

Environmental Compliance During Wind Farm Construction

Prepared for NYSERDA by Anntonette Z. Alberti, JD

Tetra Tech EC, Inc.

Saratoga Springs, NY

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When one thinks of a wind farm project, one immediately thinks of the environmental benefits of a green energy project. However, like any other major construction effort, building a wind farm moves a lot of dirt and that, in and of itself, could have a negative environmental impact if not managed properly. Construction of a wind farm involves a lot more than erecting turbines. Such a project will include a number of components: (1) construction trailer, laydown yard, and equipment staging; (2) access roads to the turbines (temporary access may be wider than the permanent road that remains after construction); (3) public road improvements (so that local roads can handle heavy construction equipment); (4) wind turbines (foundations, towers, and turbines, plus a temporary construction staging area); (5) interconnection between turbines (temporary clearing prior to the installation of this typically buried project feature); (6) disposal areas for cleared vegetation, rock, and excess subsoil; (7) substation; (8) transmission line and associated access; and permanent operations and maintenance facilities. In order to ensure that construction is undertaken responsibly, project proponents have created very successful environmental construction compliance programs that meet federal, state and local environmental permit requirements.

Some of the most common construction related concerns are listed below. An environmental construction compliance program can address all of these concerns.

- Are all construction activities properly approved by the appropriate agencies prior to the start of construction?
- Are construction activities and access occurring only in approved areas and along approved routes?
- Has the work area been properly defined, staked, and/or fenced prior to construction?
- Is regular notice of road closures or other traffic inconveniences being adequately communicated to police and emergency services, local residents, and others?
- Have all underground utilities been identified prior to ground disturbing activities?
- Are agricultural protection measures being appropriately implemented?
- Have wetland resources been properly staked prior to construction? Do construction crews know to avoid access through or disposal of debris in wetlands?
- Have sediment and erosion control measures been installed? Are they properly maintained, especially after storm events?
- If there is to be blasting on site, have all appropriate landowner notifications been made?
- Is dust being properly controlled?

An environmental construction compliance program typically consists of several components, which have successfully enabled projects to be built in compliance with environmental and land use permits:

1. **Planning** -- Prior to the start of construction, the project proponent should thoroughly read its environmental permits and extract all environmental requirements that would apply during construction. These requirements should be compiled into a construction environmental management implementation tool. This tool often includes: Roles and Responsibilities, Project Contact List, Preconstruction Coordination, Construction Operations, Post Construction Activities, Safety, Human and Industrial Sanitation, Environmental Compliance Program (including monitoring criteria, compliance approach, compliance levels, training, communication, reporting, corrective action, variance process), and Appendices including copies of documents that must be at the project site (e.g. permits, authorizations, plans, and any other documents that create or describe environmental requirements for construction and restoration).
2. **Training** -- Before construction begins, project proponents typically require that all contractors and subcontractors attend an environmental training program during which the environmental construction compliance program is explained in detail. In addition, throughout construction, before new crews work at a project site, they must receive Environmental Training. If compliance issues arise during construction, retraining in certain aspects of the plan occurs.
3. **Preconstruction Coordination** -- Project proponents often hire Environmental Inspectors to assist the construction team with environmental compliance. Prior to the start of construction at any given site the Environmental Inspector, Contractor and any Subcontractors conduct a site walkover of areas to be affected by construction activities. During the walkover, this group identifies landowner restrictions, sensitive resources (biological, geological, and cultural), limits of clearing, proposed stream crossings, location of drainage features, and layout of sediment and erosion control features. Specific construction procedures are determined. Landowners and agencies are consulted or included, as needed. A pre-construction checklist is typically completed during the walkover so that nothing is missed. In addition, wetland and any other sensitive resource features are flagged in the field prior to construction. The limits of work areas, especially in agricultural areas, are also defined prior to construction.
4. **Inspection During Construction Operations** -- If an Environmental Inspector is retained, the Environmental Inspector typically visits each construction work site at least once per day and is present during construction at environmentally sensitive areas. Environmental Inspectors have a significant role to play in suggesting methods to bring construction activity into compliance and can temporarily halt certain activities that may cause damage to sensitive environmental resources. Environmental Inspectors keep a log of all of the project sites they visit and record whether the construction activities they observed were in compliance. Environmental Inspectors meet with construction management every morning in order to be kept abreast of all construction issues. Environmental Inspectors conduct training on various aspects of the environmental compliance program as new crews come to the project site or as

refresher training becomes necessary. Regulatory agencies sometimes employ Environmental Monitors to keep an eye on compliance activities, too.

5. **Weekly Reporting and Agency Audits/Inspections** -- Depending upon reporting requirements associated with the permits, the Environmental Inspectors' daily logs are converted into weekly, monthly, or quarterly reports for the federal, state, and local agencies that monitor compliance on this project. Some regulatory agencies conduct a regular weekly, monthly, or quarterly compliance audit at project sites. In addition, compliance tours can be periodically arranged for local, state, and federal officials.
6. **Restoration** -- The Environmental Inspectors or other project proponent designees will create an environmental "punch list" based upon the restoration requirements in the permits. As construction activities wind down, the Environmental Inspectors will conduct a restoration walk over with the construction contractors to ensure that restoration activities occur as required. Permits and bond-release provisions often require project proponents to conduct a multi-year post construction monitoring program of restoration efforts.