Rating Methodology – Power Transmission Projects

[Issued in December 2022]

Industry Overview

Power transmission is the key link in the overall power sector value chain. It facilitates evacuation of power from power-generating units, which are spread across the country and supply to various distribution entities, which in turn supply power to the end-consumers. The power transmission system typically comprises transmission lines, sub-stations, switching stations, transformers and distribution lines. For the transmission and distribution of power, India follows a three-tier structure comprising distribution networks and state grids (owned and maintained by state transmission) and distribution companies and inter-state and inter-regional grids (mostly owned and operated by Power Grid Corporation of India Limited [PGCIL]). Initially, India had five regional grids, namely, Northern, Southern, Eastern, Western and North Eastern. Over the years, all these grids were interconnected with the country achieving the status of "One Nation-One Grid-One Frequency" in December 2013.

The requirement of robust power transmission infrastructure is important given the increasing renewable energy capacity in the country (which is intermittent and involves high inter-state/region power transfer), deepening of short-term power market as well as increasing cross-border power exchange. There has been a consistent increase in the transmission capacity in the country over the years with length of transmission lines increasing from 275,530 circuit kilometre (ckm) as on August 31, 2012, to 462,485 ckm as on August 31, 2022. The transformation capacity stood at 1,134,462 Mega Volt Ampere (MVA) as on August 31, 2022.

The Government of India has been promoting private sector participation in power transmission space with a view to rapidly enhance the power transmission capacity. Most of the projects are awarded through tariff-based competitive bidding (TBCB) route, with the exception only made for implementation of certain strategic and high technology projects awarded to PGCIL on nomination basis.

The billing, collection and disbursement function for inter-state transmission licensee under Point of Connection (POC) mechanism is being undertaken by Central Transmission Utility of India Limited (CTUIL), a 100% subsidiary of PGCIL.

Rating methodology

While analysing the power transmission projects, CARE Ratings Limited (CARE Ratings) focuses on evaluating the following broad parameters for arriving at the rating:

- Project risk
- Industry and regulatory risk
- Management risk
- Operational risk
- Financial risk
- Environment, Social, Governance (ESG) risk

Project risk

For analysing the risk in the under-implementation projects, CARE Ratings considers the following parameters:

- **Pre-construction risk**

  In the pre-construction stage, the evaluation of transmission projects largely involves permitting risks (availability of various statutory approvals and clearances) and funding risk. The clearances for the project include environmental and forest clearances and crossings related to railway, rivers, roads, etc., from various government authorities. The projects also involve acquisition of Right of Way (RoW) from various parties for the development of transmission infrastructure. Since securing of necessary approvals and RoW requires dealing with various government and private parties, it makes under-implementation projects susceptible to delays and thus the progress/status of these parameters is an important rating determinant for greenfield projects. Apart from this, the demand and pricing risk is also assessed. Power transmission systems are capital intensive with less likelihood of parallel lines, which tend to make them natural monopolies with minimal demand risk. The pricing risk associated with transmission projects is evaluated with assessment of cost-plus tariff or TBCB, and approval of the same by Central Electricity Regulatory Commission (CERC).

  For timely completion of the project, CARE Ratings positively considers the financial closure, and further evaluates the status of infusion of the promoter funds, the status of debt tie-up and key terms of the tied-up debt. The strong track record of the promoter in executing similar-sized projects and its financial strength are important risk mitigants. Given the associated permitting and construction risk in the projects, the cost and time overruns are common and hence strength and track record of the parent/group is also evaluated while arriving at the rating.

- **Construction risk**

  The construction risk mainly involves analysis of location of the project, type of topography, quality of engineering, procurement and construction (EPC) contractor and experience of the promoter in executing similar kind of projects. The projects located in hilly areas with difficult terrain is generally more prone to the construction risk vis-à-vis projects located in the plains. Furthermore, the financial strength of EPC contractors coupled with their track record of execution of similar kinds of projects in the past is also a key factor while evaluating the construction risk. The strong track record of the promoters in executing such projects and its financial strength are important risk mitigants, not only in terms of timely execution but also in terms of arrangement of finances in cases of increase in the project cost due to contingencies.

  However, as transmission projects span long distances, cost overruns and delays are common. Hence, ratings may be lower during the project-implementation stage.

  Post construction, transmission assets also face some stabilisation risk in maintaining line availability above normative levels and receiving timely payments from counterparties. This stabilisation phase can stretch to around 18 months depending on the counterparty. For special purpose vehicles (SPVs) with PoC mechanism, the time taken to stabilise is shorter. Credit assessment of transmission projects critically factors the promoter group and the aforesaid project risks when it is at the project stage. However, once it becomes operational, weightage to the promoter group is relatively on the lower side as an infrastructure project is financed without any recourse to the promoter group. Accordingly, for an operational project, higher weightage is given to the quality of the asset as explained in the business/operational risk parameters below.

Industry and regulatory risk

The transmission industry is a highly regulated industry wherein the tariff is determined /approved by the CERC for inter-state transmission system (ISTS) projects and by State Electricity Regulatory Commission (SERC) for transmission projects involving flow of power within the particular State. The tariff regulations are issued by CERC for a block of five years (current block is 2019-2024) based on which the tariff is determined for all cost-plus projects. The tariff for the cost-plus projects is determined after the projects have achieved the commercial operation date (COD). In the assessment of regulatory risks, CARE Ratings analyses the timeliness and adequacy of tariff determination/revision applicable in Regulated Tariff Mechanism (RTM) projects. Any delay in such determination/ revision could be a credit concern and may have been caused because of delay in the petition filing by the developer or delays in the issuance of an order by the regulator.

To maintain healthy competition, the industry also witnessed private participation for the development of transmission projects wherein the projects are allocated on build, own, operate and maintain basis (BOOM), and tariffs are determined through the TBCB mechanism. Under the TBCB mechanism, the bidder specifies a fixed amount as the fee to be paid by the beneficiary for the utilisation of the transmission line. The credit profile of the cost-plus projects would generally be better than the projects under TBCB route.

Management risk

The evaluation of quality of management is an essential part of all rating assessments. The ability of the promoter to support the project in times of financial stress or any exigencies, track record in implementing and operating large transmission projects and availability of technical manpower, etc., are factored in while evaluating the management risk. Furthermore, the transmission projects which have economic/strategic significance such as inter-state and intra-state projects being executed with the support of central and state government, respectively, are analysed for the various linkages in the project SPV and central government or respective state government.

Detailed note on evaluation of management risk: Refer to CARE Ratings' Rating Methodology - Manufacturing Companies on our website www.careedge.in.

Operational risk

While evaluating the operational transmission project, CARE Ratings focuses on the following broad parameters. The detailed description of each of the following parameters is presented below.

- **Demand and supply risk**

  The transmission projects are protected from the demand risk as the arrangement between the project developer and the beneficiary is regulated by a long-term agreement, namely, 'Transmission Service Arrangement' (TSA). The annual fixed charge is billed to the beneficiary as a fee for the usage of transmission line as per TSA, given that the line availability is maintained by the project developer. A TSA is usually for the long term and provides the revenue visibility of the project subject to maintenance of operational parameters.

- **Operation and maintenance risk**

  The transmission projects are required to be maintained by the project developer from the general wear and tear over the life of the project. The revenues of transmission projects are linked to the annual availability of transmission line and CERC has prescribed normative annual transmission line availability of 98.00%. Furthermore, the projects shall be eligible for incentive if line availability remains above 98.50% and no incentive will be payable for line availability beyond 99.75%. The operations and maintenance (O&M) costs of a transmission project generally do not constitute a substantial portion of cash outflow. However, repeated breakdowns in the transmission line can increase the O&M costs of a project and impact the recovery of annual fixed charge (including penalty, if applicable) if annual availability remains below the normative availability. CARE Ratings evaluates the nature of the O&M contract for maintaining transmission networks.

The projects with a higher rating are likely to absorb escalation in O&M expenses without any adverse impact on their debt-servicing ability.

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- **Risk related to natural calamities and contingency plan**
  Transmission assets have a long life of 30-35 years, which usually exceeds the loan tenure. While breakdowns are rare, assets located in the hilly terrain, flood and cyclone-affected areas are prone to natural calamities, which can temporarily impact the cash flows of the project. The projects are analysed for the backup plans to restore the connectivity, insurance cover to protect the returns, financial health of O&M contractor, track record of execution of O&M for transmission projects, liquidity cushion available with the SPV (mainly debt service reserve account [DSRA] balance) and financial health of the parent company. Furthermore, if such natural calamity or any other event as mentioned in TSA is classified as force majeure event according to TSA, the available relief to the SPV for such event is also considered while analysing its performance. However, in case where such force majeure claim is in litigation or final output is pending, the likely impact of the event is sensitised on the cash flows of the company.

- **Counterparty credit risk**
  CARE Ratings while evaluating the credit profile of a transmission project, analyses the periodical payment track record and credit profile of the beneficiary. The transmission projects, for the analysis of counterparty credit risk, can be broadly divided in to projects covered under PoC mechanism and those which are standalone intra-state transmission lines.

Projects covered under PoC mechanism
Under the PoC mechanism, all ISTS licensees have to share the monthly collections arising from ISTS charges. CTUIL has been entrusted with the responsibility of billing all ISTS customers on behalf of all ISTS licensees and disburse the collections among all ISTS licensees according to the executed TSA and Revenue Sharing Agreement (RSA) with ISTS licensees and ISTS customers, respectively. In this way, the ISTS projects are not directly exposed to the counterparty risk as the collection role is being played by CTUIL. Furthermore, the risk of non-payment of dues from any single project is borne by all the ISTS licensees in the proportion to their share in the revenue pool thereby diversifying counterparty credit risk. The ISTS projects with the PoC mechanism are placed better as compared to the transmission projects under state regulation as indicated by high collection efficiency of more than 98% for the pool and low receivable days of around 60 days for the past three years.

Standalone intra-state transmission lines
The intra-state transmission projects are exposed to the counterparty credit risk given the beneficiaries of the projects are state distribution companies (DISCOMs). The state projects are analysed for the financial position of the state DISCOM, track record of state DISCOM's payment to the SPV, timely filing of tariff petition and issuance of tariff order from SERC, regulatory environment of the state and timely payment of subsidy by state government to DISCOM. As a payment security, the receivables are backed by revolving letter of credit opened by Long Term Transmission Customer (LTTC) in favour of transmission licensee equivalent to one month of billing, which mitigates the counter party risk to some extent in intra state transmission projects. Furthermore, as per the provisions, the transmission licensee shall have the right to regulate the power in case of non-payment of dues by the beneficiary.

Financial risk
The main parameters of financial risk analysis of transmission projects:

- Financial structure and leverage

- Recovery of annual fixed cost (AFC) and cash flow adequacy
- O&M cost and interest rate risk
- Debt service coverage ratio (DSCR)
- Trust & retention account (TRA) and DSRA
- Tail period

Financial structure and leverage

Under financial structure and leverage, CARE Ratings analyses the financial structure of the transmission project, debt and equity funding of the transaction and overall leverage of the project. The transmission projects are capital intensive and generally funded in D:E of 70:30 leading to high leverage. Conventionally, lower overall gearing is seen positively but the transmission projects with stable and predictable cash flow with longer repayment periods tend to mitigate the high gearing to an extent. Furthermore, the foreign exchange variation risk is also assessed for projects with un-hedged exposure to project debt raised in foreign currency. CARE Ratings also evaluates the quantum of capital creditors pending for settlement for a long time, any large contingent liabilities and disputes and the financial impact in case of any unfavourable event triggering the payments.

Recovery of annual fixed cost and cash flow adequacy

The recovery of annual fixed cost (AFC) of transmission project, which consists of return on equity, depreciation, interest on loan capital, interest on working capital and O&M expense, is linked to the line availability and not subject to the usage of transmission system. If the licensee is able to maintain the line availability of above 98.00%, full AFC is recoverable. Furthermore, the licensee is entitled to get incentive if line availability remains above 98.50%. CARE Ratings analyses the track record of the licensee in maintaining the line availability. In a transmission project, the cash flow adequacy is certain given the long-term TSA is signed between the licensee and beneficiary and line availability is maintained above the normative level. Furthermore, the licensees incur nominal expense on the O&M of the transmission system. While evaluating the financial profile of a transmission project, the adequacy of project cash flows is estimated vis-à-vis repayment obligations.

Debt service coverage ratio

The transmission projects can sustain on the lower debt service coverage ratio (DSCR) given the certainty attached to the cash flows of the project. The revenue stream is fixed based on the TSA signed between the beneficiary and licensee and is not subject to the usage of the transmission system. The transmission projects with the lower DSCR can also fetch a better credit profile unlike manufacturing set ups or any other project where the cushion in DSCR needs to be plentiful.

For projects exposed to refinancing risk, CARE also analyses the project life coverage ratio (PLCR) which provides a sense of refinancing ability of the transmission asset.

DSRA and TRA/escrow mechanism

CARE Ratings while evaluating the financial risk of a transmission project also derives comfort from the presence of DSRA for the servicing of interest and principal obligations. DSRA can aid the project in exigencies, such as lower line availability due to issue in transmission system, damage to the transmission system due to natural calamities, delay in the receipt of payment from beneficiary, etc. The presence of DSRA lends comfort and enhances the liquidity profile of the transmission project. CARE Ratings also derives comfort from the TRA mechanism under which the cash flows arising from the transmission project are routed through TRA account and applied as per the waterfall mechanism. Excess cash flows after payment of statutory dues, O&M expenses and interest & principal repayments are invested in the permitted investments as per the provision of TRA. The presence of TRA/escrow mechanism prevents the diversion of funds outside the project and is considered as credit positive.

O&M cost and interest rate risk

The projects are analysed for the exposure to variability in the O&M cost and interest rate. The O&M cost of a transmission project are nominal though variability in the cost in absence of a fixed price cost can impact the profitability going forward. The projects with fixed-price O&M contracts are placed better as compared to otherwise. Furthermore, the interest cost being the major component on a cash basis, any uptick in the interest rates can impact the overall debt service ability of a project. Any adverse movement in the interest cost of project vis-à-vis fixed revenue streams (under TBCB route) can substantially lower the project returns.

Tail period

Tail period is defined as the period left after the completion of repayment of sanctioned project debt till the maturity of TSA. The transmission projects generally have longer tail period which provide the cushion for any contingencies. The longer tail period helps the transmission license in easy refinancing of project debt at competitive rates with elongated repayment schedules.

Environment, Social, Governance (ESG) risks

Transmission projects have moderate Environmental and Social (E&S) risks, especially prominent during construction. In the past, overhead transmission lines have been known to cause harm to wildlife species through bird strike casualties and disturbances to animal habitats from electro-magnetic radiation. Hence, environmental risk at certain geographies may be significant.

Effective management of social risk through the smooth settlement of discord with locals during land acquisition is factored in the analysis. CARE Ratings also assesses the composition of the Board of Directors of the transmission project developer, the level of compliance with various policies, the quality of financial reporting and the adequacy in disclosure from the perspective of corporate governance.

Conclusion

The rating outcome is ultimately an assessment of the fundamentals and the probabilities of change in the fundamentals. CARE Ratings analyses each of the above factors and their linkages to arrive at the overall assessment of credit quality of the issuer. In the under-implementation projects, the project risk assessment is given higher importance, whereas in the operational projects, the risk assessment is primarily focused on availability of cash flows vis-à-vis debt service obligations and counterparty credit risk. While the methodology encompasses comprehensive technical, financial, commercial, economic and management analysis, credit rating is an overall assessment of all aspects of the issuer.

[For previous version please refer 'Rating Methodology – Power Transmission Projects' issued in September 2020**]**

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