The Permitting Process for Transporting Heavy Equipment

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Transporting heavy equipment from its place of origin to its place of installation requires the carrier to obtain the necessary permits from the pertinent State and possibly Local Departments of Transportation. This article uses the transporting of wind turbines from the factory floor to a project site as an example of this permitting process, focusing on the Illinois permitting process.

Transporting a single wind turbine from the factory floor to a project site can require up to eight hauls or more - one nacelle, one hub, three blades, and three tower sections. Depending on where the factory and the wind farm site are located, components may be moved by rail, truck, ship, or some combination of any two or even all three means of transport. State permitting issues for over-the-road transportation are probably the pre-eminent logistical challenge for the wind industry - both the specific rules in certain States and their lack of uniformity, according to the American Wind Energy Association's Environment Legislative Manager Tom Vinson. For this reason, AWEA has created the Transportation and Logistics Working Group (TLWG).

According to AWEA, the tower sections for a typical 250 ft. (80 meter/m) wind turbine tower can weight more than 150,000 lbs. (70 tons), be 120 ft. (36 m) long, and have a 15 ft. (4.5 m) diameter. Nacelles typically weigh 50-70 tons, but can weigh more than 90 tons. Blade length can extend 110-145 ft. (33-44 meters). A study conducted by Terry Tremwell and Suzanne Ozment of the University of Arkansas Supply Chain Management Research Center (Oct. 15, 2007) suggests that a 150 megawatt (MW) project (100 wind turbines) can require as many as 689 truckloads, 140 railcars, and eight ships to complete the transportation process.

The transportation of heavy equipment in the State of Illinois begins with a call to the Illinois Department of Transportation. IDOT Permit Chief Steven Todd says his department has two main goals related to transporting wind turbine components:

1. To ensure the safety of the entire motoring public - not only passenger cars, but carriers and escort vehicles as well.
2. To research all possible routes in an effort to ensure each and every component transport happens.

Consultation between a wind farm developer and IDOT early in the siting process can be very helpful. This has proven beneficial for those developers that have contacted IDOT with two or three optional locations.

The extreme height and weight of wind components can restrict the choice of routes for transport. This is especially true for Illinois highways which have height

restrictions that can make it impossible to get loads to certain locations. In Illinois, if the height of the component once it's on the trailer exceeds 15'8" or 15'9", there is a distinct possibility that the carrier will not be allowed to transport those loads through the State. Raising roads and bridges that pass over highways is not feasible.

For projects of this magnitude, IDOT prefers approximately two months to review a proposed route and make necessary adjustments. Once a delivery schedule starts, any delays in moving components can get very costly for the wind farm developer. With advance planning, IDOT can secure routes and alternate routes before the load starts moving. In order to minimize the likelihood of routing changes, IDOT conducts a district investigation to determine the feasibility of a proposed route. The district investigation can take up to two weeks.

To conduct the investigation, an IDOT representative physically travels the proposed route to make sure vertical clearances and turn radiuses can accommodate the proposed loads. Additionally, IDOT engineers analyze the loads for impact on structures. If a nacelle or base loaded on a trailer leaves just a few inches of clearance available on state highways, the carrier will have to take the time and expense to contact local jurisdictions to request a local route around the problem. According to Todd, local jurisdictions may be reluctant to agree to this because of the extreme weights involved. Weight issues on state highways can sometimes be addressed because, while it's costly to shore up a bridge, it can be done at the trucking company's expense.

The district investigation also looks into planned road construction that might change the route. Once an acceptable route has been approved, the developer or carrier can submit applications to the central office at IDOT. According to Todd, blanket permits are limited to certain weights and dimensions. The size of some wind turbine components may require a separate application for each load. Some times, he says, single trip applications are necessary.

"Once IDOT reviews the applications and issues the permits," says Todd, "the deal is done." The only remaining concerns would be if a bridge's load limit were to be unexpectedly downgraded. "That doesn't happen often," says Todd, "but when it has, we've had almost 100% success in our state in finding a way to re-route the load."

The key element to the successful transport of heavy loads is advanced logistical planning in partnership with the State Department of Transportation so the proposed route(s) can be investigated and any impediments can be assessed and addressed. The State Department of Transportation should be involved as early as possible in the process so the necessary investigation and permitting processes can be completed prior to the start of the transport process, ensuring a smooth and orderly transport.