

## Unforeseen subsurface conditions: Mitigating the risks of what can't be seen.

**CONSTRUCTION CONTRACTS REQUIRE** owners and contractors to accept risk as part of the project construction. Two closely related risks on wind energy projects are unforeseen subsurface conditions and pre-existing hazardous materials. Properly evaluating and handling these risks is a necessary part of being a successful wind energy contractor.

Wind energy balance of plant (BOP) contracts typically contain clauses requiring the contractor to acknowledge that it is familiar with the local conditions of the project site. In addition, BOP contracts commonly require the contractor to assume much of the risk of these local conditions. Contractors must be skillful in limiting the scope of these clauses by using carefully drafted language specifying the contractor's responsibility for unforeseen subsurface conditions and pre-existing hazardous materials.

Wind energy contractors must approach the risks of unforeseen subsurface conditions and pre-existing hazardous material with caution. Examples of how to mitigate risks associated with wind energy projects include:

### SUBSURFACE CONDITIONS CLAUSE

The subsurface conditions clause (also called an "unforeseen subsurface condition" or "unforeseen conditions" clause) should be drafted to give the contractor the right to schedule and/or cost relief under certain conditions:

1. Subsurface or latent physical conditions at the project site are materially different from the conditions described in the contract documents, including the geotechnical report and other materials provided to the contractor by the owner.
2. Conditions are discovered at the project site that are previously unknown and are of an unusual nature, or are materially different from those conditions that are ordinarily encountered and generally recognized as inherent in working at the project location, or
3. The contractor encounters hazardous materials or conditions that exist at the project site as of the time of the contract and were not brought to the site, or created by, the contractor or its subcontractors (defined as pre-existing hazardous materials or conditions).

In order for this clause to protect the contractor and afford potential cost and schedule relief, the contractor needs to make a thorough review of all of the documents that are provided to it by the owner. In addition, the contractor must make itself familiar with the subsurface

conditions that actually exist at the site and that are normally expected in the project location.

### GEOTECHNICAL INVESTIGATION

The best way to become familiar with the subsurface conditions of a project site is to conduct a thorough geotechnical investigation of the site (or make sure that one is provided by the owner). The report should be performed by a reputable and experienced geotechnical engineer, and should be based upon borings made at every turbine location and at selected points along the roads and substation locations. The report should contain a description of the soil types at each boring, groundwater elevations, electrical and thermal resistivity testing results, and a full array of laboratory analyses of the soil (particle size, moisture content, Atterberg limits, compaction testing results, chemical analyses, etc.). In addition, the report should contain recommendations for the type of foundations that are appropriate for the soils conditions, as well as recommendations for the civil infrastructure design parameters.

A properly performed geotechnical report can provide the information the contractor needs to evaluate the risks of any surprises from unforeseen subsurface conditions. In addition, the report will provide the information needed to design the roads, foundations and electrical collection system without any undue risk of errors caused by unanticipated subsurface condition. In contract terms, the report should demonstrate that the contractor has performed the necessary due diligence required to become familiar with the local subsurface conditions, and avoid the risk of differing site conditions.

### PRE-EXISTING HAZARDOUS MATERIALS

Contractors should strive to limit their responsibility with respect to the presence of hazardous materials at the project site to things that they can control (i.e. hazardous materials that are brought to the site by the contractor or its subcontractors). The obvious major risk is the presence of hazardous materials that are unbeknownst to either the contractor or the owner. In such cases, the risk should be on the owner since they are party with the greater ability to control the risk. In instances where pre-existing hazardous materials or conditions are encountered by the contractor, its responsibility should be limited to first promptly notifying the owner, and then performing any legally required "emergency" actions before leaving the area (with its costs borne by the owner). As long as the contractor's actions are not negligent, it should not be responsible for the existence, discovery, or release of pre-existing hazardous materials. ↘