



FACT SHEETS ABOUT PHOTOVOLTAICS

European Technology & Innovation Platform PV

SUPPORTING THE DEVELOPMENT OF THE EUROPEAN PV INDUSTRY AND MARKETS THROUGH ENHANCED QUALITY

The PV sector has evolved extremely fast in the last decade and in 2016 crossed the 100 billion EUR turnover threshold.

In a context of this fast market development, components are improving constantly, while operators are implementing more efficient processes and PV system prices are dropping dramatically.

Considering such a dynamic context, the question of the quality of the PV installations becomes central now that the industry faces reduced margins and global competition. The only way to achieve a sustainable development of PV technology in this environment must be to focus on quality products and procedures.

Quality: *“The ability of a PV installation to achieve and maintain over its prespecified useful life time the performances expected by the relevant stakeholders.”*

PV plants are operating on a well-known base of success. Electricity production depends on the PV system’s characteristics (i.e., its solar irradiation and ambient conditions). Usual degradation of performance over time is expected and therefore the production of electricity during the lifetime of a plant typically ranges between historical boundaries.

Quality is borne out with respect to these boundaries within given probabilities. Poor installation procedures, or inadequate components can result in lower production, or a faster than expected degradation of performance. To tackle these challenges, the quest for quality needs to be a priority, starting with the early development stages of PV plants, including their engineering and construction commissioning phases, through to completion, as well as long-term operations and maintenance. Current installations hold an advantage in knowing their existing track record, encompassing adjustments along the way to improve quality processes at different phases of a PV plant.

All stakeholders involved in PV plant design and installation need to collaborate and engage for a sustainable long-term selection of products and systems. A short-term approach to building PV plants extremely fast could easily lead to poor quality. Not paying attention to details, rushing to meet deadlines for attractive incentives, or buying cheap components to reduce dramatically the Cost of Goods Sold (COGS) almost always leads to quality decrease and poor performances.

The PV sector must continue to reflect on the lessons learned from past experiences and take advantage of already made mistakes and system failures to build more robust and sustainable PV plants.



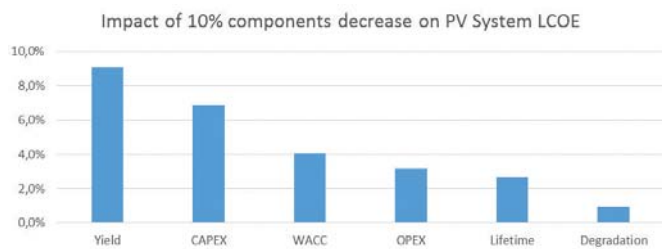
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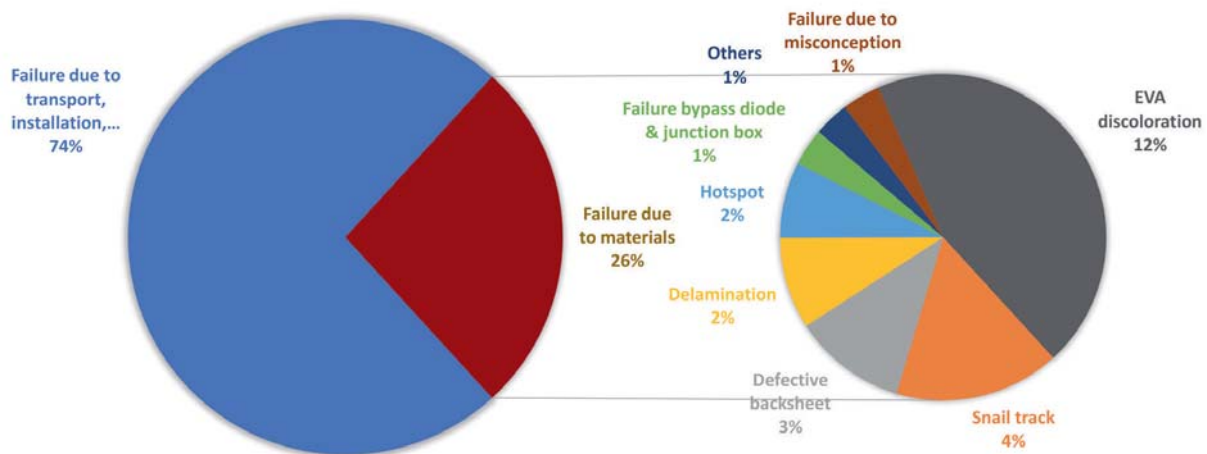
Systems performance generally has improved during recent years, mainly thanks to better processes focused on quality with these considerations:

Selection of an appropriate site is key to ensure a high-quality asset for the future. Sites with high slopes, bad soil conditions, environmental issues or complex interconnection solutions, are a few examples of what developers should avoid to ensure project optimization.



CHEETAH Project, D5.5 Impact of quality and reliability on PV competitiveness, 2016.

A high-quality engineering project requires the selection of a reliable solar resource database, correct energy simulation, a good layout, and adequate electrical and mechanical dimensioning. These are a few examples of how the engineering team's work impacts system, its long-term performance, and cost of energy (LCOE).



Data from D. Moser, M. Del Buono, W. Bresciani, E. Veronese, U. Jahn, M. Herz, E. Janknecht, E. Ndrjo, K. de Brabandere and M. Richter, Technical risks in PV projects, SolarBankability Project, 2015. Analysis by the Becquerel Institute.

Material selection and high quality procurement are also key factors for the construction and operation of a PV plant. A proper request for proposal process, and a detailed review of technical and commercial offers from the procurement teams will make a direct impact on how smooth the construction phase runs. In many cases, differences in approved budgets at the end of the construction are originated at material selection and procurement phase.

