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The myth of PV module manufacturers' bankability in project financing

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ABSTRACT

A typical financial structure for a utility-scale (i.e. larger than a few MW) PV project is the so-called 'non-recourse project financing'. Experience shows that lenders may occasionally refuse financing because they dislike a technology or even a certain supplier. This past behaviour has created the 'myth of bankability' and the perceived necessity of manufacturers to get onto the banks' 'bankability lists'. But there is no strictly defined process for doing this, and many of the experienced banks do not even work with such lists for good reason. Moreover, 'bankability' is not a feature that a manufacturer or a product can achieve or maintain forever.

Figure 1. View of a 10MW utility-scale PV installation in Osa de la Vega, Spain.

Introduction

There are two basic financing structures in the market: 'corporate financing' and 'project financing', the latter often being referred to as 'non-recourse (project) financing'. Both structures, and even combinations of the two, can be found in the PV installation financing market.

Corporate financing

If a company wants to install a PV plant on its roof or land, the easiest way is to ask its corporate banks for a loan. The company typically has different divisions and a diversified business model. A consolidated balance sheet with a historical track record exists and is well known to the banks. Assets and cash flows of the company have been analyzed many times: the banks have a clear understanding of its securities and liabilities. Therefore, having a good idea of sustainability of the company's business model derived from historical financials, a bank can, as part of its daily business, calculate the remaining debt capacity of the company. If there is enough margin, financing is straightforward and the banks do not need to concern themselves with details about the PV installation. The bank's internal processes are smooth and therefore its fees are limited – bankability is not an issue.

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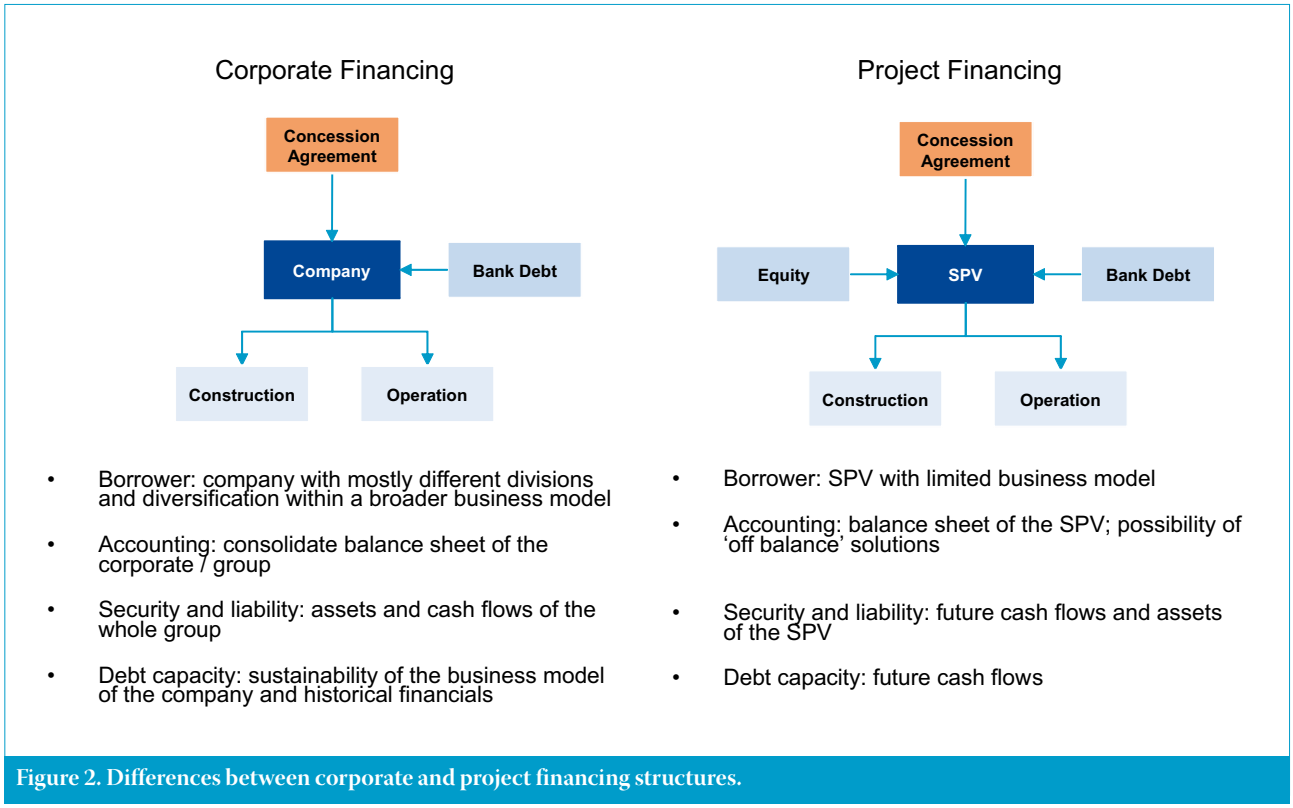
Project financing

For a non-recourse project finance structure, a new company – or special purpose vehicle (SPV) – is founded and acts as the borrower. The business model is limited to construction, ownership and operation of the PV plant, and no historical data are available. The SPV is equipped with a certain amount of equity provided by the investor. 'Non-recourse' means that there is no obligation of the investor to increase the equity portion if unforeseen situations occur. The debt provider's decision has to be based on the estimation of the expected cash flow that the PV power plant will generate. Only future cash flows and assets of the SPV are accessible. No further securities other than for the project itself will be provided to the lender. Such a project structure is typical of larger PV installations that present to the banks in order to ask for loans. The necessary due diligence implies a high workload for all stakeholders, with additional cost for the project. Bankability in the case of non-recourse project financing is therefore always related to a certain project and its structure and not to a supplier.

The process

When assessing a request for project finance, the lender has to evaluate how safe the expected cash flow really is. Three major areas have to be evaluated independently:

- The basis of the cash-flow assessment is the yield prediction for the project. This should be prepared or reviewed by an independent, experienced institution. In the next step, a site-related legal due diligence has to demonstrate that all necessary prerequisites (land-lease contracts, permissions, grid access, etc.) are fulfilled.
- In order to translate the yield into a safe cash flow in a further step, the framework (legal, economic, etc.) has to be examined. In a country with a feed-in tariff, the resulting basis is the country risk accompanied by a currency risk if the tariff is paid in the local currency and the debt service requires a different currency.
- Last, but not least, an assessment of technology, suppliers and stakeholders is necessary to complete the picture.



- Borrower: company with mostly different divisions and diversification within a broader business model
- Accounting: consolidate balance sheet of the corporate / group
- Security and liability: assets and cash flows of the whole group
- Debt capacity: sustainability of the business model of the company and historical financials

- Borrower: SPV with limited business model
- Accounting: balance sheet of the SPV; possibility of 'off balance' solutions
- Security and liability: future cash flows and assets of the SPV
- Debt capacity: future cash flows

Figure 2. Differences between corporate and project financing structures.

Among yield predictions, country and region, permitting status, grid access, legal framework and so on, only very few are directly related to technology. However, in order to avoid unnecessary workload, it makes sense to look for 'no-goes' first, because just one of these will lead to project rejection. But technology-related show stoppers are the easiest and fastest to identify; lots of past rejections have therefore been argued for technology-related reasons, which may have helped to create the 'myth of bankability'. Nevertheless, most of the rejected projects that had disregarded some key requirements concerning technology showed deficiencies in other areas too.

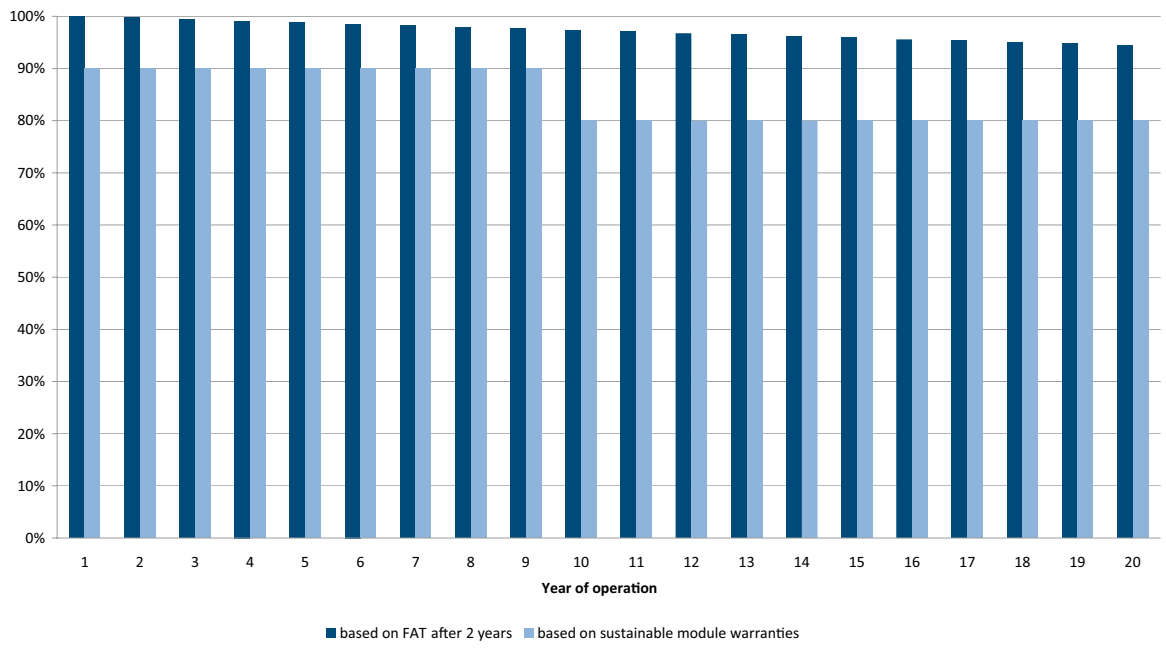


Figure 3. Safe project revenues according to yield prediction.

Technology-related requirements

A principle of project finance is that debt should not bear the risk of the technology. Two key aspects are therefore: 1) project debt providers are not keen on any kind of prototype-like technology; and 2) the warranties of the suppliers must be sustainable and therefore supported by financial strength.

> "A principle of project finance is that debt should not bear the risk of the technology."

In order to minimize the first technology-related risk, modules have to be certified in accordance with international standards. Unfortunately, it is common knowledge that a successful certification is not enough for predicting the expected lifetime of a module: a failure in a certification process only suggests that a long life is unlikely. Certification is therefore a necessity but not sufficient. There are several approaches that attempt to stress test modules using more stringent procedures than the requirements of the official international standards. But, for as long as even these tests are unable to predict the module lifetime in the field and such lifetime is not guaranteed by the testing laboratory, these types of approach cannot be considered sufficient.

A selection of approaches for tackling the technical challenge of lifetime estimation from a lender's perspective will now be discussed.

Field data from real installations provide a much better indication of actual performance than laboratory data. For PV projects, at least two years' field experience is expected before a new supplier or technology is accepted. This has to be supported by data assessment performed by a trusted third party, typically an experienced expert institute.

It can happen that even experienced first-choice best-quality suppliers supply underperforming equipment. This has been demonstrated in many cases in PV as well as in mature industries such as the automotive industry, where, from time to time, recall actions can be found in the news. It is unrealistic to expect the PV industry to be free of faults. There will always be the "What if?" questions to be answered, especially: "What if the modules in the project show defects which harm the cash flow?" All PV modules come with warranties covering 20+ years, but these are provided by companies with track records of only a few years and who currently face a challenging environment of oversupply and consolidation. Considering these warranties to be sustainable is difficult at best.

On the other hand, field experience shows that the lifetime of a fault-free manufactured PV module should exceed 20 years. A pragmatic approach to the challenge described, at least for large projects, is to try to detect production faults in time. Fortunately, most critical production faults already show up during the first two years of operation. If a final acceptance test (FAT) is carried out in the field after that time – which includes visual inspections as well as technical tests such as infrared photography, and is not restricted to simple performance measurements – most of the potentially faulty modules can be identified. These should be exchanged and this can be part of the supply contract if considered necessary. The advantage of this approach is evident. After two years, the project yield consists of essentially fault-free manufactured modules, and so any module-related downside risk to cash-flow projections should be minimized. The sustainability of the supplier's warranty must therefore be credible and trustworthy for a period of two years. An analysis of the financial strength of a supplier for the near future can be done by standard banking procedures in combination with existing sector intelligence.

The resulting advice will be to use modules from suppliers with a strong balance sheet and a sustainable business model and who are able and willing to fulfil the warranties for the next two years at least. The acceptance of exchange requests after the FAT should be addressed during supply contract negotiations.

A further possibility would be to use an engineering, procurement, production (EPC) provider with a strong balance sheet who is able and willing to support the warranties and also accepts the described procedures. In this case the selection of the module can be left to the EPC contractor. Bankability of the module manufacturer would not be an issue at all in this case. Unfortunately the number of EPC contractors with strong balance sheets in the PV project area is even smaller than the number of module suppliers with strong balance sheets. Typical EPC contractors are obliged to rely on sustainable back-to-back contracts for the module warranties.

And for those who are strong enough, the added value of taking the risk is often not sufficiently high.

For projects suggesting components that do not completely meet these requirements, a lower leverage (e.g. more equity, less debt) can sometimes be a possible solution. Even a combination of a small portion of some of these non-compliant components into well-established modules from well-known suppliers may solve the problem, if this is acceptable to the equity investor, since the risk is then borne by the equity.

An entirely different approach is to use an insurance wrap for the product warranty offered (20+ years): this separates the warranty risk from the debt. The task of the insurance company is to assess technical risk, assign a price tag to it and then take the risk. Having such insurance in place solves both debt requirements. The technology risk has been assessed by an institution with the competence to do so and the financial ability to take it. In that way, the risk related to the financial strength of the supplier is transferred to the balance sheet of the insurance company as well. The debt provider will assess the financials of the insurance company instead, and in principle an assessment of the technology is made redundant. But here the devil is in the details. Not every bank will accept every insurance plan on the market. The risk increases and is not widely accepted, especially if the tenor is shorter than the tenor of the debt, or a termination is possible before the debt is completely repaid. On the contrary, the project evaluation on the debt side will now raise the question as to why a competent technical risk evaluation has led to the need for limiting the risk exposure. The logical answer would clearly be to assume a hidden risk which should not be borne by the debt. The same argument has to be addressed if an upper financial limit comes with the insurance.

Conclusion

As highlighted here, the bankability of a project depends on lots of factors, and technology is only a very small part of the equation. There are several different possible ways to approach the lender's needs, and bankability, therefore, is never associated with a product or a supplier. Furthermore, the validity of a bankability list would be limited, since the financial strength of the different suppliers may change rapidly, particularly in the current environment of consolidation.

> "If providing an insurance solution is a consideration, it should be ensured that this is supported by the major banks."

Nevertheless, if module manufacturers aim to supply to the utility-scale PV project market, they should consider adhering to some recommended guidelines:

- Because the track record in the field is crucial, this aspect should be taken into account when presenting technical developments. In particular, changes regarding (for example) efficiency that do not affect degradation and/or lifetime should be presented as improvements. This allows the lender to base its decision on the history for the already-known generation and does not force a new assessment.

- No attempt should be made to hide technical difficulties. It is accepted that mistakes happen – the question is how suppliers react and solve problems. If in doubt, it is advisable to take care of replacements and argue about cost later, but to help keep the cash flow of the project running. Otherwise, the project runs the risk of breaking contracts. Having such a project under surveillance may suddenly create an immediate 'no go,' and a bank will remember this incident for years. Moreover, large projects are typically served by a number of banks, which means that all concerned parties speak to each other, and talk of misbehaviour begins to quickly snowball.

- The balance sheet should be kept intact. The quality of a project depends on the perceived sustainability of the warranties. The current market is heavily oversupplied with modules, so there is no reason to invest time and money in project setups if the ability or willingness to support warranties is doubtful.

- If providing an insurance solution is a consideration, it should be ensured that this is supported by the major banks. The insurer should be asked which banks they have talked to and who their reference contact is, and time should be taken to call them. During the bank's process of making the decision as to whether or not to finance a particular project, there is no time to study insurance solutions in detail: there are just too many projects to consider. If the insurance is critical to the decision process and has not previously been accepted by the banks, it will probably not be approved under a tight timescale.

About the Author

Felix Holz is currently vice president of Deutsche Bank, where he is the head of the industry expert team Greentech. Prior to this he held various positions at Conergy AG, and was the head of off-grid systems at Fraunhofer ISE. Felix has a degree in physics from the University of Kiel, Germany.

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