Cost Saving and Safety Benefits of the SolarEdge System Over a 1500VDC Alternative

Many new-generation inverters now support higher input voltages of up to 1500VDC in order to increase string length and reduce some of the balance of system (BOS) costs. Although longer strings can reduce the amount of cables, total number of strings, and other BOS components, modules that support 1500VDC systems are costlier and hard to source. Working at 1500VDC also requires special, non-standard testing equipment, such as meggers and iv-curve tracers, which are difficult to find and expensive.

Higher voltage systems also increase the likelihood of potential induced degradation (PID) and pose greater safety risks to those in contact with the PV site. For this reason, most countries require specially qualified electricians and exceptional regulatory approvals from utilities. This adds yet another layer of complexity, while potentially increasing system costs.

With the SolarEdge system, customers can already benefit from strings that are significantly longer than those in 1500VDC systems, and twice as long as strings in 1000VDC systems, without adding any of the additional costs, complexities and safety risks.

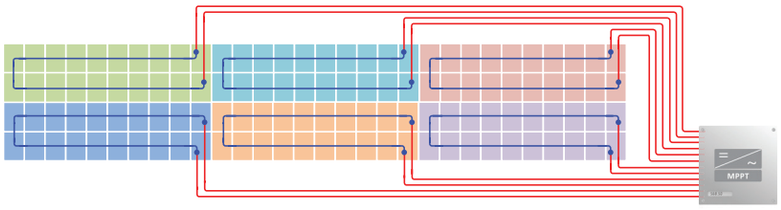
Further Advantages of the SolarEdge System

The SolarEdge system includes DC-DC power optimizers that connect directly to the modules. The power optimizers perform per module MPPT and provide performance monitoring for each module while offering superior DC safety at the same time. The SolarEdge system maintains a fixed string voltage at the optimal point for DC-AC conversion by the inverter, regardless of the string length, environmental conditions, or an individual module's performance. For example, with the SolarEdge commercial power optimizers and SE33.3K inverter, strings of up to 15.3kWp are possible. When using 255Wp modules this enables up to 60 modules (connected to 30 optimizers) per string. This is roughly the equivalent of a 2500VDC system in terms of string length, but without the need for special modules, more expensive balance of system components, or increased precautions due to higher system voltages.

Array includes 120 modules of 310Wp@45Voc@37Vmp

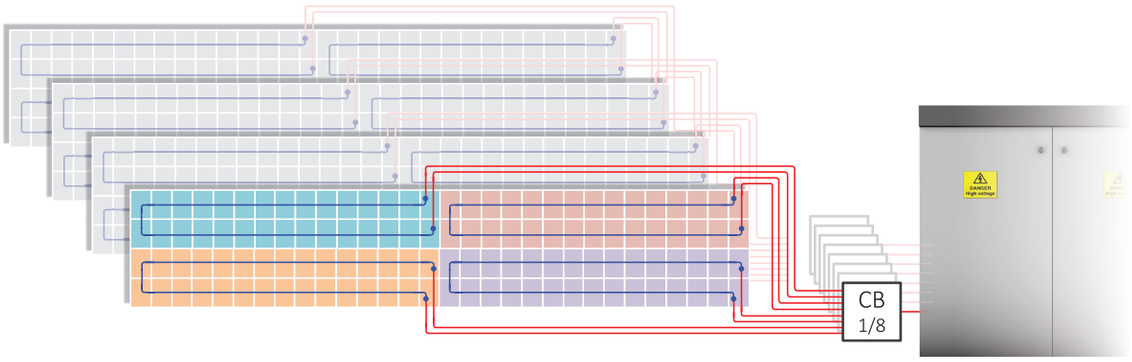
String inverter, 33.3kVA, 1000VDC

6 strings of 20 modules each



Central inverter, 1MVA, 1500VDC

4 strings of 30 modules each, showing 4 out of 16 strings connected to each of the 8 combiner boxes (CB)



SolarEdge, 33.3kVA, fixed string voltage

3 strings of 40 modules each