Solar panels quality shouldn’t be taken for granted

Why the widespread belief that all modules are the same is dangerous for your business
Say you have to choose a PV module supplier for your next project.

You have plenty of choice as the potential suppliers are not missing.
After all, what’s the difference between two modules?
So why not making a good deal? You would be happy
And your customers would get their yields in any case
Seems like a great plan. Right?
« Everybody has a plan until they get punched in the face »

- Mike Tyson -
Quality problems actually appear a couple of years later
Indeed, you could not see this on the datasheet
Nor expect that during operation
How can this happen?
The module you bought were IEC 61215 certified
“passing the qualification test means the product has met a specific set of requirements. Those modules that have passed the qualification test are much more likely to survive in the field and not have design flaws that lead to infant mortality”

- John Wohlgemuth –

IEC 61215: what it is and isn’t, NREL 2012 PV Module Reliability Workshop
The IEC certification does not guarantee 25 years without problems

It reduces the probability of infant mortality in the very first years of operation. Problems might appear years after the installation.

Source: Review of failures of Photovoltaic Modules, IEA PVPS Task 13, March 2014
“Based on our testing, some manufacturers are absolutely swapping in cheap Chinese materials to save money”

Jenya Meydbray I CEO of PV Evolution Labs, a Berkeley, Calif., testing service.

“a review of 30,000 installations in Europe by the German solar monitoring firm Meteocontrol found 80 percent were underperforming.”

“We have inspectors in a lot of factories, and it’s not rare to see some big brands being produced in those smaller workshops where they have no control over quality,”

Thibaut Lemoine I General Manager of STS Certified, a French-owned testing service.
You thought all the panels behave the same during 25 years?
« Dupont began a global outdoor field study project in 2011 to measure what the impact of different climate conditions, across a range of different regions, might be on components reliability and integrity. From 2011 to 2014, the study covered more than 60 global PV installation, from 1 kW to 20 MW, representing 1,5 million PV modules and total power output of over 200 MW »

Source: Typical climate stress and impact on module degradation and material failure in different areas of China, PV Tech Power, May 2016

41% of components had visual defects
Not all solar panels behave the same

It is no surprise when you know that differences appear when going beyond IEC requirements.

Source: Review of failures of Photovoltaic Modules, IEA PVPS Task 13, March 2014
That's why there are initiatives to develop accelerated stress tests that better simulate expected lifetime of PV modules. But they are not mandatory.
at aleo, we give our best for the yields you promised your customers to materialize
Testing beyond IEC requirements

We have stringent raw materials selection criterions to ensure module stability during 25 years.

Consistent quality management system

We have well established quality processes to ensure a consistent quality on all our products while this is not required by IEC.

Top marks granted by independant tests in the last decade

- ISO 9001
- ISO 14001
- ISO 50001
- OHSAS compliant
- PID free
- Salt mist corrosion resistance
- Ammonia corrosion resistance
- 100% diodes tested
- 100% snail trail free

Fraunhofer ISE / 2012 - PVDI

ÖKO-TEST / 2010

/ 2006
You cannot choose between brand X and brand Y believing everything will be equal but the price
So is it worth losing a business reputation and customer satisfaction for a couple of € cts/Wp gained with a cheap solution?
« The bitterness of poor quality stays long after the sweetness of a low price is forgotten »

- Benjamin Franklin -
Ready to offer the best to your customers?

click to get in touch