



## ICRA Rating Feature

# Rating Methodology for Project Finance Transactions

This rating methodology note updates and supersedes ICRA's earlier methodology note on the rating of project finance transactions. While this revised version incorporates a few modifications, ICRA's overall approach for rating of project finance transactions remains materially similar. This note covers the rating methodology for a generic project finance transaction. For specific sectors like toll roads, wind power and so on, please also refer to the detailed rating methodology published by ICRA for these sectors.

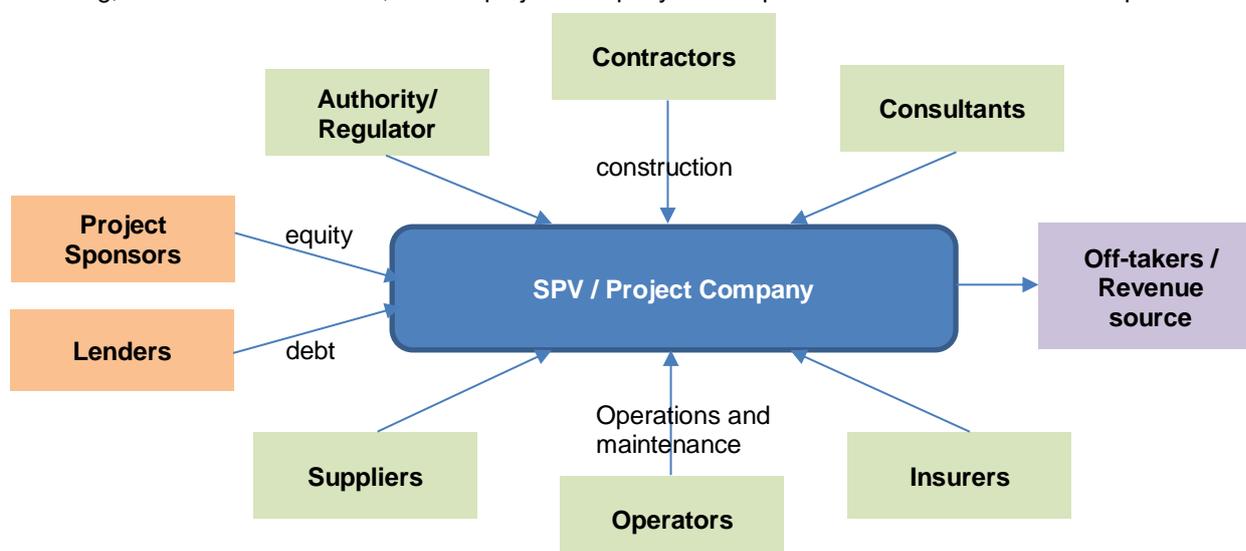
The objective of this rating methodology note is to help issuers, investors and other interested market participants understand ICRA's approach to analysing the quantitative and qualitative risk characteristics that typify project finance transactions. This methodology does not include an exhaustive treatment of all factors that are reflected in the ratings but would enable the reader to understand the rating considerations that are usually the most important.

### Overview

Project finance transactions have gained traction over the past decade, particularly in the energy and the infrastructure sectors. With the increased infrastructure investment requirement, the private sector role in taking up infrastructure investments has been significant. The Government has also focused on increasing the public-private-partnership (PPP) in infrastructure development – particularly in highway development - which has helped spur project finance transactions. Similarly, in the energy sector, renewable energy projects have witnessed active private sector participation. Project finance is the preferred route for investment in infrastructure projects as these projects being capital intensive and significantly debt-funded can adversely impact sponsor's credit risk profile if undertaken on their balance sheet.

### Contractual structure

Project financing usually involves setting up of a project company or special purpose vehicle (SPV) - bound by a contractual matrix to various project participants - which raises debt and services it from its own cash flows, without recourse to its sponsors. Due to this, the impact on the sponsor's credit profile is relatively lower in the project finance route. Under the SPV structure, the lenders can also put restrictions on additional borrowing, asset monetisation etc., and the project company's credit profile can be delinked with the sponsor.



A project can conceptually be viewed as a web of contracts and agreements, which bring together various counter-parties for the sole purpose of creating and operating the asset under consideration. Where such projects are financed on a non-recourse or limited-recourse basis, the usefulness of the project agreements reside primarily in their ability to contractually transfer/allocate risks to participants who are best equipped to handle them.

Project finance transaction structures, however, are exposed to a multitude of risks. This rating methodology note highlights some of the key risks that characterise project-financing transactions and ICRA's approach to evaluating the credit quality of such projects.

## ICRA's Project Risk Assessment Framework

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ICRA's rating approach focuses primarily on the economic fundamentals of the project and the effectiveness of its contractual and financial structure in being able to mitigate the principal risks it is exposed to. From a credit perspective, the debt investor has access to just a single source of cash flow, much unlike in a corporate or structured finance transaction, where multiple and diversified sources of cash flows may be available. Thus, the strength of project financing rests primarily on the project's ability to generate and sustain this cash flow, which can be exposed to multiple risks.

For analytical convenience, the key risk factors involved in project financing are grouped under the following categories:

### Key Project-related Risks

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Project Execution or Completion Risk

Project Funding / Financing Risk

Operating and Technology Risk

Market/Demand Risks

Counter-party Risks

Political and Regulatory Risks

Force Majeure Risks

Each of these risks, along with their possible mitigants, is discussed in the following sections.

**Execution or Completion Risk:** Execution or Completion risk refers to the inability of a project to commence commercial operations on time and within the budgeted cost. Given that project financiers are often reluctant to underwrite the completion risk associated with a project, project structures can take some recourse to the sponsors during the construction stage. However, this link gets severed once the project starts generating its own cash flows. Hence, during the construction period, ICRA's risk perception is significantly influenced by the credit worthiness and track record of the sponsors and their ability to support the project via contingent equity/subordinated debt for funding cost and time overruns, if any.

The execution risks are also dependent on the complexity of construction, as the greater the complexity (for instance, in the case of a hydro power project), the higher the risks arising on this count. In certain types of projects, such as ports and roads, project completion is also a function of the permitting risks associated with obtaining the necessary Rights of Way (RoW), environmental clearances, and Government approvals. Execution risks are usually mitigated through strong fixed-price, fixed-time contracts with creditworthy contractors, along with the provision of adequate liquidated damages for delays in construction, which need to be seen in relation to debt service commitments. While assessing completion risk, adequate attention is also paid to the experience of the engineering, procurement & construction (EPC) contractor and its track

record in constructing similar projects, on time and within the cost budgets. Further, ICRA also looks at the reasonableness of the time available for the project completion, and an aggressive schedule for project completion which does not provide for adequate contingency provisions, is often viewed negatively. ICRA usually reviews the Monthly Progress Report, and the Independent Engineer's Report (IER) and assesses whether the engineer's findings support the views of the sponsors and the contractor. ICRA supplements its review with visits to the site where it holds discussions with the project's management team, the project consultants and the contractor.

**Project Funding and Financing Risks:** The project funding involves equity, which is arranged from sponsors or investors, and debt which the project usually raises from banks or other financial institutions. A project company's financial structure and its ability to tie-up the requisite finances are the focus of analysis here. In assessing the funding risk, ICRA also considers the extent to which the funding has already been received and the likelihood of the balance funding being available in time, so that the project's progress is not delayed. This also assumes significance, given that banks and financial institutions usually disburse monies in proportion to the equity brought in, and hence delays/ inability to bring in equity could severely affect the project's ability to achieve financial closure.

In some cases, sponsors provide an additional undertaking to fund the project cost overrun, which could be limited to a fixed quantum. This mitigates the funding risk for increase in project cost to an extent.

**Operating and Technology Risks:** Operating and technology risks refer to a project's inability to function at the desired operating levels (e.g. Plant Load Factor for a power project) and within the design parameters on a sustainable basis. The disruption in operations can happen due to multiple factors like disruption of supply of inputs, inadequate maintenance, mechanical failure of equipment, etc. Track record of past operations helps in assessing this risk. Technology risks are prevalent in projects involving complex technology (power plants or refinery projects, for instance), or sectors where technological changes are very dynamic, which increases the risk of technology obsolescence. Where technology is well established, the focus of analysis is usually on determining its reliability and the sustainability of the technology platform over the tenure of debt.

For projects in the roads, ports, and airport sectors, such risks are usually of a lower order due to relatively lower complexity of their operations and maintenance (O&M). Nevertheless, O&M cost is a key variable for all the projects as a higher-than-budgeted cost can impact the project company's ability to successfully undertake its obligations. In many cases, the project company enters into an O&M contract to mitigate these risks. ICRA factors in the terms of the O&M contract, quality/experience of the O&M contractor, the familiarity of the O&M contractor with the technology being used, and the adequacy of the performance guarantees from the O&M contractor.

In addition, for projects with strong vertical linkages, the non-availability of upstream and downstream infrastructure is an important source of operating risk. Typical examples of such projects would be a liquefied natural gas (LNG) project, which depends on pipeline infrastructure, or a toll road project, which would depend on completion of contiguous road stretch to enable traffic flow on the stretch.

Technology risks, where imminent, are usually mitigated through performance guarantees/warranties from the manufacturer, supplier, contractor or operator, and the availability of adequate debt reserves to allow for operating disruptions. ICRA could conduct a due diligence to establish the credit-worthiness of the technology suppliers/operators and the ability of these participants to compensate the project for failure of the technology adopted.

**Market Risks:** Market risks usually arise because of insufficient demand for products/services, changing industry structures, or pricing volatility (for input as well as output). Given the long-term nature of project financing, a considerable source of market risk is the possibility of dramatic changes in the demand patterns for the product, either because of product obsolescence or sudden and large parallel capacity creations, which could severely affect the economics of the project under consideration. For analytical convenience, one can group projects into two categories: one, which produces commodities (e.g. LNG projects, refinery projects, and power projects), and two, where certain natural monopolies exist (e.g. roads, ports, airports, power transmission or gas transmission projects). While the first category of projects is exposed to most of

the market risks identified above, the risks for the latter type of projects are more demand related, with the pricing usually being subject to regulatory or political controls.

In the past, the implementation of some of these “commodity” projects, such as power and LNG projects, in the international markets was supported by long-term off-take contracts, which provided considerable comfort to project financiers. However, with the development of a spot market for these commodities, customers of such projects are not willing to commit themselves to such long-term contracts; this has considerably increased the market risks associated with such projects. Under the circumstances, the cost competitiveness and the nature (regional or global) and adequacy of demand have emerged as critical determinants of a project’s long-term viability. For instance, even in India, despite power projects being backed by off-take commitments and adequate payment security mechanisms, there are various instances where cost competitiveness has emerged as the principal mitigant against the market risks associated with India’s power sector. Thus, the point of focus, while assessing market risks for projects producing a commodity, is usually the cost structure of a project, which is a function of the capital costs incurred to set it up, the input costs and also the costs required to operate and maintain the asset. ICRA usually benchmarks the capital cost of a project with those of the recently commissioned facilities across the country to ascertain the cost competitiveness of the project; this, in ICRA’s view, is a key determinant of the project’s long-term economic viability. On the input side, ICRA looks at issues related to certainty of supply, ability of the supplier to meet contractual commitments over the life of the project, the pricing structure of such supplies, and the ability of the project to pass on variations in input costs. In situations where the primary input is scarce or is not actively traded, ICRA attempts to evaluate the cost implications for replenishing shortfalls in supply and the availability of liquidated damages in the supply contracts for compensating the project for such costs.

For the second category of projects, the primary focus is on evaluating the adequacy of existing demand, the potential for growth in demand and the possibility of competing assets (e.g. an alternative route to a toll road) being created, which could undermine demand for the project being financed. Assessing demand patterns for such projects, particularly road projects, is often a difficult task since in most cases, the demand is highly price elastic and a function of the pattern of socioeconomic development in the service area of the road. ICRA refers to independently conducted traffic/demand studies by third-party agencies to establish the veracity of the demand estimations prepared by the project sponsors. However, such estimates are used only as a guide and are suitably adjusted by ICRA while drawing up the cash flow estimates.

In cases where there is a provision of revenue shortfall loan/support from project owner or sponsor, additional comfort can be derived depending on the terms of the same.

**Counter-party Risks:** A project involves a number of counter-parties who are bound to it by the contractual structure. Therefore, an evaluation of the strength and reliability of such participants assumes considerable importance in ascertaining the credit profile of the project. Counter-parties to projects usually include feedstock/raw material suppliers, principal offtakers, EPC and O&M contractors.

Even a sponsor could become a source of counter-party risk, as it needs to provide equity during the construction stage. Because projects have inherently complex structures, a counter-party’s failure can put a project’s viability at risk. The counter-party risks are usually addressed through performance guarantees, letters of credit and payment security mechanisms (such as escrows), most commonly seen in the case of power projects. The credit profile and track record of the counter-party also helps in assessing the counter-party risk. The credit profile and track record of the counter-party also helps in assessing the counter-party risk. However, it has been observed that such contractual risk mitigants, however strong, may not be effective in insulating a project from this risk, unless the project is fundamentally cost competitive and makes commercial sense for all the project participants.

**Regulatory and Political Risks:** Political and regulatory environment plays an important role in the development of the project finance. Most project financing transactions carry an element of political risk by virtue of the fact that they are often related to capital-intensive infrastructure development and the resultant goods/services are consumed by the public, directly or indirectly. Political and regulatory risks could manifest themselves in various forms, and significantly impact the economics of the project under evaluation. Such risks may take the form of:

- Problems in acquisition of land, which are typical in the case of road, and railway projects.
- Resistance to increases in user charges for common utilities such as water charges, toll road fees, energy charges, etc despite such tariff increases being envisioned in the project documents.
- Lack of predictability regarding regulatory changes and compensation. For instance, in some states, the Government has exempted certain category of vehicles from paying toll, while the mode of compensation to the projects was not finalized. This can have a severe impact on the project's cash flows and debt servicing capability.
- Changes in environmental norms, which could impact power plants and refinery projects by requiring them to invest substantially in meeting such norms.

As is apparent from the preceding discussion, regulatory and political risks are often difficult to quantify and also mitigate. While assessing such risks, an attempt is often made to understand the vulnerability of the project to such risks and also the nature of the relationship between the local/central Government and the project under review.

In PPP based projects, generally there is a provision that these risks can lead to termination of the project. In such cases, the project owner (authority) has to pay a termination payment to the project company which is used primarily for debt repayment. While assessing such projects, ICRA takes into consideration, the quantum of termination payment in comparison to the debt outstanding to factor in the risk to lenders. However, in such cases, timely receipt of termination payment is very important from debt servicing perspective, and ICRA factors in the track record of such payments in the past as well as counter-party credit risks. In the absence of timely receipt of termination payment, the project company could face liquidity pressure and default in debt servicing.

**Force Majeure Risks:** Project finance transactions, which are different from corporate or structured finance because of their dependence on a single asset for generating cash flows, are potentially vulnerable to force majeure risks. The legal doctrine of force majeure excuses the performance of parties when they are confronted by unanticipated events beyond their control. A careful analysis of force majeure events is critical in project financing because such events, if not compensated for, can severely disrupt the careful allocation of risk on which project financing depends. Natural disasters, such as floods and earthquakes, civil disturbances, and strikes can potentially disrupt a project's operations and hence its cash flows. In addition, catastrophic mechanical failure, due to either human error or material failure can be a form of force majeure that may excuse a project from its contractual obligations. Projects are usually unable to cope with force majeure events as well as large corporations, specifically those that have a diversified portfolio of assets.

In ICRA's opinion, the wider the definition of these events, the weaker and less reliable is the contractual structure for the project. It is, therefore, important that force majeure events be tightly defined, and that such risks be allocated away from the project through suitable insurance covers taken from financially strong insurance companies. ICRA usually studies the nature, coverage and appropriateness of the insurance policies taken and also evaluates the adequacy of debt reserves for meeting debt service commitments in force majeure circumstances.

## Financial Risk Assessment

The key aspects evaluated by ICRA while doing the financial risk assessment of a project are as follows:

Financing structure of project

Stability of Cash Flows

Inherent Profitability of the Project

Credit Coverage Ratio

Interest rate/ Foreign Exchange Risks

Refinancing Requirement/Flexibility

**Financing structure of project:** ICRA evaluates the following key factors in the financing structure:

- The capital structure of a project, which is evaluated to assess whether the debt-to-equity ratio is in line with the underlying business risks and that of other projects of similar profile, complexity, and size
- The protections provided to debt investors/bondholders like minimum coverage ratios that must be met before shareholder distributions are made, and the availability of substantial debt reserves to meet unforeseen circumstances
- The matching of project cash flows (under various sensitivity scenarios) with the debt service payouts and the potential for cash flow mismatches
- The pricing structure adopted for debt and the exposure of the debt to interest rate and currency risks. Such risks are particularly significant where the project raises variable rate debt or liabilities in a currency other than the one in which its revenues would be denominated
- The presence of an experienced trustee to control cash flows on behalf of the bondholders
- Limitations on the project company's ability to take on new debt

**Stability of Cash Flows:** As the cash flow streams for a project company are generally concentrated, the stability and predictability of these plays a crucial role in credit assessment. ICRA lays emphasis on the predictability of cash flows and ability of the project company to exercise better control over operating costs.

Projects whose operations are stabilised i.e. with at least two to three years of operational track record are better from cash flow predictability perspective. On the expenses front, the ability of the project company to manage operations and maintenance costs within budgeted levels remains important.

For projects under construction or with limited operational track record, the strength of the cash flows is tested under various sensitivity scenarios for ICRA projections. The key sensitivity scenarios include time and cost overruns during the construction phase and variability in revenues, and expenses post completion. Stress tests are all the more important if it emerges that significant revenue growth is necessary for meeting contractual obligations, or if there is a risk of decline in revenues.

**Inherent Profitability of the Project:** Given the highly capital-intensive nature of the projects, the emphasis is on IRR and NPV (internal rate of return, and net present value) instead of profitability indicators. Projects with poor IRR may require funding support from the sponsor; and the support required in such cases is assessed. In a few instances, particularly with weak equity IRR, the sponsors may not have economic incentive to support the project in which case there is a possibility of sponsor not providing timely support to the project leading to pressure on the debt servicing and meeting the contractual obligation.

**Credit Coverage Ratios:** The debt service coverage ratio (DSCR)<sup>1</sup> and the loan life coverage ratio (LLCR)<sup>2</sup> are the two key coverage ratios which are analysed. The DSCR measures the cushion between debt servicing obligation and cash flows available for debt servicing (CFADS) in any given period (typically annual but may be quarterly/half-yearly especially for projects exposed to cash flow seasonality and to match with debt repayment frequency). Similarly, the LLCR also indicates the total capacity for debt service over the life of the debt instrument. In addition, presence of unencumbered cash balances provide liquidity support and help the entity tide over the period with weak DSCR.

**Interest Rate / foreign exchange risk:** Depending on the nature of the funding, the project can be exposed to these risks. The foreign currency risk can arise from unhedged liabilities, especially for entities with unhedged foreign currency borrowings. As there is limited scope for natural hedge, the focus here is on the hedging policy of the issuer to mitigate such risk for net foreign currency exposure. Similarly, the extent to which an issuer would be impacted by movements in interest rates is also evaluated.

**Refinancing requirement / flexibility:** In some debt structure, there is a bullet repayment towards the end of the debt tenure which would require refinancing. In such cases, resilience of the project to various

<sup>1</sup> DSCR = Cash Flows available for debt servicing (CFADS) divided by the total amount of debt service due (principal and interest) in that period.

<sup>2</sup> LLCR = Net Present Value (NPV) of the CFADS from the calculation date to the maturity of the rated debt instrument (including initial DSRA and other available cash), divided by the principal outstanding on the rated debt instrument at the calculation date

refinancing costs/options and availability of liquidity measures to tide over any possible delays in refinancing (due to temporary market disruptions) is assessed.

In projects with long tail period (residual project life after debt amortization) or in other words high project life coverage ratio (PLCR)<sup>3</sup>, flexibility to raise additional debt/ refinance existing debt with elongated tenor provides an additional comfort. That said, there is a risk of sponsors leveraging projects with high tail period, which could reduce the financial flexibility of the project.

### **Evaluating the contracts**

ICRA evaluates the project contracts for their adequacy and strength in the context of a project's technology, and exposure to market and counter-party credit risks. The contracts are also studied to ascertain whether the obligations created by each contract addresses the project's unique operating characteristics. It must however be mentioned that although the project contracts are studied closely, the primary objective, while evaluating such projects, is to establish their stand-alone viability. This approach is influenced primarily by ICRA's observation that there is a strong incentive to honour project contracts only so long as it makes commercial sense to all participants. It has also been seen that these contracts lend themselves to re-negotiation if they lose "economic value", and such renegotiations could affect the interests of the debt investors to the project.

### **Evaluating the structural features**

ICRA also reviews certain structural features like presence of escrow mechanism, debt service reserve account (DSRA), Major Maintenance Reserve Account (MMRA), etc as these factors can provide additional support to the credit profile. Presence of a strong escrow mechanism and ring fencing of cash flows to prevent leakage of funds are some of the structural considerations which strengthen the project structure. The presence of the DSRA, generally in the form of fixed deposits or in the form of a Guarantee, so as to cover few quarters of debt servicing obligations (Principal + Interest) provides additional comfort to withstand short-term liquidity mismatch. Similarly, creation of a major maintenance reserve account to build sufficient funds for undertaking the scheduled major maintenance activities or provisions for any future bulky expenditure also supports the ratings. Other forms of credit enhancement like senior-subordinate debt structuring, trapping surplus cash flows on activation of triggers, etc are also evaluated from the credit perspective. In some projects, sponsor has limited recourse on the project debt. Such recourse can be in the form of undertaking to meet project cost overrun or cash shortfall undertakings, etc. These are also evaluated and factored in while undertaking credit assessment.

### **Summing Up**

Project finance transactions are exposed to a variety of risks; however, most of these can be mitigated by suitably allocating them to project participants who are best equipped to handle them. ICRA, however, notes that the effectiveness of such risk allocation mechanisms, which are achieved through appropriate contractual structures, would hinge on the economics of the project contracts and its commercial attractiveness to the various participants.

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<sup>3</sup> PLCR = NPV of CFADS over the remaining project life, divided by the principal outstanding on the debt instruments at the calculation date



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