

# Effective Solar Resource Site Assessment in Harsh Environments across the Globe

Solar energy is an abundant resource that is in high demand to provide safe, clean, and efficient energy to businesses and communities. However, not all locations receive the same amount of incident solar energy, making site assessment essential to the planning process. This application study focuses on probing the dependability of resources and ensuring high-performance rates for energy generation.

Solar energy sites spanning from a small area to hundreds of square acres can be located anywhere in the world—from Canada to Argentina, Germany to South Africa, India to Australia. These locations vary in landscape and climate but are commonly characterized by their remote and rugged environments, which can experience intense heat, soiling, and weather events. Because these factors can affect solar site performance, owners and developers work to assess the performance and return on investment of their solar projects in the proposed locations.

When selecting a location, solar farm developers must understand solar irradiance, possible module soiling, and meteorological measurements to assess a prospective site's solar resource potential and variability. To provide this essential on-site data, Campbell Scientific designed the SunScout system—a Class A Solar Resource Assessment System with flexible data retrieval options—to help project developers, site owners, and land purchasers assess the site's energy potential and determine if the location supports their goals.



Constructing a solar energy site requires extensive preparation and a significant investment of time and money. To ensure the project's success, data collection that is curated for each project's purpose is critical. The SunScout provides on-site, in-situ, and ground-based data that allow you to select from a range of options for sensors, cellular modems, and data management to support your measurement preferences.

Many site locations are off the grid, making access to the site difficult and emphasizing the importance of low power needs and reliable data collection. Desert site environments are at a higher risk of soiling caused by dust and sand. In these cases, you can use the SunScout's soiling monitoring kits to analyze effective irradiance loss that causes project energy production loss. For locations that experience extreme wind or storms, you can take advantage of the SunScout's battery-backed system for continuous data collection, even in the event of power outages or communication network failure. These features allow you to gather data in any weather condition to understand the location's variability or if maintenance is needed. After the initial site assessment is completed and solar networks are built, you can then focus on performance monitoring to ensure you have continuous, profitable energy collection.





To monitor performance, the SunScout has flexible data retrieval options for reliable data collection and storage. You can also access system data over a cellular network through a database with LoggerNet options for remote monitoring, which eliminates the need to be on-site for an assessment. If weather conditions are damaging, or the system requires maintenance, the SunScout is equipped with a maintenance button to mark system checks. As a result, you aren't hindered by site conditions.

Your solar energy projects and their associated data are not static, and you need a solar resource system that can be configured and modified to keep pace with your changing needs. For assessment and a thorough understanding of measurements, your fellow SunScout users have benefitted from the modular design and data acquisition that can be customized to meet their needs or demands.

To learn how the SunScout Class A Solar Resource System can benefit your unique project, contact our sales experts, or visit [campbellsci.com/sunscout](http://campbellsci.com/sunscout).