

Attachment 6

Transportation and Traffic Plan

MOHAVE COUNTY WIND FARM

Mohave County, Arizona

Transportation and Traffic Plan

March 12, 2013



Purpose:

The purpose of this document is to provide a summary of the manner in which transportation to the site will be managed, and how any associated traffic will be managed. BP Wind Energy is currently engaged in the detailed design and permitting of the proposed access improvements on Arizona State Highway 93 (US 93). An Encroachment Permit application will be filed with the Arizona Department of Transportation (ADOT) to obtain the permit to construct access improvements required for development of the Mohave County Wind Farm.

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1. Introduction

The Mohave County Wind Farm is a proposed wind facility located in Mohave County, Arizona. The project will consist of up to 283 turbines which will generate up to 500 MW. The facility will be owned and operated by BP Wind Energy North America Inc. or an affiliate.

The details and plan provided in this document are primarily in relation to transport and traffic during construction. The operations of the facility require little special transport and add little traffic. The Project will require the use of oversized vehicles for delivery of turbine components; the remainder of the facility components and construction equipment will use standard transport vehicles and therefore will not have special transport requirements.

2. Surrounding Area and Routes to Site

The proposed site is located near Arizona State Highway 93 (US 93) between Las Vegas, Nevada and Kingman, Arizona. The area in the vicinity of the proposed wind facility is sparsely populated. Access to the project site will be from US 93 near Milepost 22 onto an existing east-side turnout that is a minimally improved BLM road that provides access to the gravel pit in Detrital Wash as depicted in Figure 1. US 93 runs adjacent to the site and exists as a four lane divided highway with a posted speed of 65 miles per hour. The roadway is centered within a 400 foot wide right of way, and northbound and southbound travel lanes are separated by an 80 foot wide depressed median. In general, site visibility along US 93 is good and the pavement is in good condition, with a recent overlay on the northbound lanes. The existing driveway turnout into the project is steep and has degraded pavement, therefore will be reconstructed with this project. Figures 2 through 6 provide viewpoints from the existing turn-off off US 93.

The origin of turbine components, equipment, and materials is not known at this time, and for sub-components is generally not tracked by BP Wind Energy. Further, BP Wind Energy has limited control over what routes are used outside the immediate surrounding area. In general, BP Wind Energy develops traffic and transportation plans from the exit off of federal interstates or from local rail yards. This transportation and traffic plan follows that model.

The attached map provides the new planned roadway that will extend from the existing turnout off US 93. This roadway to the site will be used in the delivery of turbine components, equipment, and material. Transport vehicles will likely exit from Interstate 515 in the vicinity of Las Vegas or from Interstate 40 in the vicinity of Kingman. If any equipment or turbine components are shipped by rail it is assumed they will be unloaded at rail yards in the vicinity of either Las Vegas or Kingman. By either rail or road transport, turbine components and equipment will use Highway 93 for final transportation to the site. Therefore, the improvements proposed on US 93 have been designed to accommodate transport vehicles from both the northbound and southbound direction.



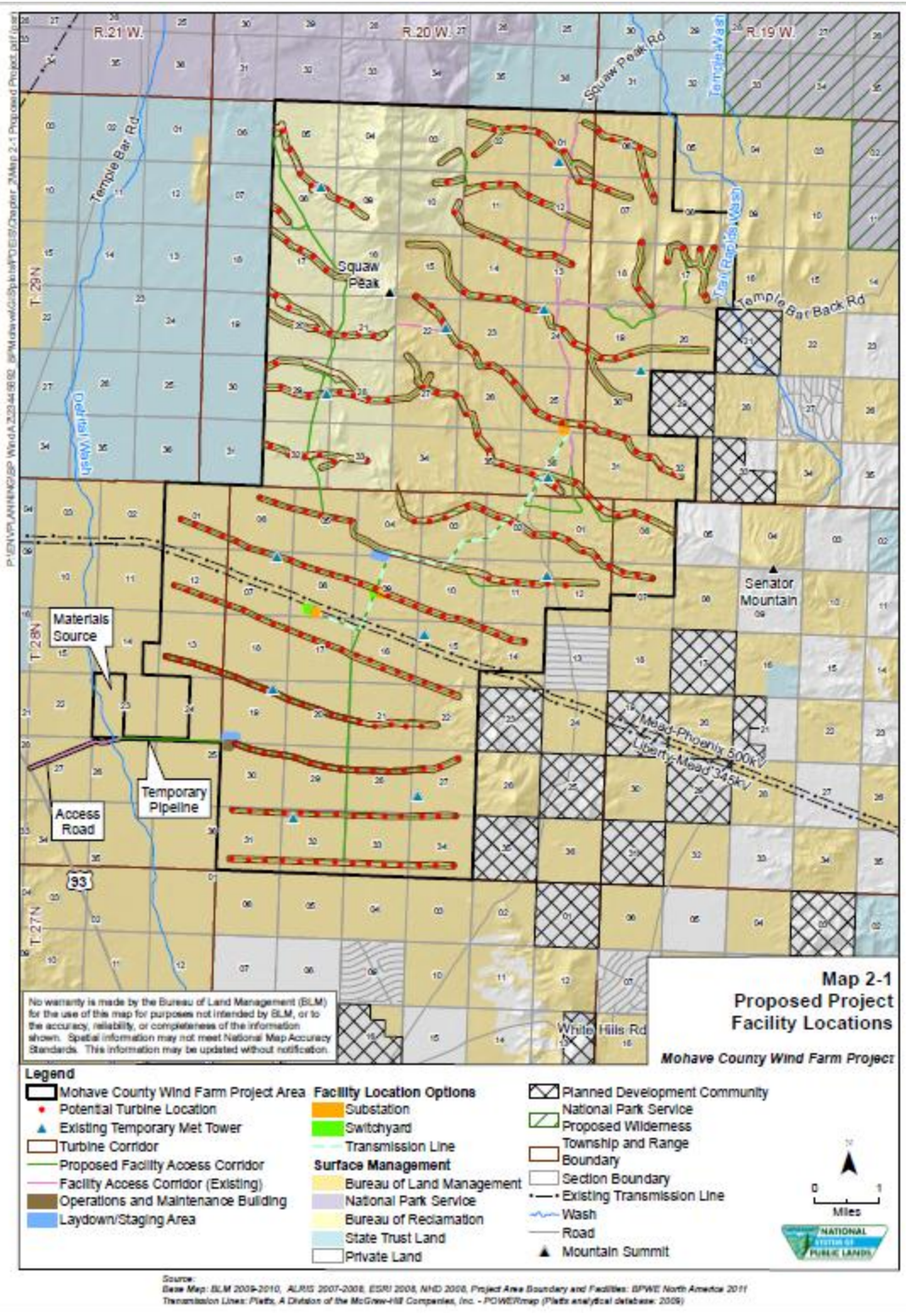


Figure 1: Mohave County Wind Farm Site Plan



Figure 2: Existing turnoff from northbound lane on US 93 toward existing mine pit



Figure 3: Existing turnoff from northbound lane on US 93 toward existing mine pit and will be extended to Project Site



Figure 4: Turnoff looking back toward US 93 northbound lane





Figure 5: Median crossover from southbound lanes to northbound lanes on US 93



Figure 6: Southbound lane on US 93 with existing turnout to cross median over the northbound lane and onto the mineral pit

3. Equipment to Be Transported

The general categories of items to be transported include: turbine components, facility and construction equipment, and facility and construction material. Further detail on each category is provided below.

a. Turbine Components

Turbine components are the most visible transportation requirement for the project. Turbine components generally are described in three sections: blades, towers, and the nacelle. The weights and dimensions for all these components vary depending on the vendor. A reasonable range is provided below.

Each blade typically weighs from 13,000 to 29,000 pounds. Blade lengths are typically between 111 feet and 195 feet.



Tower sections vary in length and dimension depending on where they are in the tower. In general lower (Base) sections are the shorter and heavier while higher (Top) sections are taller and lighter. Tower sections vary in weight from 63,000 pounds to 138,000 pounds. Tower lengths typically range from 32 feet to 98 feet, with diameters ranging from 14.5 feet to 8 feet.

Nacelles (the section of the turbine at the top of the tower) are shipped in various configurations. The weights indicated here include all sub-components that will be added to the nacelle prior to operation. Typical nacelles weigh from 163,000 to 227,000 pounds (note the weight of the rotor hubs are included in this range). Dimensions for nacelles can vary, but do not typically exceed standard construction trailer dimensions.

b. Facility and Construction Equipment

Major equipment for the facility (beyond the turbines) include the main step up transformers, pad mounted transformers, substation equipment, and substation control building. Major construction equipment includes turbine installation cranes, turbine offloading cranes, earthmoving equipment, trenching equipment, and miscellaneous cranes, forklifts, and lifting equipment.

c. Facility and Construction Material

Significant material for the project includes road aggregate, concrete, rebar steel, underground electrical conductor and fiber optic cable, grounding cable, transmission poles, transmission wire, water and materials for the Operations and Maintenance (O&M) building.

4. Transport Requirements

Transport requirements vary depending on the type of equipment being transported. Detail on the transport requirements are provided corresponding to each paragraph in section 3.

a. Turbine Components

The turbine components transportation requirements will generally govern the road design and access design. This is due to the length and weight of the equipment being transported. The length of the components (especially the blades and tower sections) generally result in a requirement of a 150 foot turning radius for all turns and a maximum of a 6 inch hump or dip per 50 foot stretch of road. The weight of the turbine components generally results in a requirement for grades on public roads not to exceed eight percent and Maximum Load Class (MLC) ratings of 20 tons per axle or greater (MLC ratings are generally only an issue on local roads). Lead and trail flag vehicles, as well as flaggers, may be utilized for oversized loads (comprised mainly of the turbine components) entering from US 93, and possibly police escort vehicles.

b. Facility and Construction Equipment

The majority of the facility and construction equipment will use standard transport vehicles and therefore will not have special transport requirements. The main step up transformer(s) generally are permitted loads due to the weight of the transformer. Since the weight of the transformer and axle loading will be equal or less than for the turbine components, this transport requirement will generally not be a factor. The large turbine installation cranes are transported to the site in pieces and assembled on site; accordingly there are generally no special transport requirements for the turbine installation cranes.

c. Facility and Construction Material

The majority of the facility and construction material will use standard transport vehicles and therefore will not have special transport requirements. Depending on the type of transmission structure used, an oversized vehicle permit may be required to transport them (if a single piece transmission poles over a certain length are used). These loads will have similar transport requirements as the turbine blades. Aggregate loads for the roads and foundation will not have specific transport requirements, but due to the high volume will require dust control measures and a road maintenance program.

5. Estimated Transport Vehicle Trip Counts

As stated previously, this Transportation and Traffic Plan focuses on trip generation during construction of the wind facility, which is expected to last approximately 9 to 12 months but could be as long as 18 months. The operations phase of the wind facility is expected to generate negligible traffic to US 93. During the operations phase of the wind facility (post-construction), it is anticipated that there will be approximately 30 O&M staff, for a daily generation of 30 to 60 trips. Vehicles used by Operations staff will likely be passenger vehicles and light duty trucks. For estimating purposes, the transport vehicle trip count will be based on the number of round trips that transport vehicles will make from the last major highway (US 93) to the main construction area. Trip counts within the site will not be estimated as they will be on limited access roads. Trip counts are summarized in Table 5.a.

A detailed breakdown of anticipated trip generation is provided in the paragraphs to follow, however to summarize, trip generation will be primarily comprised of mobilization/demobilization of equipment, construction personnel, turbine component deliveries, and deliveries of other facility materials (i.e., transformers, substation, transmission equipment, steel, cables and concrete materials to be mixed onsite). It is anticipated that aggregate required for construction of the roadways and other facilities will be obtained from the Detrital Wash Materials Pit, and water will be obtained from existing wells onsite, therefore there will be no daily trips associated with water or aggregate vehicles other than their daily round trip to the site.

A contributor to trip generation will be the daily commute of workers to and from the site during construction. It is assumed that most workers will take company or personal vehicles (cars and light duty trucks) from their place of residence or temporary residence to the main job site once

per day. All workers will receive a traffic route map during orientation and will be encouraged to carpool during orientation. The main employee parking lot will be at the laydown yard at the project site near the O&M building. It is expected the construction duration will be approximately 9 to 12 months but could last as long as 18 months, with an average of 300 workers onsite daily, with up to 500 workers daily during peak construction. Assuming estimated 52 week construction duration (5 to 6 day work week) with an average of 300 workers on site with an active ride share program, there will be 50,000 to 75,000 round trips for personnel transports.

Of the total construction duration of approximately 9 to 12 months, BP estimates that the Mohave County Wind Farm oversized vehicle trip generation will continue, on a daily (5 to 6 day work week) basis for approximately 6 months. Over the course of the turbine component delivery period, approximately 2,830 over-sized vehicle loads (enough to construct 283 turbines, at an average “component per turbine” rate of 10, will be delivered to the project site. A summary of all the trip generation for the project during construction (assuming 52 week duration) is included in Table 5.a.

The project will almost certainly use an on-site concrete mixing and batching plant. Therefore, concrete trucks will make only one round trip per day as they start work and finish work. Assuming ten concrete trucks working over a 26-week period (5 day work week) 1,300 round trips will be required for concrete delivery trucks.

Site mobilization and demobilization will require significant transport as well. Each mobilization and demobilization activity will require two round trips (for example, the delivery of one construction trailer will require one round trip at the start of the project and one round trip at the conclusion of the project). Equipment and material included in the mobilization and demobilization trip counts include the construction equipment, substation equipment, electrical and transmission equipment and materials, and miscellaneous facilities equipment. Based loosely on previous projects it is expected there will be approximately 500 round trips based on mobilization and demobilization activities.

Table 5.a - Estimated Number of Vehicle Round Trips into the Mohave County Wind Farm Project Site

Transport Vehicle Category	Expected Number of Round Trips
Turbine Components	2,830
Aggregate and Water	1,300
Concrete Delivery Vehicles	1,300
Mobilization and Demobilization	500
Personnel Transport	50,000 – 75,000
Total	55,930 – 80,930

6. Estimated Traffic Congestion

The expected round trip count of 55,930 to 80,930 trips over a 12-month period (as estimated in the previous section) results in an average trip count of 215 to 311 trips into the project area per workday. At this level, it is not expected that construction traffic will have a significant impact to the federal interstates or to the Las Vegas or Kingman areas.

Daily vehicle usage numbers for US 93 are not known at this time, but it is expected that construction traffic for the project will not represent a significant increase. While limited impacts are expected to traffic along the majority of US 93, there will likely be some temporary impact to traffic in the vicinity of the Milepost 22 east-side turn out to the proposed wind facility as slow moving vehicles enter and exit. During the operations phase of the wind facility (post-construction), it is anticipated that traffic impact to US 93 existing traffic will be negligible. During operation of the wind facility, there will be approximately 30 O&M staff, for a daily generation of 30 to 60 trips. Vehicles used by Operations staff will likely be passenger vehicles and regular duty trucks.

7. Proposed Access Improvements

BP Wind Energy's civil engineering consultant has analyzed the oversized vehicle acceleration, deceleration, and turning movement requirements, to enter and exit the site from US 93, at the existing access point near Milepost 22. Widening improvements are being proposed to accommodate the turning movement requirements of the oversized transport vehicles, with as little disruption as reasonably possible to high speed background through traffic traveling along this segment of US 93. A summary of the proposed improvements on US 93 is provided below:

- A new northbound acceleration lane for oversized vehicles exiting the Project-lane will be striped as a non-travel lane to prohibit use by non-oversized vehicles.
- A new northbound right turn/deceleration lane for regular and oversized vehicles entering the Project.
- A new southbound acceleration lane for oversized vehicles exiting the Project, lane to be constructed within the existing median-lane will be striped as a non-travel lane to prohibit use by non-oversized vehicles.
- Lengthening the existing southbound left turn/deceleration lane into the Project to remove oversized vehicles from the southbound through lanes and accommodate deceleration requirements.
- Widening of the crossover median to allow oversized vehicles to begin their turning movements ahead of the existing intersection, facilitating turning radius requirements of the oversized vehicles and allowing for idling of the oversized vehicles within the median, if necessary, to wait for gaps in oncoming traffic. The widened section of the median will be striped as a non-travel area to prohibit use by non-oversized vehicles.

In addition to the proposed striping, reflectorized pavement markers will be installed to further delineate traffic lanes for non-oversized vehicles.

8. Proposed Traffic Control Measures

US 93 Access Improvements:

As stated previously, improvements to the existing access point into the project from US 93 requires improvements to be able to accommodate oversized equipment transport vehicles. The US 93 widening will require new acceleration and deceleration lanes to be constructed on both the northbound and southbound lanes. Traffic will be reduced to one lane in each direction while the improvements are constructed. Construction of the access improvements is expected to last approximately 14 to 18 weeks.

Wind Facility Construction:

During construction of the wind facility it is anticipated that construction signage and LED advanced warning signs will be utilized ahead of the intersection, and flaggers will likely be used when oversized transport vehicles are entering and exiting the Project. BP Wind Energy is requesting that the 65 mile per hour speed limit be reduced temporarily to 45 miles per hour during the construction of the wind facility in this location.

9. Permits Required for Transportation

An Encroachment Permit and Traffic Control Permit is required to construct the previously discussed improvements within the US 93 Right-of-Way. A Class “C” oversize permit is required for oversized transport vehicles and heavy loads.