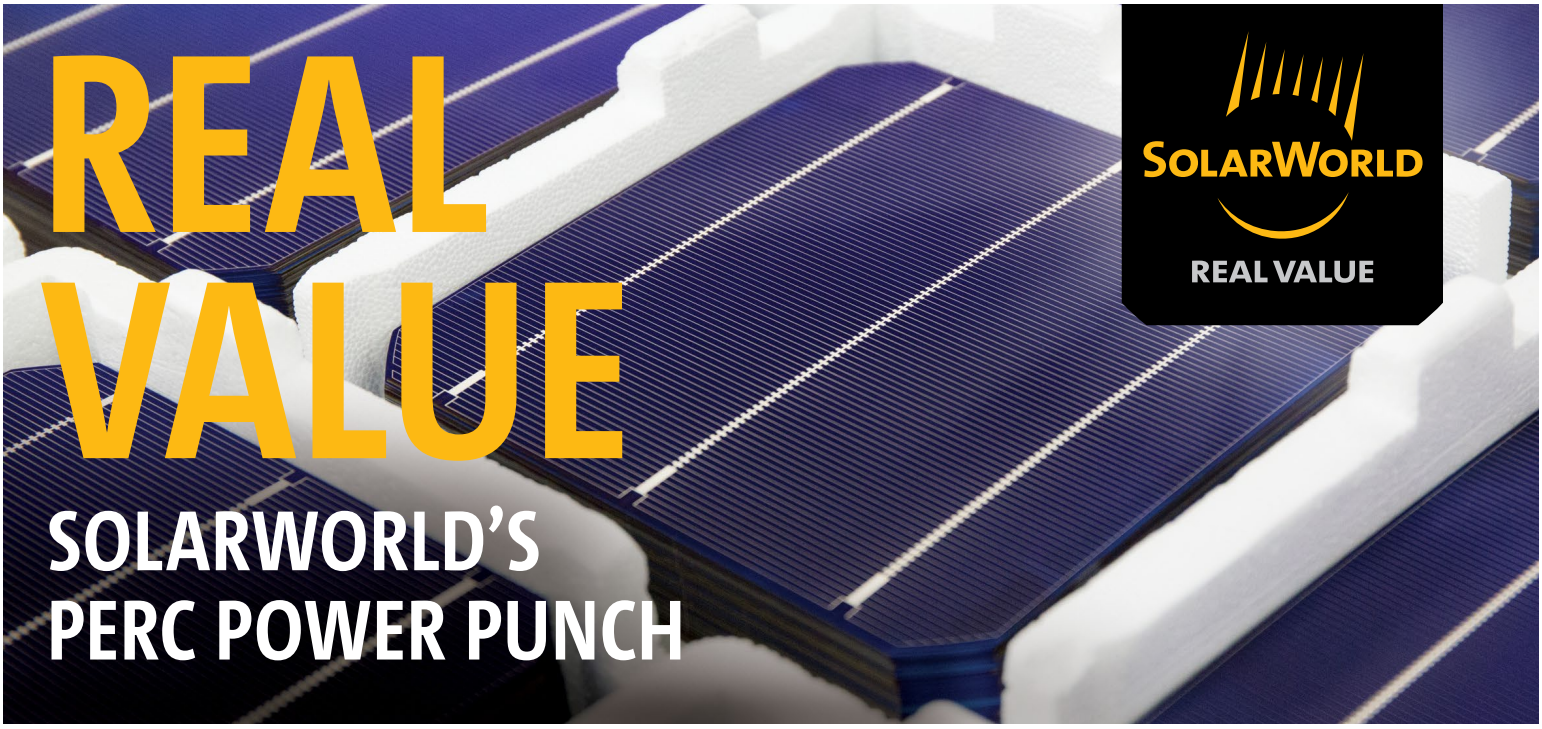


REAL VALUE

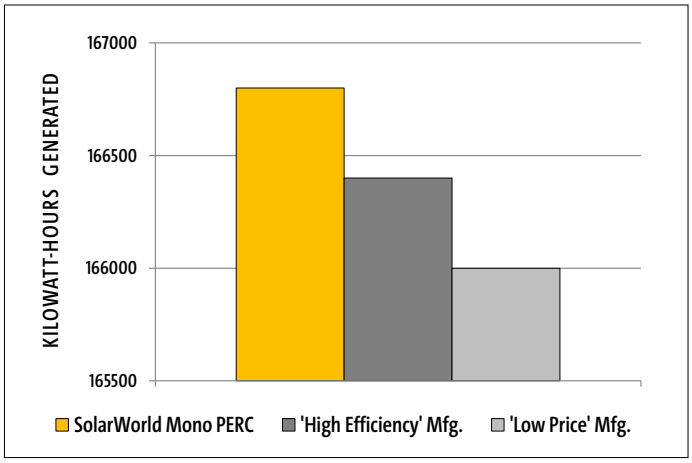
SOLARWORLD'S PERC POWER PUNCH

From sunrise to sunset, SolarWorld Sunmodules featuring PERC (passivated emitter rear contact) cell technology harvest more sunlight, continually increasing your system's energy yield over the life of the system. SolarWorld PERC cells:

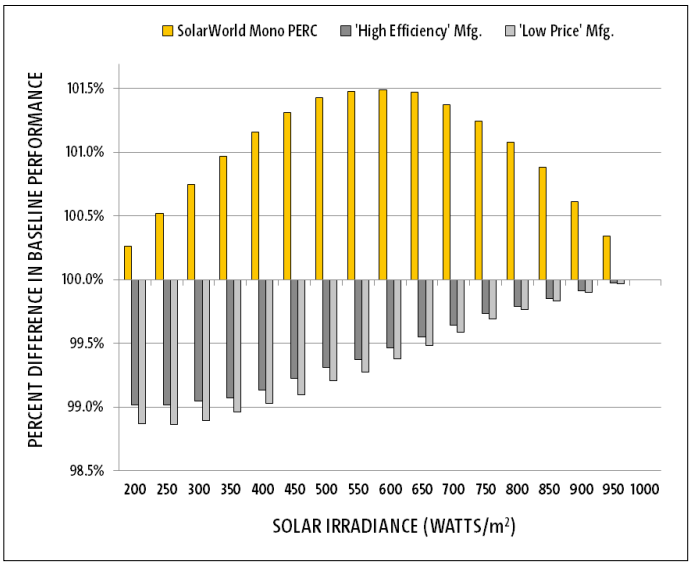
- Harvest more energy from sunlight than standard cells in any given moment.
- Increase each panel's power output by up to 20 watts.
- Improve system performance during low light periods of the day.
- Increase the total energy yield over time.

In a standard solar cell, a portion of all sunlight that strikes the cell exits through the back side or is absorbed into its backing layer. SolarWorld PERC cells have a special insulating layer between the silicon and the aluminum back coating that increases the cell's ability to trap more sunlight. Laser-bored holes in the insulating layer further promote electrical collection by reducing the distance that an electron needs to travel.

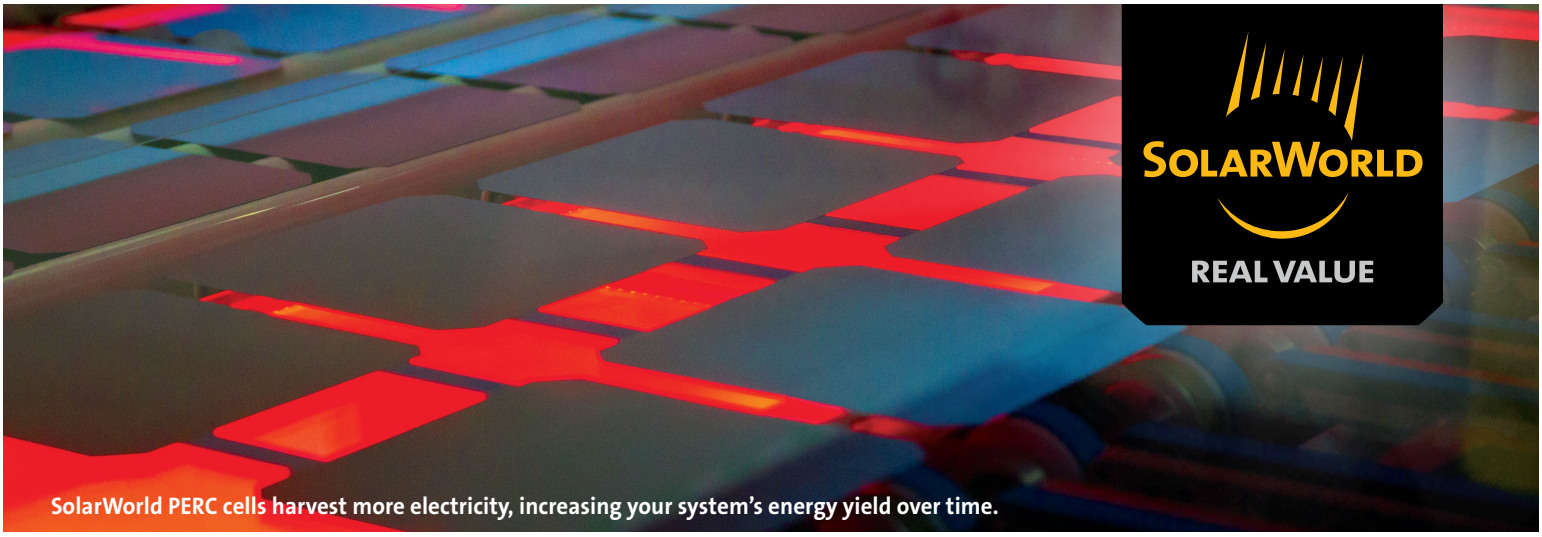
The chart at right shows how SolarWorld PERC cells and the cells of two other manufacturers perform across a full range of light levels – specifically, how power output differs from nameplate wattage under differing quantities of sunlight (watts/meters squared). Clearly, SolarWorld PERC cells outperform expectations for yield, whereas the other cells underperform, especially under lower light levels, such as mornings, evenings and cloudy days.



The chart above shows the resulting amounts of total energy produced over the course of Year 1 from three comparable 100-kilowatt solar systems that use the same design parameters and are installed at the same location in San Francisco.



Charts are based on third-party-validated PAN files (digital data sheets) of SolarWorld products and PAN files from two other well-known cell manufacturers.



SolarWorld PERC cells harvest more electricity, increasing your system's energy yield over time.

REAL-WORLD PERFORMANCE YOU CAN TRUST

PERC technology reacts powerfully in low light. In early morning or late afternoon or under cloudy skies – solar's traditional off-peak periods – PERC cells shine. As well, PERC cells generate less heat than traditional cells, further increasing power yield and outperforming cells from other manufacturers.

ENERGY YIELD: THE ULTIMATE METRIC

When it comes to looking at return on investment and project profitability, energy yield over time must be the ruler we use to measure.

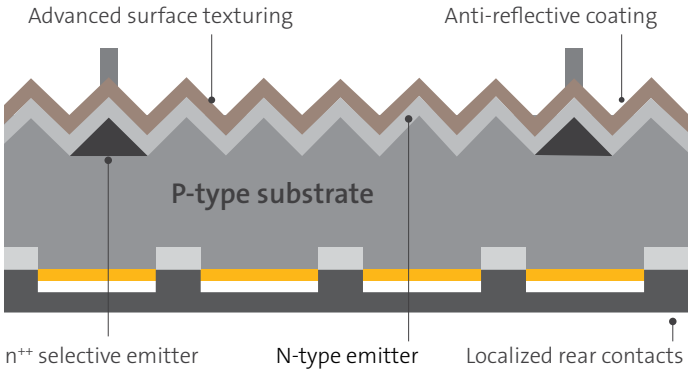
Other manufacturers tout their efficiency, which measures the density of watts within a cell or module but do not account for a module's long-term performance, or energy yield.

Commonly used testing methods, whether in a lab or in the field, also fall short. Either they are not controlled and therefore not repeatable or they are so highly controlled in a lab that they fail to predict real-world conditions and performance.

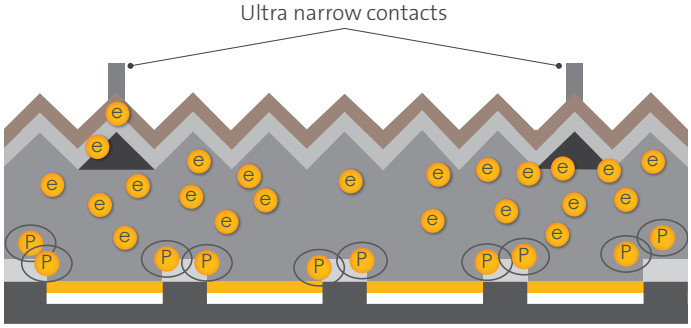
SOLARWORLD: LEADER IN PERC TECHNOLOGY

In 2012, SolarWorld pioneered the first mass-produced PERC cells and today remains the global volume leader in PERC production capacity. ***SolarWorld cells hold the world record for industrial mono-PERC efficiency: 22.04 percent[1].***

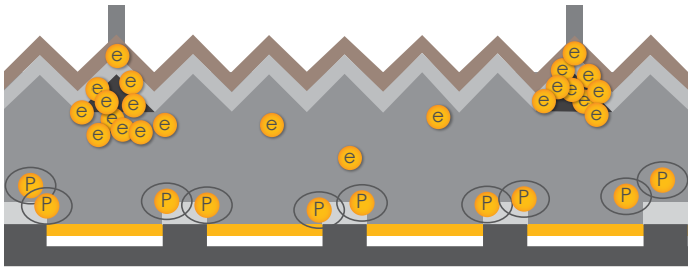
[1] *Fraunhofer Institute.*



Above is a cross-section of a typical SolarWorld mono-PERC cell. Our cells capture more light and produce more energy than standard cells produced by other cell manufacturers.



SolarWorld PERC cells feature narrower contacts that allow for more sunlight exposure, which means more light is captured.



Precise super-doping of cell material directly under the front contacts of SolarWorld PERC cells and special backside processing improves current flow through the front and rear contacts.