TECHNICAL DUE DILIGENCE

TO PROTECT WIND FARM PROJECT INVESTMENTS AND ASSURE THE QUALITY OF DELIVERANCES, OWNERS, INVESTORS AND INSURANCE COMPANIES MORE AND MORE LOOK FOR AN INDEPENDENT CERTIFICATION AND INSPECTION COMPANY TO VERIFY THAT THE WIND FARM WILL PERFORM SUCCESSFULLY THROUGHOUT THE INTENDED LIFETIME.

NEW PROJECTS

One of the major concerns in investing in wind turbines is the availability of the turbines. Reliability of the structures and the wind turbines is therefore essential for the wind farm to perform successfully. A minor failure can cause unacceptable down time and loss.

Therefore, understanding the risks is of utmost importance when investing in a wind farm.

EXISTING WIND FARMS

Technical Due Diligence of an existing wind farm identifies technical risks before investing in the wind farm.

- Did the construction work comply with the site-specific specifications?
- Did the operator follow the maintenance programme?
- Correlates the output to the predictions made?
- How many repairs were conducted?
- What is the actual quality of the technical components?
- What is the predicted remaining life-time?

All these questions will be answered during a Technical Due Diligence of an existing wind farm.

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PROCESS

In the first step, Technical Due Diligence includes a detailed Document Review

- The design basis for the original wind farm design should be provided as a pre-requisite.
- Both wind and soil site assessment reports will be evaluated and compared to the certificate and site specific design verification reports. Assumptions, provisions and conclusions will be evaluated.
- The wind turbine evaluation will focus on track records for the wind turbine, certification status and fitness for the site. The track record for the particular wind turbine type(s) will be evaluated. For existing wind farms, the actual track record for the specific, individual wind turbines in the wind farm will also be assessed.
- For existing wind farms, the records of maintenance, repairs and inspections carried out will be reviewed and verified against the approved maintenance manual and programme.
- Evaluation of the expected net annual energy production from individual turbines as well as for the whole wind farm. For existing wind farms the expected net annual energy production will also be compared with actual operation data.

In the second step, extensive site inspections will be carried out to verify the wind turbines comply with approved design and required maintenance programmes.

All wind turbine components will be checked

- Rotor including blades and hub assembly
- Mechanical transmission including gear boxes
- Nacelle and tower structure including connections
- Generators, converters and transformers
- Control and protection systems
- Electrical systems
- Lifting devices
- Personnel safety installations

Special attention will be paid to

- Fatigue cracks
- Dents and deformations
- Corrosion
- Bolt pre-tension
- Status on outstanding points from previous surveys
- Settings and parameters used by the control system
- Cooling media and lubrication (if applicable), in our own testing laboratories
- Witness test of the control and protection system (carried out by the manufacturer or operator)
- Condition monitoring system
- Additional surveys identified based on findings and deviations, e.g. witnessing of tests and inspections in order to distinguish between random and systematic failures

The above range of services will be tailored to suit the actual verification needs in the project.

Additionally a long term project monitoring can be carried out to secure the quality during the whole project lifetime. During this monitoring all relevant aspects of the wind farm will be checked regularly.

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WHEN YOU NEED TO BE SURE

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