Rating Methodology – Power Transmission Projects

[Issued in September 2020]

Industry Overview

Power Transmission is the key link in the overall power sector value chain. Power transmission aims at evacuating power from power generating units which are spread across the country and supplying to various distribution entities, which in turn supply power to end-consumers.

There has been a consistent increase in transmission capacity in the country over the decades with length of transmission lines increasing from 170,800 circuit kilometer (ckm) in 1991 to 427,410 ckm as on July 31, 2020. The transformation capacity stood at 979,063 Mega Volt Ampere (MVA) as on July 31, 2020.

The Government has launched various projects to strengthen the existing transmission network and increase inter-regional transfer capacity. 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).

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.

Power Grid Corporation of India Limited (PGCIL), incorporated in October 1989, is the Central Transmission Utility (CTU) of the country accountable for planning, implementation, operation and maintenance of high-voltage Inter State Transmission System (ISTS). It owns and operates most of India's inter regional and Inter State Transmission System (ISTS) and wheels more than 45% of the total power generated across India. Apart from this, Government of India is also promoting the private sector participation in power transmission space with a view to rapidly enhance the power transmission capacity. All future projects are awarded through Tariff-Based Competitive Bidding (TBCB) route with exception only made in case of implementation of certain strategic and high technology projects which are awarded to PGCIL on nomination basis.

Rating Methodology

While analyzing the power transmission projects, CARE focuses on evaluating the following broad parameters for arriving at the rating:

- Project Risk
- Industry Risk
- Management Risk
- Operational Risk
- Financial Risk

Project Risk

For analyzing the risk in the under implementation projects, CARE 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 clearance, 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 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. Pricing risk associated with transmission projects is evaluated with assessment of cost plus tariff or tariff-based competitive bidding (TBCB) and approval of the same by Central Electricity Regulatory Commission (CERC).

Another important parameter under pre-construction stage is the tie-up of finances for the project. The tie-up is not only limited to debt but also includes equity/sponsor contribution. 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 EPC contractor and past experience of the promoter in executing similar kinds of projects. The projects located in hilly areas with the difficult terrain are generally more prone to construction risk vis-à-vis projects which are located in the plains. Furthermore, the financial strength of EPC contractors coupled with a 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 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 arrangements of finances in cases of increase in the project cost due to contingencies.

However, as power 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 stabilization 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 SPVs with PoC mechanism, the time taken to stabilise is shorter.

Industry Risk

The transmission industry is a highly regulated industry wherein the tariff is determined by the CERC for inter-state transmission projects and 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). 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 a process called 'Tariff Based Competitive Bidding (TBCB)'. Under the TBCB mechanism, the bidder specifies a fixed amount as the fee to be paid by the beneficiary for the utilization of the transmission line. The credit profile of 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 at the 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 interstate and intrastate projects being executed with the support of central and state government, respectively, are analyzed 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's Rating Methodology- Manufacturing Companies on our website www.careratings.com .**

Operational Risk

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

- Demand and supply risk

- Operations & Maintenance (O&M) risk
- Risk related to natural calamities and contingency plan
- Counterparty credit risk

➢ **Demand and supply risk**

The transmission projects are protected from 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. On the supply side, the risk is low, as the possibility of coming up of the additional line on the same transmission network is negligible. Furthermore, given the industry scenario of demand outstripping the supply, the need for additional transmission lines exists and it does not possess any demand risk to the existing lines.

➢ **O&M 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 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 also impact the recovery of annual fixed charge if annual availability remains below the normative availability. CARE evaluates the nature of the O&M contract for maintaining transmission networks. Projects with a higher rating are likely to absorb escalation in O&M expenses without any adverse impact on their debt-servicing ability.

➢ **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, strong wind and cyclone-hit areas are prone to natural calamities which can temporarily impact the cash flows of the project. The projects are analyzed for the backup plans to restore the connectivity, insurance cover to protect the returns, financial health of O&M contractor, past track record of execution of O&M for transmission projects, liquidity cushion available with the SPV (mainly DSRA balance) and financial health of the parent company. Further, 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 analyzing its performance. However, where such force majeure claim is in litigation or final output is pending, the likely impact of the event is sensitized on the cash flows of the company.

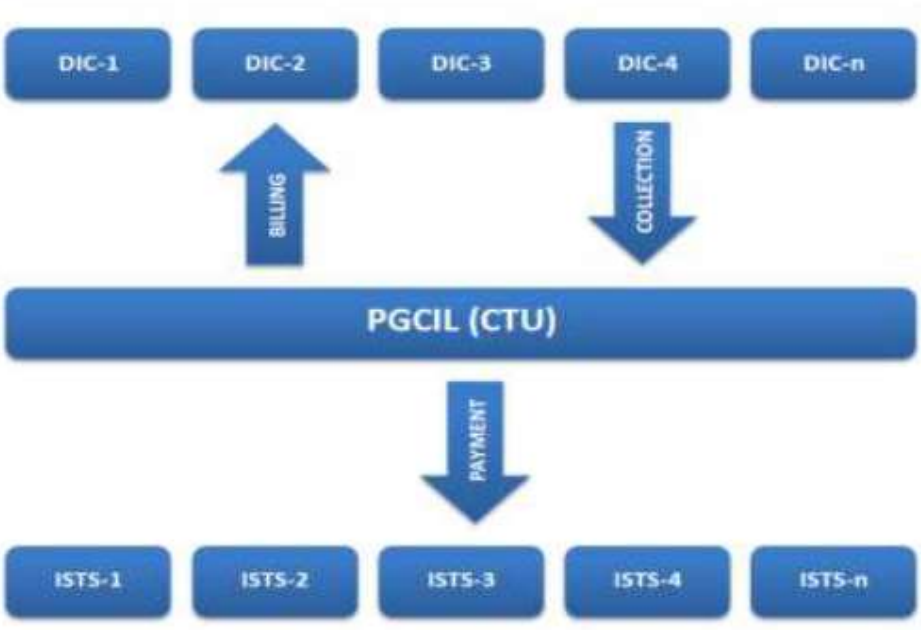
➢ **Counterparty credit risk**

CARE while evaluating the credit profile of a transmission project, analyzes the periodical payment track record and credit profile of the beneficiary. The transmission projects, for the analysis of counterparty credit risk, can be divided broadly as projects covered under Point of Connection (PoC) mechanism and projects which are standalone intrastate transmission lines.

❖ **Projects covered under PoC mechanism**

Under the PoC mechanism, all ISTS licensees have to share the monthly collections arising from ISTS charges. PGCIL being the CTU 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. It is also responsible for signing of TSA & 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 CTU. Furthermore, the risk of nonpayment 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 transmission projects under state regulation as indicated by high collection efficiency of around 99% for the pool managed by PGCIL and low receivable days of around 40 days for the past six years.

A graphical representation of PoC Mechanism



***ISTS**: Inter-State Transmission System, **DIC**: Designated ISTS Customer, **CTU**: Central Transmission Utility*

❖ **Standalone intrastate transmission lines**

The intra state transmission projects are exposed to the counterparty credit risk given the beneficiaries of the projects are state DISCOMs. The state projects are analyzed for the financial position of the state DISCOM, track record of state DISCOM's payment to the SPV, timely filing of tariff petition & 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 favor of transmission licensee equivalent to one month of billing which mitigates the counter party risk to some extent in intra state transmission projects. Further, 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 & Leverage
- Recovery of Annual Fixed Cost (AFC) & Cash Flow Adequacy
- O&M cost & Interest rate risk
- Debt Service Coverage Ratio (DSCR)
- Trust & Retention Account (TRA) and Debt Service Reserve Account (DSRA)
- Tail period

➢ **Financial structure & leverage**

Under financial structure and leverage, CARE analyzes 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 transmission projects with stable & 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.

➢ **Recovery of Annual Fixed Cost (AFC) & cash flow adequacy**

The recovery of annual fixed cost of transmission project which consist 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. Further, the licensee is entitled to get incentive, if line availability remains above 98.50%. CARE analyzes the past 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 normative level. Further, 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 (DSCR)**

The transmission projects can sustain on the lower debt service coverage ratio 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.

- **DSRA & TRA/escrow mechanism**

CARE while evaluating the financial risk of a transmission project also derives comfort from the presence of Debt Service Reserve Account (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 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 & interest rate risk**

The projects are analyzed for the exposure to variability in O&M cost and interest rate. The O&M costs of a transmission project are nominal though variability in the cost in absence of a fixedprice cost can impact the profitability going forward. The projects with fixed-price O&M contracts are placed better as compared to otherwise. Further, 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 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.

Conclusion

The rating outcome is ultimately an assessment of the fundamentals and the probabilities of change in the fundamentals. CARE Ratings analyzes 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 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 August 2019]

CARE Ratings Limited
4th Floor, Godrej Coliseum, Somaiya Hospital Road,
Off Eastern Express Highway, Sion (East), Mumbai - 400 022.
Tel: +91-22-6754 3456, Fax: +91-22- 6754 3457, E-mail: care@careratings.com