BUSINESS BRIEFING

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Mitigating Wind Availability Risk in Wind Turbine Projects

How an Innovative Financial Product Can Increase Return on Equity

As the wind energy industry continues to mature, developers of offshore and onshore wind turbine farms are faced with unique project financing challenges. Heightened competition and market awareness are prompting new strategies to optimize wind project economics. This has led to a number of innovations in technology and financial planning, bringing to the industry an entirely new level of sophistication. However, even the latest advancements fail to overcome a major barrier to wind turbine project development: mitigating investor risk caused by the variations in annual wind availability.

BARRIERS AND MITIGANTS TO OBTAINING CAPITAL RESOURCES

Proper risk allocation and mitigation are fundamental concerns for wind developers seeking to secure project funding. In a typical wind project, there are common barriers to accessing capital resources, such as the availability of "financeable" offtaker agreements, construction cost over-runs, long-term reliability of turbines, and the risk of wind-bearing ability.

For several of these barriers, viable mitigants currently exist to address the respective risks. For example, the terms of offtaker agreements must be fully committed before a project can obtain financing. Developers can obtain guaranteed maximum fixed-price construction contracts or possibly secure a performance surety bond to guard against the risk of construction cost over-runs. Similarly, to assure wind turbine performance, the wind energy marketplace offers manufacturer warranties and operating maintenance guarantees. Unfortunately, because of wind variability, there is no industry-adopted mitigant that will protect lenders and investors against the absence of adequate wind availability in a given year.

THE POWER OF WIND AVAILABILITY

Wind availability is literally the driving force behind successful wind energy projects. Simply put, the wind powers the turbines, and the greater the wind, the greater the electricity that is manufactured. In turn, the more power that a wind farm can produce, the more revenues it will generate. Using this simple formula, it is easy to understand why wind availability is the key assumption utilized in financial models to project annual cash flows. When investors and lenders review the financial model, wind-bearing ability determines the amount of capital they will commit to a given project.

To decide which wind availability assumption will be used in the financial model, investors rely on a wind availability study. This study is typically conducted by an independent engineering firm. The analysis is an imperfect science, since by its very nature, the wind will vary from year to year; therefore, engineers calculate the probabilities of various annual wind availability that might occur at a given turbine site. Unfortunately, the projected variation in wind availability leads to potential variability in cash flows. Conversely, investors – particularly banks – require certainty in cash flows for each year of the investment term.

Investors and lenders need to confirm that future cash flows are sufficient and predictable. As a result, investors and lenders will require a selection of a very conservative annual wind availability assumption for financial models. Typically, this falls in a “P-90” or “probability of 90% certainty” of wind availability in a given year, which is a very low wind assumption. For purposes of generating the financial model, a P-90 benchmark results in smaller annual projected cash flows which lead to a smaller senior loan. With a smaller senior loan, the wind developer will need to obtain a more expensive equity or mezzanine debt. Overall capital costs will be higher, and there will be lower returns on the wind developer’s equity.

Even with a conservative wind availability assumption of P-90, the underlying concerns about the potential risk of wind availability lead to higher interest rates spread by senior lenders, debt service reserve requirements, and tougher loan-to-value ratios. Without a viable solution to mitigate the perceived risks, wind developers’ efforts to secure project financing can become stymied.

The impact of this dilemma on the wind energy industry is even more far-reaching. According to Godfrey Chua, Principal Analyst at Emerging Energy Research LLC, "Power production intermittency is a fundamental challenge to wind power, as well as a source of many misconceptions that have led to questions about the viability of wind as a large-scale electricity source. A wind risk mitigation product would go a long way towards addressing wind availability concerns and allaying user and investor fears. It would also help to improve the overall economics of a project.“

BREAKING THE BARRIER FOR WIND AVAILABILITY

There are several wind risk mitigation products on the market today, including wind insurance and various types of hedge products such as swaps, caps and collars. In general, most of these solutions are not being used for two reasons. First, the term for these products is usually too short, commonly five years or less, while the terms of the financings are usually 12 years or more.

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Secondly, the costs for these products are typically high, but the payoffs are inadequate and do not address the specific needs of particular investors.

What if a wind developer could count on a mitigation product to guaranty a less conservative wind availability assumption of P-60, i.e., a probability of 60% certainty of wind availability in a given year? A well-designed wind risk mitigation solution would eliminate lender and investor concern about the risk of wind intermittency, create larger senior loans, and provide wind developers with a higher equity return. In short, a P-60 wind availability benchmark would overcome the most complex barrier to wind project financing and suit the needs of the power utility market.

Wind energy analysts concur. Emerging Energy Research LLC reports that utilities are demanding ever higher levels of efficiency and production forecast accuracy from wind-based independent power producers (W-IPP). Consequently, a wind risk mitigation product is reliable protection for the power production guarantees increasingly sought by purchasing utilities. Using a P-60 wind availability assumption in financial models would facilitate the development of renewable energy initiatives.

A WARM™ WINDFALL

A P-60 wind availability assumption is achievable through the innovative Wind Availability Risk Mitigation (WARM)™ Liquidity Facility developed by the Energy and Finance Practice Groups at Brown Rudnick Berlack Israels LLP. A premier international law firm, Brown Rudnick is actively involved in wind turbine projects in the US and across Europe. Combining their expertise in structured finance and renewable energy matters, the Energy and Finance teams collaborated to develop WARM as a way to meet the needs of their renewable energy clients.

Brown Rudnick's WARM solution is a financial product designed to mitigate investor risk arising from the potential variability of annual wind availability at wind energy projects. WARM protects investors and lenders against wind shortfalls by providing a compensating payment during any year keyed to their expected returns when the wind availability for a given wind turbine site is less than the benchmark P-60 assumption used in the financial model. Under the WARM solution, the payments would be underwritten by an investment grade credit financial institution. The term of the Wind Risk Mitigation product would extend beyond the current industry standard of five years, and would have an annual premium keyed to the overall investment amount, which is estimated to be in the range of 10-30 basis points.

The benefits of Brown Rudnick's Wind Risk Mitigation solution are many. WARM would:

- eliminate lender and investor concern about the risk of wind intermittency;
- permit a less conservative wind availability assumption to be used in financial models;
- lower overall capital costs;
- create a larger senior loan and a higher equity return for wind developers;
- increase the pool of lenders and investors interested in providing capital to wind projects;
- facilitate the development of renewable energy initiatives.

Chua has reviewed the WARM concept and concludes, "Brown Rudnick's solution allows developers to guarantee that they use a wind availability assumption of P-60 in financial models. Including a P-60 assumption in financial models will generate higher annual cash flows and will enable lenders and investors to support higher number of capital to wind turbine projects."

POWERING THE FUTURE OF WIND PROJECTS

The wind energy industry is poised to experience exponential growth by the end of the decade. Although there will be new obstacles that wind developers will face in the coming years, with wind risk mitigants, such as Brown Rudnick's WARM solution, wind energy projects will continue to be seen as viable and attractive investments.

For more information, please contact your Brown Rudnick attorney or the following member of the Brown Rudnick Energy Team:

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