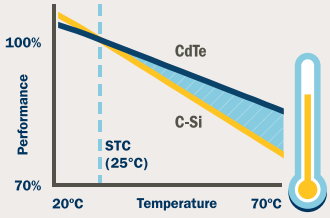
SPECIFIC ANNUAL ENERGY YIELD ADVANTAGE

It is well understood that PV module semiconductors perform differently depending on the environmental conditions in which they are installed.

First Solar's modules have a proven specific annual energy yield advantage in delivering more usable energy per nameplate watt than conventional c-Si modules. Specific annual energy yield captures operating data over a year of module performance during varying real-world conditions where temperature, sunlight intensity and solar spectrum all change throughout the days and seasons.

SPECIFIC ANNUAL ENERGY YIELD **ADVANTAGE**

SUPERIOR TEMPERATURE COEFFICIENT



MORE ENERGY THAN C-SI IN HOT CLIMATES

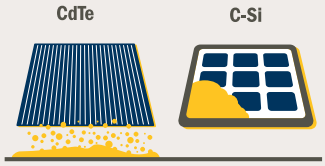
BETTER SPECTRAL RESPONSE

MORE ENERGY THAN C-SI IN HUMID CONDITIONS

LINEAR SHADING ADVANTAGE

MORE ENERGY THAN C-SI WHEN SHADED

REDUCED SOILING



BETTER PERFORMANCE THAN C-SI

LONG-TERM RELIABILITY INCREASES PLANT VALUE

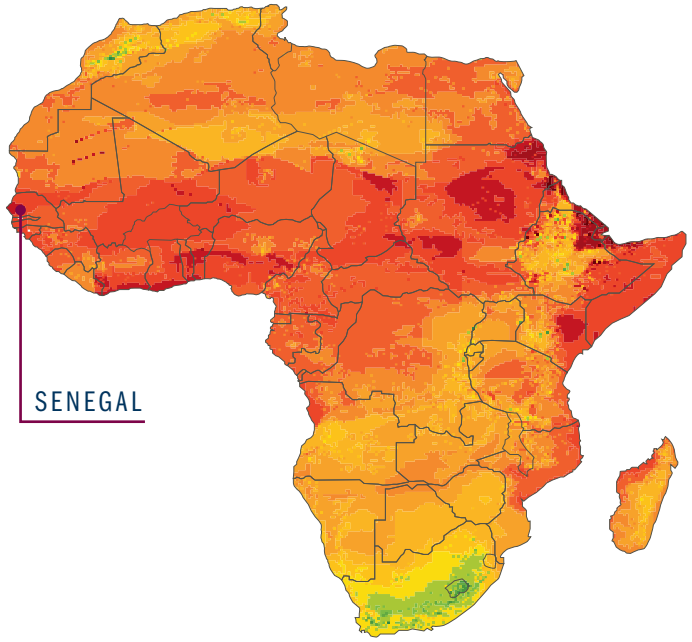
First Solar monitors over 6.5GW of utility-scale PV installations in operation today. The quality and reliability of our technology is proven both in short-term and long-term field performance. As a result, First Solar customers consistently receive energy generation that meets or exceeds expected returns.

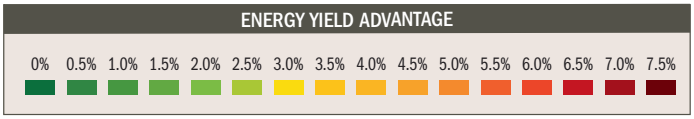
First Solar technology delivers more energy, more consistently, over the lifetime of the power plant.

PROVEN ENERGY YIELD ADVANTAGE IN HOT AND HUMID CLIMATES

Multiple independent studies have validated the fact that First Solar modules deliver a significant energy advantage in hot and humid climates.

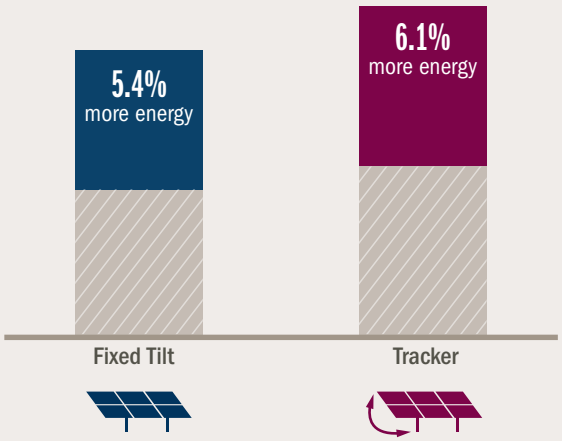
In Africa, a study conducted by Arup confirmed the spectral, temperature and shading response advantage of First Solar's semiconductor, which powers the groundbreaking Series 6 module, over crystalline silicon modules on fixed-tilt and tracker systems. In fact, Arup's modeling showed that the First Solar Series 6 module will deliver over 6 percent more energy in Senegal than mono- and multi-crystalline solar panels.
In Senegal, every one percent of additional energy yield can translate into approximately 1¢/Wp of Capital Expenditure-equivalent.





MODULE PEFORMANCE COMPARISON IN SENEGAL

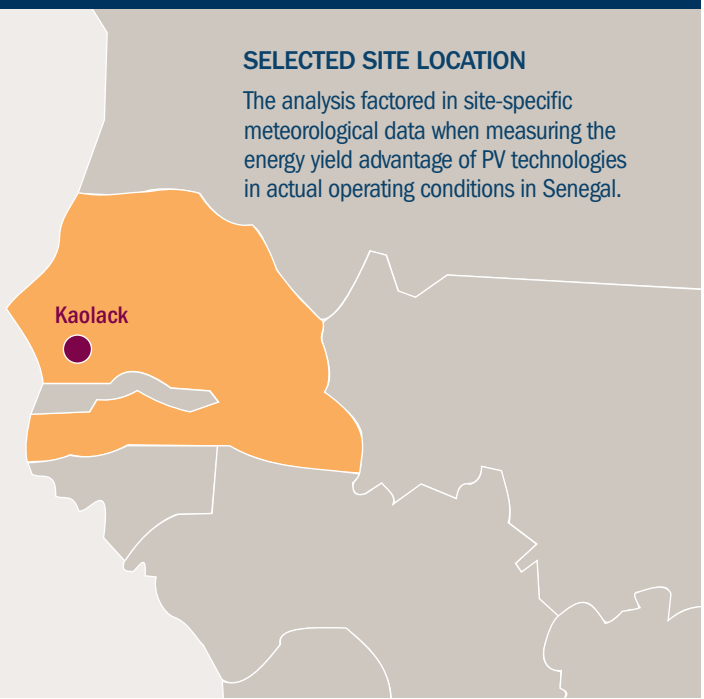
FIRST SOLAR VS CRYSTALLINE SILICON MODULES



FIRST SOLAR MODULES GENERATE
UP TO 6% MORE ENERGY IN SENEGAL

SELECTED SITE LOCATION

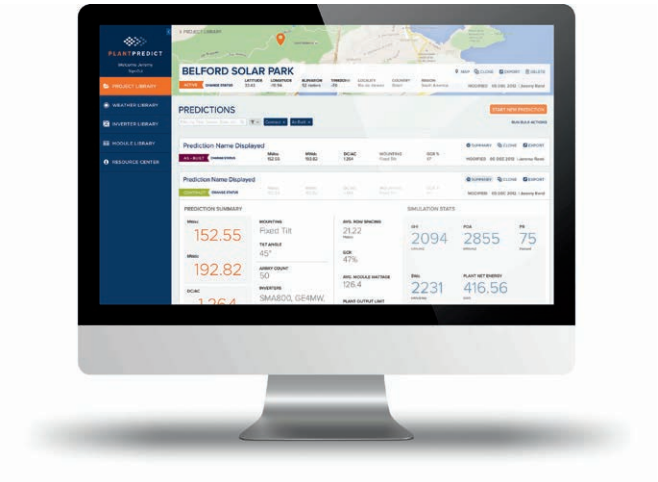
The analysis factored in site-specific meteorological data when measuring the energy yield advantage of PV technologies in actual operating conditions in Senegal.



Source: First Solar Series 6 Senegal Yield Comparison, Module Performance Comparison for a Solar Facility in Senegal, REP/NFS6, Issue 2, 23 October 2017

SOLAR PERFORMANCE MODELING MADE SIMPLE

The accurate modeling of your PV power plant is a critical to ensure an optimized design for maximum energy output. PlantPredict is a solar energy-modeling tool specifically designed for utility-scale PV energy predictions. The software is easy to use and offers advanced modeling options, reducing uncertainty to generate more accurate energy predictions.



Lenders and asset owners have used this cloud-based modeling tool in several transactions, recognizing that it is a bankable primary resource for analyzing and predicting the performance of utility-scale PV solar projects. The software has been independently benchmarked and validated against 1GW of operating data and is available to our customers free of charge. Find out more at plantpredict.com

FIRST SOLAR IS YOUR PROVEN ENERGY PARTNER

Unparalleled Experience Around the Globe

First Solar has developed, financed, engineered, constructed and currently operates many of the world's largest grid-connected PV power plants. Our experience across the solar value chain reduces risk while delivering more reliable, dependable and cost-effective solutions for our customers.

MIT TECHNOLOGY REVIEW

TOP 50
2017 SMARTEST COMPANIES

Strongest Balance Sheet in the Industry

As your energy partner, we maintain a strong balance sheet that is backed by a lengthy track record of meeting or exceeding performance expectations. That is why First Solar solutions are widely recognized as the most bankable in the industry.

First Solar®

CONTACT US

Contact Africa@firstsolar.com to discuss how we can deliver a superior return on your energy investment.