



CareEdge Global Project Finance Rating Methodology

March 2026



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Note: This rating methodology is an updated version of the project finance rating methodology published in October 2024. An annexure for assessment of power transmission projects has been included. This update does not change our methodological approach and does not impact any existing rating actions undertaken by CareEdge Global.



A. Introduction

CareEdge Global IFSC Limited's (CareEdge Global) Rating Methodology for Project Finance transactions factor the unique characteristics of project finance instruments/ transactions.

Project Finance is a method of funding large-scale, long-term infrastructure and industrial projects. It relies on future cash-flows of the project itself, rather than the balance sheets of its sponsors. Projects are often managed through special purpose vehicles (SPVs), which are separate legal entities, created specifically for undertaking the project. This helps isolate the project from its sponsor, thereby enabling assessment without factoring support from the credit profile of the Sponsor.

Typically, in project finance, lenders are repaid from the cash-flows generated by the project. Furthermore, these projects might have external credit enhancements, such as bond insurance.

B. Scope

This methodology identifies factors that CareEdge Global considers while assigning ratings to Project Finance instruments/ transactions, for operational projects, across various kinds of infrastructure asset classes such as road, rail, airports, power (generation, distribution, transmission, and across fuel types), gas pipelines, telecom infrastructure, data centers, and other public infrastructure and storage facilities. Typically, projects in the industrial segment would not qualify for assessment under this methodology, given their typical debt and legal structuring.

Key factors for assessment of renewable energy projects and power transmission projects are covered in Annexures.

C. Overall Framework

The assessment begins with evaluating the fundamental features that define a project finance transaction. Once the existence of these fundamental features is established, the evaluation framework is applied.

1. Fundamental features of project finance transactions

In a project finance transaction, several fundamental features are typical, which are relevant for the assessment as well. These include:

- 1) **Legal structure:** The strength of the legal structure is key, which enables bankruptcy remoteness of the project SPV, isolating the project from the sponsor's finances. In certain Project Finance transactions, a group of Project SPVs may be structurally combined to create a restricted group.
- 2) **Structural features:** The transaction's structural features are also integral, including ring fencing to separate project cash flows, a well-defined waterfall mechanism prioritizing

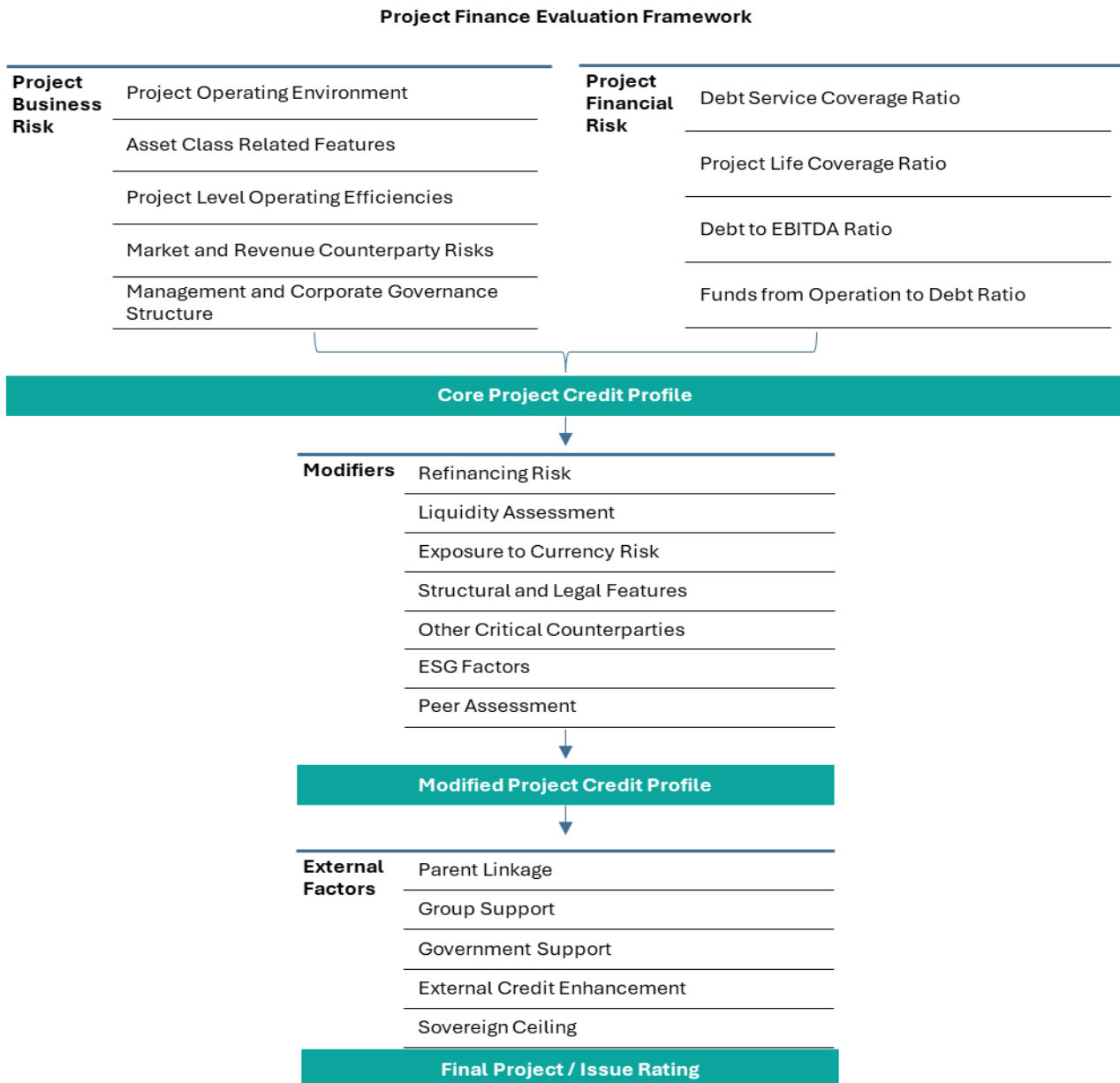
payments, cash sweep/ trap provisions to mitigate financial stress, a tail period, and restricted distributions to protect cash for meeting debt obligations.

- 3) **Liquidity:** Transactions are supported by maintaining a Debt Service Reserve Account (DSRA), which serves as a buffer for debt payments during any temporary cash flow shortfalls.

The above features collectively are typical of a project finance transaction, which are used by CareEdge Global to identify the applicability of this methodology.

2. Evaluation framework

The following chart depicts the project finance evaluation framework used by CareEdge Global:



CareEdge Global assesses the project finance transaction by first evaluating the business and financial risks:

- 1) The assessment of the business risk of a project is determined through an array of factors, including the project's operating environment, asset class features, project level operating efficiencies, market and revenue counterparty risks, and the management & corporate governance structure.
- 2) The finance risk of a project is evaluated using specific ratios, including Debt Service Coverage Ratio (DSCR), Project Life Debt Service Coverage Ratio (PLCR), Debt to earnings before interest, tax, depreciation, and amortization (EBITDA) ratio and Funds from Operations (FFO) to Debt.
- 3) Together, the business risk and financial risk, establish Core Project Credit Profile (CPCP).

Necessary adjustments are then made to CPCP in the form of modifiers to arrive at Modified Project Credit Profile (MPCP). Any external factors that may be relevant are analysed to derive the final project/ issue rating.

D. Project Business Risk

The business risk is evaluated to understand the possible strengths and challenges to the project, which may affect its financial and operational performance. This evaluation also helps to determine the ability of a business to sustain the financial debt of the project, and future cash flow generation, which is the primary source of repayment for the project. We assess the business risk using five broad aspects:

1. Project operating environment
2. Asset class related features
3. Project level operating efficiencies
4. Market and revenue counterparty risks
5. Management and corporate governance structure

Each of these five aspects are detailed below.

1. Project Operating Environment

The operating environment of the project includes assessing the macroeconomic and political risks associated with the country. Macroeconomic risks arise from the overall economic environment of the country and can significantly impact the project's performance. These risks include inflation, currency volatility, fluctuation in interest rates, and demand slowdown, among others. Political and policy stability can impact the overall business climate, which includes changes in government policies, taxation, and regulatory frameworks.

Contract enforceability and dispute resolution frameworks are evaluated to determine the strength of the legal system in the operating environment.

Many projects are implemented through the Public-Private Partnerships (PPP) route. A well-developed PPP policy within a country can facilitate larger investments in infrastructure by leveraging the efficiency and innovation of the private sector, along with the support of the public sector. The PPP track record of a country plays a significant role in determining how successful future projects can be. We particularly assess the number and types of projects that have been successfully implemented with the help of PPPs within the country, and the effectiveness of the projects in meeting their goals in terms of budgets and timelines, as well as their economic and financial benefits. The sectoral development of PPP policies is also assessed to understand the development of the framework within the different infrastructure sectors operating in the country. The stage of evolution of the PPPs is evaluated to gauge the level of sophistication and complexity of the institutions and the regulatory framework surrounding PPPs, along with the robustness of these frameworks.

2. Asset Class Related Features

Features of different asset classes vary in terms of earnings volatility, performance risk, and the regulatory environment. These factors influence the predictability of future cash flows and long-term project viability. For example, in toll road projects, revenue generation is directly linked to the traffic volume on the road, which poses a demand risk. The stability of cash flows in this case can be less certain as lower traffic would directly translate to lower revenue. However, in annuity road projects, there is greater stability in cash flows as the project is not exposed to demand risk. The predictability of annuity payments makes the projects less volatile and thus more stable, guaranteeing predictability in future cash flows.

In the case of coal-based power generation projects, they tend to have long-term and stable cash flows. However, there is exposure to fuel supply and cost fluctuation risks, as well as regulatory risks, which can affect the earnings and the performance of the project. On the other hand, in renewable energy projects, cash flows depend on natural sources which removes the risk of fuel supply. However, intermittency in resource availability poses a risk, which can, in turn, affect the earnings and performance of the project.

The performance of airports largely depends on the economic cycle and conditions, along with the global travel trends. Factors such as economic recessions or pandemics can impact passenger volumes, thus creating volatility in earnings. Similarly, ports largely depend on trade volumes, which can fluctuate based on global economic conditions, trade patterns, and geopolitical scenarios. Any fluctuations in the cargo traffic can result in an impact on the earnings of ports. However, ports with strategic and diversified revenue sources tend to have stable earnings.

- a) **Earnings Volatility:** Earnings volatility evaluates the degree of fluctuation in the revenue, cost, or cash flows of the project over a period of time. Revenues can be volatile due to factors such as demand for the project, pricing, and economic conditions. Cost volatility can arise due to fluctuation in the operational and maintenance costs, labor costs, or any unforeseen maintenance requirements, which can impact the earnings of the project. Furthermore, cash flows can vary due to lower demand or increased costs.

Stable earnings imply predictable cash flows, and highly volatile earnings imply uncertainty in the ability of the project to meet its debt obligations and service its debt. The inability to generate consistent cash flows is a critical factor as it implies the capacity of the project to consistently service its debt. Projects and asset classes with stable cash flows tend to have a level of financial flexibility that enables them to manage their debt effectively.

- b) **Performance Risk:** Performance risk determines the operational reliability and technical performance of the project, and whether the project can consistently operate at the expected capacity and deliver the required output. This, in turn, demonstrates the ability of the project to generate sufficient cash flows to meet its debt obligations. Higher performance risk indicates a chance that the project will underperform, highlighting the risks faced in terms of the revenue generation. Weaker-than-expected performance can lead to lower cash flow and potentially jeopardize the project's ability to repay its debt.
- c) **Regulatory Environment:** The regulatory environment governs the legal and regulatory framework within which the project operates. This is a crucial external factor as it determines the stability and predictability of the regulatory landscape and the potential impact of any changes on the project's financial health. Any significant changes in the regulatory landscape can negatively impact the ability of the project to generate consistent cash flows.

3. Project-level Operating Efficiency

A project's ability to operate efficiently is essential to understand its output generation capabilities at the expected costs, ensuring it can meet its debt obligations. The following factors influence the operations:

- a) **Technology:** The technology associated with the project, including its equipment suppliers, directly affects operating efficiency.
- b) **Track Record of Operations:** A track record of consistent performance at the expected levels reduces the risks of operational disruptions. The operational track record is evaluated based on factors such as the years of operations, level of operations compared to project evaluation studies such as P-90/ P-75, and quality of Operations & Maintenance (O&M) reflected by cost efficiency & robustness of the operations.

- c) **Diversity:** A degree of diversity in operational assets protects the project cashflows from getting impacted by one or more of the assets underperforming.
- d) **O&M Costs:** O&M plays a significant role in ensuring the long-term sustainability and efficiency of infrastructure assets. In certain sectors, it can directly affect the performance and financial health of the project. For example, in road projects, regular maintenance is crucial as it ensures the safety and functionality of the project. These costs can directly influence the predictability of cash flows and debt servicing capabilities. Some factors that can affect the O&M costs include, increase in labor costs, poor condition of assets, or deterioration due to environmental factors. This can, in turn, affect cash flow stability, potentially leading to financial stress. For instance, unexpected costs in a road project can arise due to poor initial construction, impacting debt repayments due to the additional costs incurred. It is critical to assess the operational track record of the O&M strategies to understand the possibilities of meeting the project performance metrics.

4. Market and Revenue Counterparty Risks

Market risk refers to the market-related factors that can affect the output and cash flow generation capabilities of the project. Here, the profile & diversity of the revenue offtakers and tariff structure & its market competitiveness are assessed.

- a) Projects that depend on a single customer counterparty/ off-taker are typically more vulnerable to concentration risk compared to those with multiple off-takers.
- b) If the project is one among the parties catering to the same market, competitiveness vis a vis other parties is assessed, as there is a replacement risk.
- c) Further, we assess the strength and payment behaviour of one or more revenue counterparties as it has a bearing on the stability and timeliness of cashflows.
- d) The tariff structure helps determine the stability of the revenue stream, as projects with fixed tariffs tend to have more stable and predictable revenue streams compared to those with variable tariffs. If the output of the project is priced competitively compared to alternatives available in the market, it is more likely to maintain demand over time. If tariffs are much higher than market rates, the revenues might be affected due to customers seeking alternatives.

5. Management and Corporate Governance Structure

The structure of the management and the quality of corporate governance are other key factors in determining a project's operational success. The experience and track record of management, including the management's risk management practices, transparency, and control systems are

critical to evaluating the management and corporate governance structure associated with the project.

- a) Experience and Track Record:** The experience and track record of the management team are crucial indicators of their ability to navigate complex challenges. The operational efficiency of a project is a key factor, and that is highly dependent on the management's ability to adequately manage risks throughout the project's lifecycle. The management's capabilities to meet operational and financial targets by effectively managing cash flows, costs, and meeting revenue targets in earlier projects provides confidence in their ability to continue to do so.
- b) Linkages with Sponsors:** The linkages between the management and the sponsors of a project play a significant role in determining the success of the project. The nature of this relationship can affect the project's operational efficiency and long-term sustainability. Operational independence is important for the management to be able to execute the project efficiently. Excessive involvement of a sponsor through frequent changes can potentially lead to delays in decision-making, thus hindering the efficiency of the project. The balance between the involvement of the sponsor and the management is crucial to ensure the project aligns with the short- and long-term goals.
- c) Management Approach and Philosophy:** The approach and philosophy of the management helps shape the overall strategic direction of the project. A well-structured approach ensures that the project is run with a focus on efficiency, sustainability, and long-term success. It is important to assess the management's approach and philosophy as it shows their strategic vision, adaptability, and focus.
- d) Approach to Hedging and Liquidity:** The management's approach to effectively managing financial risks, through hedging strategies and ensuring a strong liquidity position, is essential. We assess how the management has shaped strategies to mitigate risks, specifically by using effective hedging strategies to reduce exposure to certain risks, such as fluctuations in foreign currencies, interest rates, or commodity prices. Additionally, we evaluate the ability of the management to ensure sufficient liquidity is in place to manage short-term cash flow needs. This includes maintaining adequate reserves and access to working capital lines, which helps ensure that unexpected expenses or financial pressures can be managed effectively.

E. Project Financial Risk

As part of the Project Financial Risk assessment, we start with base case assumptions which are realistic, aligned to market, and based on the outlook of CareEdge Global on factors like prices, equipment degradation etc.

Financial risk of a project is evaluated using specific ratios, including DSCR, PLCR, Debt to EBITDA and FFO to Debt.

- 1. Debt Service Coverage Ratio (DSCR):** The DSCR is a crucial annual metric to measure the project's ability to meet its debt service obligations from its operational cash flows. This helps to assess the project's financial resilience. Apart from the average annual DSCR over the tenure of the instrument, we also consider minimum annual DSCR to assess the vulnerability in debt servicing in any particular year.

$$\text{DSCR} = \text{Cashflow available for debt servicing} / \text{Total debt service obligations (includes principal, interest, hedging and other finance costs)}$$

- 2. Project Life Debt Coverage Ratio (PLCR):** PLCR is the ratio of the Net Present Value (NPV) of the cashflows (discounted at the interest rate of the debt) over the residual life of the project to the outstanding debt. This ratio helps in assessing the indebtedness of the project compared to the current debt outstanding. A higher ratio reflects the higher ability of the project to repay debt over the life of the project or its concession period.

While DSCR indicates the ability of the project to meet the debt service obligations during the tenure of the debt, PLCR indicates the ability of the project to repay debt during the life of the project. DSCR is more suitable to assess projects with amortising structures, while PLCR is more suitable for non-amortising structures, to assess refinancing ability.

- 3. Debt to EBITDA Ratio:** Debt to EBITDA is a leverage ratio that compares the project's total debt to its earnings before interest, tax, depreciation, and amortization (EBITDA). It measures the number of years the project would need to operate at its current profitability level to repay its debt. This determines the project's debt burden relative to its earnings.
- 4. Funds from Operations to Debt Ratio:** Funds from Operations (EBITDA - cash taxes paid – cash interest) to Debt is a leverage ratio that measures the proportion of cash flows available for debt repayment relative to the project's debt. It assesses the project's ability to generate sufficient operating cash flows to service its debt.

We combine project business risk and project financial risk to arrive at the Core Project Credit Profile (CPCP).

F. Modifiers

We adjust the CPCP derived earlier by applying the below modifiers suitably to arrive at Modified Project Credit Profile (MPCP). These modifiers include refinancing risk, liquidity, exposure to currency risk, structural and legal features, and other critical counterparties.

- 1. Refinancing Risk:** Refinancing risk arises when a project must rely on refinancing to meet its long-term debt obligations. If future market conditions deteriorate, refinancing may be

challenging. In case the project does not have sufficient cash flow or reserves to mitigate the refinancing risk and if the debt maturity profile does not align with the cash generation capacity of the project, a modifier to CPCP may be applied. Typically, the adjustment is negative to factor likely risks to refinancing. The refinancing risk is assessed in conjunction with the PLCR discussed earlier.

- 2. Liquidity Assessment:** Liquidity is a crucial factor, and it determines the project's financial flexibility, along with the presence of the Debt Service Reserve Account (DSRA), which ensures debt payments can continue during periods of temporary cash flow stress. This financial cushion is important in safeguarding against any short-term cash flow disruptions, thus ensuring that the project can meet its short-term obligations. In case of any challenges to the liquidity scenario of the project, a modifier is applied to CPCP, as it implies a limited capacity to manage unforeseen challenges. Typically, two quarters debt service reserve is considered adequate, though its adequacy is linked to the payment behaviour of the revenue counterparties. If a project maintains significantly higher liquidity on a sustained basis, it is considered a positive factor and may be suitably assessed.
- 3. Exposure to Currency Risk:** Managing currency risk exposure is critical to projects that generate revenues in one currency but have debt obligations in another currency. Susceptibility to exchange rate volatility can affect cash flows and debt servicing abilities of the project, especially if appropriate hedging mechanisms are not in place. CareEdge Global assesses any adverse volatilities in currency movement that might negatively affect the ability of the project to meet its debt obligations and adjusts CPCP accordingly.
- 4. Structural and Legal Features:** Weaknesses in the structural and legal features of the project, such as poorly defined covenants or ambiguous security packages can lead to adjustments to CPCP. On the other hand, a properly designed and supportive structure to ensure debt repayment can be considered for a positive adjustment.

Some of the structural features include cash trap, covenants to be tested before distribution, debt re-sizing based on PLCR etc. Legal features include security enforcement, bankruptcy remoteness etc.

- 5. Other Critical Counterparties:** Associated counterparties such as insurance providers, hedge providers, trustees, and the bank managing the DSRA, etc. play significant roles in ensuring the project operates smoothly. Weak credit profiles or an unreliable performance track record of these parties can act as negative modifiers to CPCP.
- 6. Environment, Social and Governance (ESG) Factors:** Environment and Social factors encompass a wide range of factors that can impact a project's performance, reputation, and sustainability. Environmental risks pertain to climate change, resource scarcity, pollution, and

natural disasters. Social risks involve issues like labour practices, human rights, community relations, and diversity. Governance factors are largely covered in our management strategy and corporate governance framework. These factors are analysed based on their impact on the financial performance of the project and the CPCP is modified accordingly.

7. Peer Assessment: Since ratings are a relative assessment, the project is evaluated relative to its peers operating in the same or a similar asset class. This is to gauge the project's standing in a relative sense, and to be able to benchmark the operational performance and financial health of the project. This can also help to understand the strengths and weaknesses of the project and its management and understand its market position relative to its peers.

G. External Factors

After factoring in the modifiers to arrive at the MPCP, CareEdge Global assesses the influence of external factors to determine the final project/ issue rating. Typically, project finance transactions may not be influenced by external factors such as support from parent/ group/ government. However, a critical evaluation is required to establish that feature.

Project finance transactions may have credit enhancements such as bond insurance, which is usually prevalent in developed markets.

CareEdge Global also factors in country ceiling assessment which is derived from its sovereign rating and transfer & convertibility framework.

H. Sensitivity Analysis

This is a tool that assesses the project's resilience under different stress scenarios. By changing certain assumptions, such as additional changes in tariff, operating costs, interest rates, degradation of equipment etc., the analysis evaluates how these factors affect the project's ability to meet its debt obligations. Sensitivity analysis helps identify vulnerabilities to the project and understand how sensitive the project is to adverse conditions, thereby providing insights into the potential volatility of cash flows and financial ratios. This helps ensure that the project's financial structure is strong enough to withstand unfavorable and unforeseen changes while maintaining solvency and creditworthiness.

Annexure – I: Rating assessment of Operational Renewable Energy Projects

A. Scope

Given the emphasis for decarbonization and move towards cleaner energy sources, there is a perceivable shift towards renewable energy sources, globally. This annexure covers assessment of renewable energy projects operating specifically in the solar and wind space.

Key features of renewable energy projects include natural resources, no fuel price risk, near zero or zero carbon footprint, and lower Plant Load Factor (PLF) compared to conventional energy projects. Renewable energy projects derive revenues from the sale of power either through power purchase agreements or through merchant sales.

B. Key Factors for Assessment

- 1. Regulatory Environment:** A stable regulatory environment provides predictability to cashflows, while a frequently changing regulatory environment negatively impacts the predictability. Further, regulators encouraging renewable energy through their policies such as mandatory procurement and preference of renewable energy consumption over conventional sources would be positive.
- 2. Technology:** Proven technology is considered to be favourable compared to unstable technology or technology yet to be proven over longer term.
- 3. Equipment Suppliers:** We assess the Original Equipment Manufacturers (OEMs) from the perspective of the i) quality of equipment supplied, ii) innovation, iii) support during operations including spares & parts availability and iii) financial profile.
- 4. Type of Power Purchase Agreement (PPA):** Long term power purchase agreement with a tariff which includes escalations for rise in costs resulting in stable and healthy profitability is considered favourable. On the other hand, merchant sales are considered least favourable.
- 5. Revenue Counterparty:** Counterparties with strong credit profile and a track record of honouring payment within timelines stipulated in the PPA are considered favourable.
- 6. Resource Availability:** Availability of resources i.e., irradiation for solar power projects and wind patterns for wind powered projects, has a direct bearing on the cashflow generation. Renewable energy projects are relatively less constrained in this aspect compared to power generation projects which are dependent on third parties for resources, like coal or gas-powered projects. However, this is offset to some extent by variability of actual performance vis-vis estimated/base case generation. Variability of performance can be due to multiple factors.

Year on year change in conditions can be a result of natural variation in weather or events like El Nino/La Nina. For instance, changing weather conditions may have an impact on irradiation

levels, which in turn impact the generation for solar projects. Similarly, wind projects do not generate power under extremely high or low speeds thereby impacting the generation level.

- 7. Clipping Factor:** Clipping Factor is the portion of generation that is lost due to limitations in offtake, evacuation or any other infrastructure. In hybrid projects (solar + wind), clipping may occur when the combined solar and wind generation is more than the offtake limit as per the PPA.
- 8. Operational Track Record:** Projects that operate at better than P90 levels for every single year of operation and a project that has been operational for over 3 years, gives confidence with respect to stability in revenues. Projects that operate at P90 levels with minimal exceptions and operational for more than or equal to 5 years are considered to be adequate. A project consistently operating below P90 levels is the least favourable.

P90: Expected generation of electricity (over a period of 12 months) which can be achieved 90% of the time during the project life cycle.

P99: Expected generation of electricity (over a period of 12 months) which can be achieved 99% of the time during the project life cycle.

P75: Expected generation of electricity (over a period of 12 months) which can be achieved 75% of the time during the project life cycle.

We also consider additional factors like plant availability, availability of transmission/evacuation infrastructure and curtailment. We assess whether any of these factors negatively impact the revenues.

9. Base Case Assumptions:

- a. Capacity Utilisation factor (CUF): Generally, we consider power generation at P90 estimates for our assessment. If we observe that the performance is weaker than P90 estimates, we make suitable adjustments to the P90 estimates. A hybrid project of solar and wind may compare favourably with only solar or only wind power projects due to diversification benefits, higher grid stability and complementary generational profiles.
- b. Degradation: For solar modules, we consider equipment degradation of 0.5%-0.7% annually. Further, project life is considered as 25 years.
- c. Repowering capex: In certain cases, we observe that repowering capex is carried out to compensate for the degradation in solar modules and to limit the impact on overall generation. In such cases, we may factor in costs relating to capex and associated cashflows.
- d. Clipping factor: For hybrid projects (solar + wind), clipping factor is considered to account for the loss of generation when both solar and wind capacities are operational at the same time.

- e. Operations & Maintenance (O&M): We assume escalation for O&M costs taking into consideration the contracted rate vis-à-vis market rate and counterparty.

10. Financial Ratios: For assessing the financial risk profile, we consider Debt Service Coverage Ratio, Project Life Debt Coverage Ratio, Debt to EBITDA Ratio and Funds from Operations to Debt Ratio.

DSCR is the core financial ratio for substantially amortising structure. PLCR indicates refinancing ability of a project and therefore becomes more significant for a non-amortising structure.

11. Liquidity: Given the seasonality in the availability of natural sources and based on the payment track record of revenue counterparties, assessment of liquidity management becomes significant. Maintenance of Debt Service Reserve Account (DSRA), surplus cash and/ or working capital lines provide mitigation. For a revenue counterparty with a good payment track record, typically a DSRA of forward two quarters of debt serving obligation, is considered adequate.

Annexure – II: Rating assessment of Operational Power Transmission Projects

A. Scope

Power transmission infrastructure is essential for reliable evacuation of electricity from generation sources to demand centres, typically operating under clearly defined regulatory frameworks and long-term concession agreements that ensure better revenue visibility.

Therefore, transmission assets generally benefit from relatively stable and predictable cash flows. The credit risk evaluation framework assesses such characteristics in the form of asset class features, operational efficiency, financial strength of counterparties, etc.

This section focuses on the assessment of key credit factors for operational power transmission projects and should be read in conjunction with CareEdge Global's Rating Methodology for Project Finance.

B. Key factors for assessment

1. Asset class-related features

Transmission assets, whether under assured returns (cost-plus) or assured revenue (competitively bid) frameworks, typically operate under availability-based revenue mechanisms, whereby cash flows are largely independent of actual power flow volumes, thus providing strong revenue and return visibility. In contrast, the risk levels are considered higher for jurisdictions (or projects) where revenue is linked to the flow of power.

Under an assured returns framework, regulatory true-ups and pass-through of prudent costs help limit margin variability, while supporting stable, predictable cash flows across the operating life of the asset. In contrast, under an assured revenue framework, tariffs are locked in and are typically not subject to regulatory true-ups. Hence, the cost structure is an important monitorable for margin stability and cash flow volatility. Moreover, where projects are bid aggressively (under the assured revenue framework), the ability to absorb higher-than-anticipated cost may be a constraint.

Transmission assets exhibit inherently low operating risk due to their simple technology, long asset life, and stable performance. These assets typically operate with high availability (owing to quick resolution of outage), predictable and low maintenance, and limited mechanical complexity. Collectively, these factors support stable and reliable long-term cash flows.

The regulatory environment is assessed by evaluating the maturity, transparency, and stability of the framework (for factors such as governing tariff determination, performance standards and investment approvals, etc). These factors influence revenue visibility and cash flow stability significantly. Frequent regulatory shifts, discretionary interventions, or ambiguity in tariff mechanisms heighten risk and can weaken the long-term credit profile of transmission entities.

2. Project-level operating efficiency

Project-level operating efficiency is a key determinant of credit quality for transmission assets, given their dependence on consistently maintaining high network availability and meeting prescribed performance standards. The assessment focuses on the robustness of operations and maintenance practices, adequacy of preventive and corrective maintenance, and the operator's capability to ensure minimal outages.

Projects operating under availability-linked revenue frameworks must sustain performance above regulatory or contractual thresholds to avoid penalties that can weaken cash flows. Operational resilience is also influenced by asset design quality, response time to contingencies, and adherence to grid code requirements.

Strong O&M performance, supported by experienced operators and prudent lifecycle asset management practices, enhances predictability of cash flows, preservation of cash buffers, and supports a stable credit profile. Conversely, frequent outages, inadequate maintenance, or inability to comply with performance norms may result in penalties for non-compliance and eventually financial underperformance, and elevated operational risk.

3. Market and revenue counterparty risk

Transmission assets generally exhibit low market risk owing to their regulated, monopoly and availability-based revenue structures, which largely insulate cash flows from demand volatility. Revenue counterparty risk is primarily assessed based on the creditworthiness, payment discipline, and contractual obligations of the principal counterparties such as central/state transmission utilities, and distribution companies.

Projects exposed to weaker utilities or counterparties with poor track records—due to high aggregate technical & commercial (AT&C) losses, subsidy dependence, and billing or collection inefficiencies, etc— may face delayed payments¹, under-recoveries, or disputes that elevate credit risk. However, the cash flows stability can be improved by robust payment security mechanisms, including escrow accounts, central payment pools etc. For instance, in certain jurisdictions like India, centralised payment mechanism (implemented by Central Transmission Utility of India Limited) are established where collections are pooled and distributed subsequently. The pooled mechanism mitigates payment delays and counterparty risk substantially.

¹ Assessed using relevant metrics such as DSO (days sales outstanding).

Overall, predictable contracts, well-defined regulatory processes, and strong counterparty profiles significantly enhance revenue stability and reduce the likelihood of cash flow disruptions for transmission entities.

4. Financial analysis

Power transmission projects are generally supported by long-term, availability-based revenue stream, resulting in inherently stable, low volatility cash flows. Long-term revenue visibility and stability allow such assets to sustain relatively higher leverage than other infrastructure segments such as power generations (including renewables), roads, airports, etc.

In this context, credit assessment will focus on key financial metrics outlined in CareEdge Global's Rating Methodology for Project Finance, to gauge debt servicing capacity, leverage, and financial resilience.

Additionally, in the absence of a pooling mechanism, effective liquidity management is paramount if the counterparty risk, in terms of making timely payments, is substantial. The maintenance of liquidity buffers—such as Debt Service Reserve Account (DSRA), surplus cash balances, and/or committed working capital facilities—is essential to mitigate such risks.

[For the previous version, please refer to 'CareEdge Global Project Finance Rating Methodology' issued in [October 2024](#)]

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