

Rating Methodology: Wind Power Projects

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India's energy sector holds the key to the country achieving much of its development goals. The government's policy thrust on promoting renewable energy has become imperative due to rapid urbanization and industrialization - thus expanding the share of renewable sources in its energy supply mix. A major trigger for the renewable energy push has been rising environment concerns/climate change and depleting fossil fuels.

In 2014, Government of India (GoI) set an ambitious target of reaching 60 GW of wind capacity by 2022 against which total installed wind power capacity stood at 37.83 GW as on June 30, 2020. India has made tremendous progress in the recent past in developing a renewable energy-led power generation eco-system. After promising significant growth in wind capacity addition in FY17, there had been decline in wind capacity additions during FY18 to FY20.

Wind power projects are capital intensive in nature and for funding them, recourse to publicly issued debt would be necessary. CARE Ratings has developed a rating methodology for debt issues of wind power project developers. The rating procedure is designed to facilitate appropriate credit risk assessment, keeping in view the characteristics of the Indian wind power sector. CARE's rating looks at a time horizon over the life of the debt instrument being rated and covers the following areas while rating wind power projects.

Evaluation of promoter group & management team

Promoter group

The promoter groups can be broadly classified under the following categories based on their motives, viz., companies which invest in wind projects looking at the tax incentives, Large Independent Power Producers (IPPs) backed by either Indian/global corporate house or strong private equity players which were attracted by expectation of good IRRs & government thrust, captive power producers who have requirement for large consumption of power and were finding the cost of power from Discoms to be very high. Out of these different sets of the promoters, CARE considers the one whose main area of business is wind projects as better placed compared to the others because their understanding of various risk factors, the ability to deal with them & long-term commitment to the project would be far better compared to the others.

In evaluation of the promoter group, CARE also gives due consideration to the total installed & under-implementation capacity of the group in wind sector along-with number of years'

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experience of the promoter group in the wind sector in India and/or abroad. Furthermore, well spread out distribution of the total capacity of the group across different geographies in India is favorably factored in. The promoter groups who have technical expertise, EPC capabilities and in-house Operations & Maintenance (O & M) capabilities are considered superior compared to the others.

Financial health of the promoter group along-with its prior stance of supporting the projects of the group are central factors for rating. CARE also looks at the policy of the promoters to maintain some liquidity buffers at the flagship company level so that any immediate requirement at any Special Purpose Vehicle (SPV) level can be met in a timely manner. Also, past track record of the promoter group in handling various aspects of wind project are duly considered while rating of the project.

Management team: [Refer to CARE's Rating Methodology - Manufacturing companies](#)

Evaluation of project risk parameters

Availability of land and requisite approvals

Land acquisition & related approvals are considered to be very critical for timely implementation of wind power project as this activity usually takes maximum time in the entire implementation schedule of the wind power project. Government Wind parks offer a plug and play model with availability of land, shared infrastructure and all the related approvals. Accordingly, a wind power project being implemented in a Government Wind park faces relatively low level of risks related to land acquisition & related approvals as these risks are borne by the wind park developer. For projects outside wind parks, usually IPPs delegate the work of land acquisition to EPC players due to their local connects and expertise in land acquisition. Accordingly, in such cases, terms of EPC contracts should be critically verified w.r.to obligations of EPC players for timely acquiring requisite area of land.

Considering the challenges in land acquisition, some off-takers have started to build-in land acquisition timelines in PPAs. In such cases, timely land acquisition would become more critical as any delay beyond the defined timelines could result in reduction in tariff or cancellation of PPAs or curtailment of awarded capacity.

Location of the project, Power generation potential & Quality of resource assessment study

Level of wind speed and other climatic and geographical factors including but not limited to areas prone to flood, cyclone, heavy rains, storms etc. play an important role in determining the viability of a site for a wind power project. Wind speed has direct correlation to total electricity generation potential of a specific area and hence is of paramount importance for selecting a location. For estimation of the expected power generation of a site, CARE relies on the report of an external agency hired by the project company for conducting Wind Resource Assessment (WRA) study. Agency conducting WRA study normally provides power generation estimates for the given site at three probability of confidence levels, viz., P-50, P-75 & P-90, whereby P-90 level is considered to be most likely estimate. For completed projects, CARE takes actual generation vis-à-vis projected generation to gauge the deviations (if any) and the same is built into the projections as well. CARE considers P-90 level of power generation for its base case analysis of a project.

Technology, EPC contractors & quality of contracts

Wind turbine (which consists of three main parts viz. blades, shaft & generator) is the critical component of a wind power project and it is quite an established technology when compared with solar power project. However, we have seen continuous technology up-gradation in wind turbines also. Latest wind turbines with higher hub height and rotor diameter have claimed relatively high power generation compared to the earlier ones. With a rapidly evolving technology, it is challenging to ascertain the performance of a newer technology as the risk of equipment failure and power generation potential is not known. Accordingly, lack of information about performance of the technology in a given condition is one of the key risk factors for a wind power project which constrains the rating. In cases where project is being implemented through EPC contractors, CARE critically analyses the terms of the EPC contract to understand the obligations of the EPC contractor for timely completion of the project and LD clauses for any delay in completion of the project.

Evacuation infrastructure

Transmission line availability and access risk is high for renewable energy especially with wind and solar projects compared to traditional power projects because of site specific and intermittent generation pattern of these resources. Pace of expansion in transmission infrastructure is lagging compared to faster pace of wind capacity addition in India. Any delay in the construction of transmission infrastructure causes the plant to remain idle despite becoming mechanically complete. Accordingly, CARE analyses the availability of evacuation

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infrastructure and in case of under-development transmission line, it verifies the timelines for completion of line vis-à-vis projects' SCOD.

Timelines for completion of the project as per PPA and damages for delay in completion

Timeline for completing a wind project ranges from 12-18 months. In case of PPA with State Discom, timeline for completion of wind power project is predefined. Delays in project completion could result in penalties ranging from monetary penalties/ Performance Bank Guarantee (PBG) invocation to reduction in tariff and cancellation as stipulated in the PPA. Accordingly, for under construction projects, CARE critically analyses the current status of the project vis-à-vis envisaged completion timelines, chances for delay in completion of the project and its consequences as per the PPA.

Financial Closure

For timely completion of the project, timely financial closure is positively considered by CARE. In financial closure, CARE critically evaluates the status of infusion of promoter funds, status of debt tie-up, pre-disbursement conditions and critical covenants of tied-up debt (viz., interest rate, moratorium period, repayment period, structuring of repayments, cash flow waterfall mechanism, TRA, subordination of promoter's contribution infused in other than equity form, DSRA creation & maintenance, etc.).

Innovative concepts

Over the last few years, GOI has announced few innovative concepts in the wind power sector like solar-wind hybrid projects, off-shore wind projects and round the clock supply. Both these projects are new in Indian conditions and are expected to exhibit higher amount of risks with few unknown risk factors compared to a normal wind power project.

Credit ratings of the wind power projects critically factor promoter group & above-said project risks when it is at the project stage. However, once it becomes operational, weightage to promoter group is relatively on the lower side as it being an infrastructure project which is financed without any recourse to the promoter group. Accordingly, for an operational wind project, higher weightage is given to the quality of the asset.

Evaluation of project operations / Business risk

O&M contractor and quality of O&M contract

Due to few moving parts in wind turbines, proper O&M is critical for sustained power generation from the project. Also, power generation from the wind power project is highly

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concentrated in few months only whereby proper availability of the plant is critical. CARE has observed that O&M costs for wind power projects are not very significant and exhibit little variations. O&M activities can either be undertaken in-house or can be outsourced to an O&M contractor. O&M-related risks would be mitigated to an extent if the O&M is carried in-house as it provides adequate control and check to the developer. In case, O&M activities are being carried out by a contractor, CARE examines the key terms of O&M contract.

Operating performance of the plant

Wind power projects post-completion normally requires some stabilization period and during this period the performance is observed to be sub-optimal till weeding out initial teething problems. For a stabilized project, CARE evaluates the trend of actual CUF vis-à-vis P-90 level estimates as per the WRA study to understand future performance of the project. Electricity generation through wind power is also subject to seasonal variations, i.e., wind generation usually peaks in monsoons and bottoms during the other seasons; accordingly, there would be no linearity in power generation by a wind project during the year.

Evaluation of off-taker risk viz. PPA - tenure, quantum, renewal, pricing

Tenure, quantum and renewal: Off-take or market risk is mitigated in wind power project to a large extent by entering into a long-term PPA. In case off-taker is state Discoms / central agency like SECI / NTPC / NRVN, PPA is executed for a period of 20-25 years whereas in case of third-party off-taker, PPA is executed for a period of 3-15 years. Upfront execution of PPA for the life of the project is considered positively by CARE as it largely eliminates the sales risk and renewal risk. Also, tenor of PPA should ideally correspond with the tenor of debt. Ideally there should be minimal exit options in the PPA so that sanctity of PPA is maintained with low renewal risk.

Pricing: PPA signed with state Discom / central agency is mostly at a fixed tariff for the entire tenor of PPA, whereas in case of a private party off-taker, the tariff is either linked to some existing market rates or at fixed tariffs. Fixed tariff structure provides better predictability to the revenue stream of the company. Any renegotiation in tariff structure for the concluded PPA leads to reassessment of the debt servicing capability of the project.

Evaluation of Off-taker risk- Quality of Off-taker, diversification and payment track record

Quality of off-taker & diversification: Counter party risk could significantly impact the credit quality of the project as there is long-term tie-up of the project with off-taker with minimal chances to move out of it. Accordingly, off-taker plays a critical role in arriving at the rating for the project. Off-taker are broadly classified into two categories, viz., State Discoms/

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Central agencies and third-party off-takers. Predicting the quality and behavior of off-taker for a reasonably long period of time as long as up to next 20-25 years is very difficult. Although for assessing the quality of first category of off-taker, CARE relies on the past financial performance of off-taker, their credit rating, past payment track record, health of respective state government, structural issues (if any) with the off-taker, movement in the level of AT & C losses over a period of time, trend of tariff revision, trend of regulatory approval systems, quality of actual customer base, their past stance of honoring PPA commitments, etc. In case of assessing the quality of third party off-taker, CARE relies on the business fundamentals of the entity, their credit rating, analysis of past performance, market standing, expected performance of the industry in which the entity operates, etc. CARE considers contractual sales agreement with multiple off-takers as a better proposition in general when compared to a single off-taker as it provides benefits of diversification.

Payment track record: Apart from analyzing fundamental credit quality of the off-taker, CARE also analyses the payment track record of the off-taker and attaches due weightage for timely payment track record of the off-taker. For an operational project, CARE analyzes the monthly billing & payment track record since commissioning of the project. Barring a few state Discoms & central agencies, majority of the state Discoms in India have a weak financial profile and they demonstrate delayed payment track record for varying period of delays which typically constrain the rating for a project.

Evaluation of financial risk & credit enhancements

Revenue & Profitability

CARE considers P-90 level generation to frame the base case projected revenue from the project. For an operational wind project, real cost structure is O&M cost & finance cost. O&M costs are very marginal for a wind project leading to very high PBILDT margin. Debt tie-ups for a wind project are usually at floating interest rates and accordingly, finance cost could vary depending upon the interest rate movement. Depreciation would vary depending upon the policy adopted by the company. Accordingly, CARE critically looks at the cash accruals from the project while analyzing the project's debt repaying ability.

Leverage

As a normal trend, wind projects are financed at a debt equity ratio of 75:25. For an operational project, capital structure of the company would depend more on the depreciation policy adopted by it apart from its revenue generation potential. Accordingly, capital

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structure of the company is seen in consonance with its depreciation policy. Furthermore, CARE also looks at the total debt / PBILDT to nullify the effect of depreciation.

Debt Service Coverage Ratio (DSCR)

CARE considers DSCR as one of the critical ratios to assess the relative debt servicing capability of the project as it largely captures all the critical aspects of the project. CARE analyzes average DSCR for the tenure of the debt, minimum DSCR during the tenure of the debt and DSCR during the next three to five years while analyzing the debt repaying capability of the developer. CARE also sensitizes the base case DSCR for the key variables of the project like CUF, tariff rates, finance cost, payment delay from off-taker, etc.

Liquidity Back-ups

As power generation from a wind project is seasonal in nature & there exists counter party delayed payment risk, CARE considers that adequate liquidity back-up as an important rating consideration as debt repayments are normally evenly spread out (monthly/quarterly basis). The higher the delay by the counter party, the greater the liquidity buffer the developer needs to maintain to curtail the off-taker payment risk. For a wind project, liquidity back-ups are created primarily in the form of DSRA which cover 1-2 quarters debt repayment obligations in the form of FD / bank guarantee / working capital limits.

Refinancing risk

Loan from banks / FIs for financing of a wind project are available for a tenor of maximum up to 17-18 years which largely corresponds to the project life with some residual tail period whereby there would be largely no refinancing risk. However, when a wind project is funded by some loans and/or capital market instruments for a tenor of say 3 / 5 / 7 / 10 years, it is exposed to the refinancing risk for varying degree. Any project exposed to refinancing risk is considered negatively by CARE however the extent of its impact on the credit profile would differ on a case to case basis.

Evaluation of regulatory risks

Apart from various regulatory aspects, CARE critically looks at the following evolving aspects while rating a wind power project as regulatory environment is also evolving;

- Any differences in the central vs. state policy w.r.to allocation of land for a wind project

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- Honoring of the executed PPAs by the off-takers; few instances of state Discoms asking for renegotiation of tariff in concluded PPAs have been observed. Any renegotiation of PPA tariff rate or tenure of PPA could materially change the project dynamics and its debt servicing capability
- Levy of wheeling and banking charges on wind power project by few states
- Cancellation of concluded wind project auctions
- Adherence to laid down Renewable Purchase Obligation (RPO) compliance norms by the states
- Delay in availability of evacuation infrastructure for under implementation projects, inadequate capacity of sub-stations leading to power curtailment issues once the project is operational.

[For previous version please refer 'Rating Methodology – Wind Power Projects' issued in [August 2019](#)]

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