AGI ENERGY SERVICE CENTRE
Sustainable Energy for Profitability

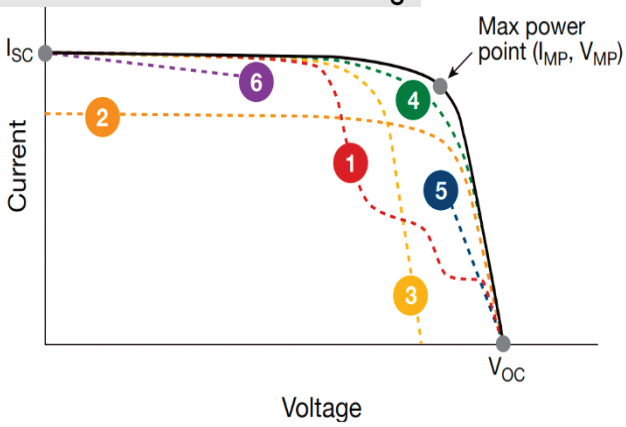
MEASURING THE PERFORMANCE OF A SOLAR PV SYSTEM

Capital expenditures (CAPEX) for Commercial and Industrial (C&I) solar PV systems may be costly. They also need to be financed putting further pressure. But PV system benefits are spread over 25 years at least. However, to achieve desirable return on investment, it is critical for a solar PV plant to continuously deliver optimum performance results.

01 Measuring solar PV module performance with I-V curve tracing

An IV curve tracer measures voltages and current produced by a PV module or string at prevailing cell and ambient temperatures as well as actual irradiance level in the field and draws an IV curve for the module/string.

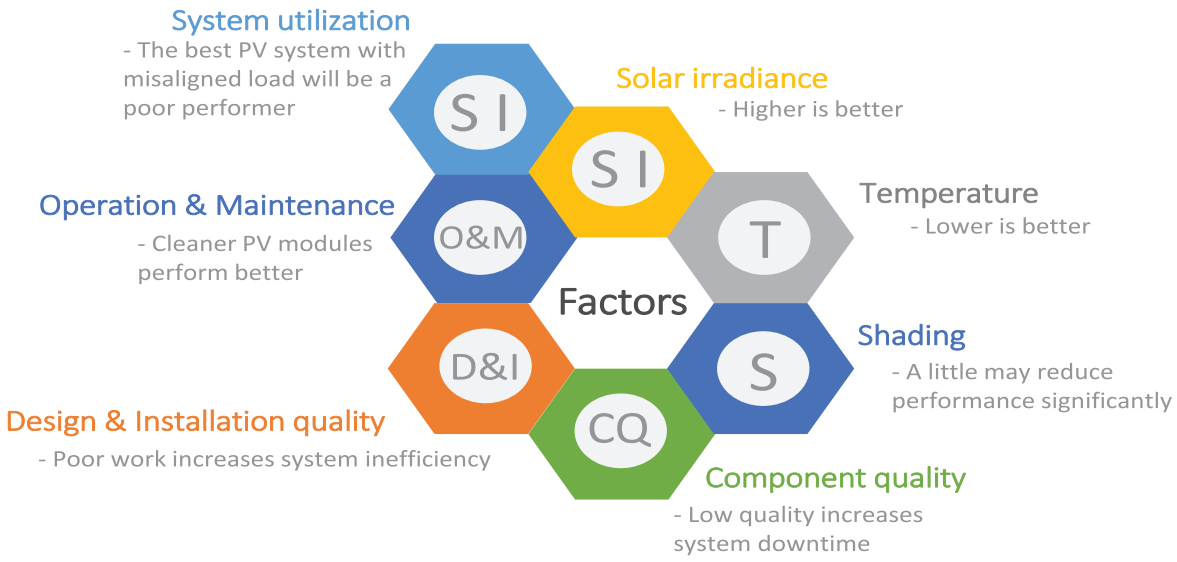
The IV curve tracer translates to and compares the curve with what it should be at STC (black curve). Different shapes (dotted coloured curves) give an indication of the health of the module/string.



I-V curve should be done at commissioning, but also during the project operations to understanding plant performance, health and degradation over the life of the system.

02 Measuring overall solar PV system performance

Many factors can affect the performance of a solar PV system



03 PV System Performance Ratio

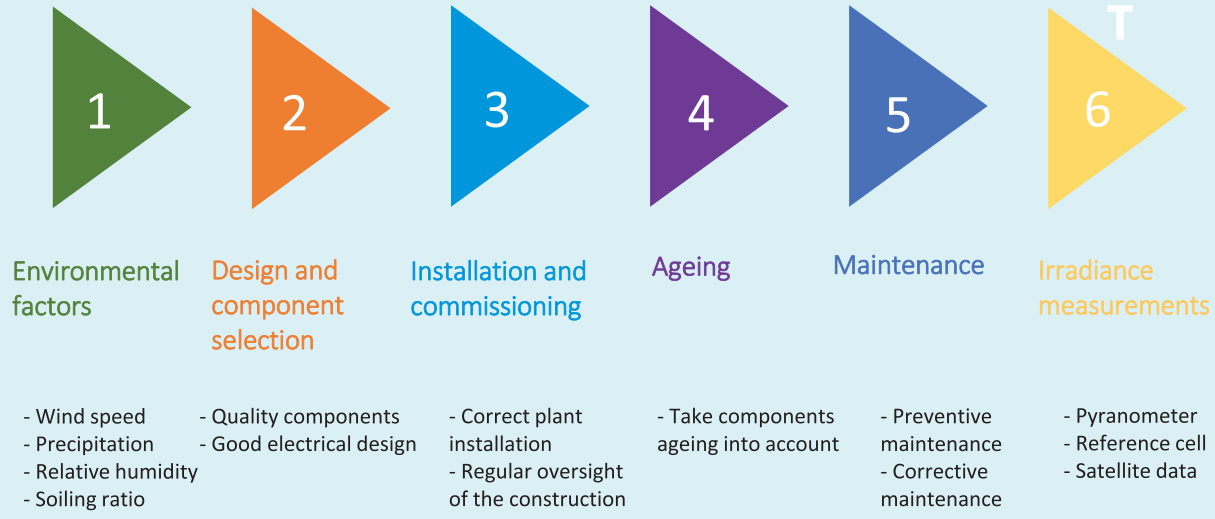
PV plants operate based on solar irradiation and other environment factors, but how do we measure performance of a PV plant?

The performance ratio (PR) is the ratio between the real yield of a solar power generating system and its reference yield based on the solar irradiation and temperature over the period of the measurement.

The PR is the quality parameter of any PV plant and essential to understand its performance.

Performance ratios can also be used to compare solar PV plants at different locations and its importance is widely recognized in the industry.

Factors influencing the performance ratio



For additional information on this opportunity, please contact:

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