WHAT ARE THE KEY PERFORMANCE CONSIDERATIONS FOR BANKABILITY OF ASSETS?

Solar asset management revolves around maintaining the physical equipment and components of a power generating site, and the generation and sale of energy. It is the systematic direction of a site's physical assets to ensure optimal financial performance. Solar asset management is a challenging proposition, as its performance is affected by a multitude of factors, over its entire life span. The purpose of asset management is to realise the value of the assets, to lower the levelized cost of electricity (LCOE), to apply preventative maintenance and increase power generation and to reduce risk and improve investment performance.

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As governments set new post-COVID decarbonization targets across the globe, one may argue that access to capital will become, if it is not already, a limiting factor for deployment of renewable energy assets. As global leader in PV module quality assurance, STS therefore receives regular enquiries about best practices to ensure "bankability" of PV assets.

Bankability is ensured through the evaluation and mitigation of all risks potentially faced by the project. Since PV modules are typically the largest part of the hardware investment, evaluation and mitigation of modules technological risk is often necessary to get the project financed. This need for bankability is exacerbated by the emergence of a new generation of modules (larger, more powerful, based on M10 or G12 wafers) expected to spread aggressively in the market in the next two years. A complete list of manufacturing risks associated with this new generation of large modules is available at: https://www.sts-certified.com/publications.

To systematically mitigate these risks, STS recommends considering the Product (here the PV module) as the combination of Design, Materials and Processes:

Design:
Bankability best practices include accelerated lifetime testing of the design, through one of the long-duration test sequences developed in the industry: Thresher Test from RETC, PQP from PVEL, IEC TS 63209 ED1 (draft), etc. To be relevant, these tests should be performed by an ISO17025-accredited independent lab and the Bill-Of-Materials (BOM) of the modules should be witnessed during production of the test samples.

In addition, with such a radical change of design happening in such a short time, STS recommends an audit of the product development process to ensure that best practices (e.g. APQC methodology) were applied during product development and no corners were cut.

Materials:
It is of critical importance to ensure that the materials used during manufacturing match the materials defined in the design. For instance, larger modules are more sensitive to weather events, such as strong wind, or hail storms. If the front glass used in production is either thinner than the design or not fully tempered (which is often the case for glass <3mm), the module mechanical stability is at risk, and so is the investment. Bankability best practices therefore include continuous BOM control by an ISO17020-accredited inspection body.

Processes:
Similarly to materials quality control, manufacturing process quality should remain under control during the entire production. Larger modules may push the boundaries of the laminator for instance; or of the sun simulator, in particular for bifacial modules. A small change in calibration may lead to a large discrepancy between the pro-forma energy model and the actual energy yield, with consequences on financial returns. Manufacturing supervision by an ISO17020-accredited inspection body includes quality control of manufacturing processes as well as continuous monitoring of the calibration of the measurement tools, reducing risks for developers, EPC and lenders, and therefore improving bankability.