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Proper contingency planning for weather, materials delivery, and equipment failure can help contractors minimize risks and meet construction deadlines.

AMONG THE MANY RESPONSIBILITIES of the wind energy project balance of plant (BOP) contractor, few are as important as risk management. The BOP contractor's two most important jobs are to make sure that construction is sufficiently complete to accept turbine deliveries when they occur, and that the turbines are erected in time to meet the owner's commercial operation date (COD). Failing to accomplish these tasks could result in improper management of controllable risks. Contingency planning is the key to managing major project risks and ensuring project success.

BOP contractors succeed in risk management by including contingency planning in their overall planning process. They analyze the major project risks and prepare contingency plans for dealing with these risks in a way that leads to overall project success.

On wind projects, there are major risks that are present on all projects and for which the BOP must plan. For example:

- Abnormally severe weather (rain, snow, and wind).
- Changes to wind turbine component delivery schedule.
- Mechanical failures of major equipment (main erection crane).

ABNORMALLY SEVERE WEATHER

BOP contractors must be familiar with likely weather conditions for the time and place of construction. They must schedule time in the construction schedule to deal with such conditions. However, because wind farm construction depends heavily on the transportation of materials and equipment on weather-vulnerable project roads, the BOP contractor must prepare to deal with inclement weather to permit the project schedule to be maintained in all but the most severe conditions:

1. Rain/snow — Excessive rain and/or snow impacts the movement of equipment and materials and can threaten important deadlines. The contractor must have plans ready to deal with unexpected weather conditions. Examples of such plans are: additional equipment and materials to strengthen and improve access roads; additional road and foundation construction crews to make up lost time; and in extreme cases, additional turbine erection equipment and crews to make up lost time due to weather.
2. Wind — Wind typically has the largest impact on activities involving the main erection crane and is usually dealt with in a specific manner in the EPC contract. A process for handling cost and schedule impacts of wind exceeding certain critical speeds is included in the contract. At some point however, wind delays can impact the project to such an extent that critical dates (PPA/IA dates, tax credit deadlines) are affected. Items such as alteration of the work schedule and mobilization of additional cranes and crews must be considered. If these contingency plans have not been made prior to wind impact, it is possible that additional crews and equipment may not be available.

CHANGES TO WIND TURBINE COMPONENT DELIVERY SCHEDULE

Project work must be completed early enough to accept delivery of and allow for installation of turbine components in time to meet the owner's COD obligations. The project schedule accounts for anticipated turbine deliveries, but actual deliveries can often be later, earlier, or faster than anticipated.

- Late deliveries — When deliveries are late, the BOP contractor must be able to adapt to the new schedule and provide the necessary manpower and equipment to ensure the owner is able to meet its COD obligations. This is particularly true when the owner faces lost tax incentives for late COD, or liquidated damages for failure to meet power production commencement dates. The BOP contractor should have plans ready to quickly mobilize additional labor and equipment to make up time for late deliveries.
- Early deliveries — When deliveries are early, the BOP contractor must be able to mobilize the labor and equipment quickly to take the deliveries, and must be able to make sure that a proper unloading area is available when the deliveries occur before the foundation sites are completed. If planned properly, unloading can occur seamlessly and without the necessity of repetitive handling or excessive additional costs.
- Faster delivery rate — As the turbine manufacturing supply chain continues to improve, faster-than-anticipated delivery rates are common. The BOP contractor must have the ability to mobilize additional unloading crews and equipment. This avoids delivery trucks being forced to sit and wait to be unloaded, often overnight or for days at a time.

MECHANICAL FAILURES OF MAJOR EQUIPMENT

Few things can impact a wind project schedule like a main crane failure. This is especially true on schedules where completion deadlines are tight and the consequences for missing them are severe. Contingency planning should include plans for quickly mobilizing replacement cranes, as well as for quickly making crane repairs. BOP contractors should be able to source replacement equipment at all times and should be able to locate and deliver major replacement parts quickly.

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