

## 3.2 AIR

**WAC 463-42-312 Natural environment -- Air.** *The applicant shall provide detailed descriptions of the affected environment, project impacts, and mitigation measures for the following:*

**(1) Air quality** - *The applicant shall identify all pertinent air pollution control standards. The application shall contain adequate data showing air quality and meteorological conditions at the site. Meteorological data shall include, at least, adequate information about wind direction patterns, air stability, wind velocity patterns, precipitation, humidity, and temperature. The applicant shall describe the means to be utilized to assure compliance with applicable local, state, and federal air quality and emission standards.*

**(2) Odor** - *The applicant shall describe for the area affected, all odors caused by construction or operation of the facility, and shall describe how these are to be minimized or eliminated.*

**(3) Climate** - *The applicant shall describe the extent to which facility operations may cause visible plumes, fogging, misting, icing, or impairment of visibility, and changes in ambient levels caused by all emitted pollutants.*

**(4) Dust** - *The applicant shall describe for any area affected, all dust sources created by construction or operation of the facility, and shall describe how these are to be minimized or eliminated.*

### 3.2.1 Introduction

The fuel source for the Project is wind that is transformed from kinetic energy into electrical energy by wind turbine generators. No air emissions will be generated from operation of the wind turbine generators at the Project. The operation of the Project will have no effect on the climate (visible plumes, fogging, misting, icing, or impairment of visibility, and changes in ambient levels caused by emitted pollutants). There are no emissions from the operation of the project, and thus none to be regulated. For a description of the meteorological conditions at the site, see Section 2.1.4, 'Climate Characteristics'.

The vast majority of new power plants proposed and constructed in the Pacific Northwest in recent years have been fossil fuel fired plants, primarily using natural gas as fuel. Fossil fuel fired plants, in contrast to wind power projects, emit significant quantities of carbon dioxide that is the primary cause of anthropogenic climate change. Natural gas fired plants also emit sulfur oxides and nitrogen oxides, which contribute to both ground-level air quality problems and acid rain. By producing electricity without generating air emissions, which would otherwise be produced by fossil fuel fired plants, the Project will have a significant beneficial impact on overall air quality and climate.

### 3.2.2 Emissions

#### 3.2.2.1 Air Quality Attainment Status

According to the Washington Department of Ecology's regional air quality office in Yakima, there are no areas within Kittitas County that are currently designated as non-attainment areas for air quality.

#### 3.2.2.2 Construction

Construction of the Project will result in air emissions from the following sources:

- Exhaust from the diesel construction equipment used for project site preparation, grading, excavation, and construction of onsite structures;
- Exhaust from water trucks used to control construction dust emissions;
- Exhaust from diesel trucks used to deliver equipment, concrete, fuel, and construction supplies to the construction site;
- Exhaust from pickup trucks and diesel trucks used to transport workers and materials around the construction site and from vehicles used by workers to commute to the construction site;
- Exhaust from diesel-powered welding machines, electric generators, air compressors, etc.

These emissions will be similar in nature to those produced by any large construction project that involves heavy equipment and transportation of materials to the project site.

### **3.2.2.3 Operation**

Operation of the Project will produce no air emissions as no fuel is being burned to produce energy. Operation of the Project will therefore have no negative impact on air quality. According to the US Environmental Protection Agency, air emissions from fossil fuel combustion for electricity production is a leading source of air pollution nationally, accounting for:

- 67% of sulfur dioxide emissions
- 28% of nitrogen oxide emissions
- 36% of carbon dioxide
- 3% of mercury

The most likely alternative to wind energy generated by the Project would be electricity generated from the combustion of fossil fuels. Fuel combustion from electric utilities generated 417,000 tons of carbon monoxide and 6.1 million tons of nitrogen oxides in 1998. Total fossil fuel combustion produced 1,500 million metric tons carbon-equivalent of carbon dioxide in 1997 (EPA, 2000). It is assumed that if the Project were not built, the power produced by the Project would be replaced by a natural gas-fired gas turbine sized to generate 60 average MW (the Project has a nameplate capacity of 180 MW and is expected to have a 33% net capacity factor). The following analysis of anticipated air quality impacts associated with a gas-fired turbine sized to generate 60 average MW is calculated based on the analysis presented in the *Final SEPA EIS for FPL Energy's Stateline Wind Project*, Section 1.1.4 (Walla Walla County, 2000.)

In the analysis conducted for the Stateline EIS, CH2M HILL air quality engineers reviewed permits of two facilities currently in operation in the Boardman, Oregon, area: the PGE Coyote Springs plant, and the Hermiston Generating plant. Each of these plants currently operates two gas-fired turbines of approximately 250 MW each. Using EPA's standard emission factor document *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 1.4 (EPA, 2000) CO<sub>2</sub> emissions are estimated at 120,000 lbs per million cubic feet of gas burned. Using this emission factor, the information in the operating permit for each facility, and scaling down to a 60-MW plant, CO<sub>2</sub> emissions would be in excess of 2,000,000 tons per year. Similarly, nitrogen dioxide emissions would be in excess of 30 tons per year. Carbon monoxide emissions would be in excess of 50 tons per year. It should be noted, however, that in addition to the emissions from generation itself, a gas turbine generation facility also would have emissions of sulfur oxides, nitrogen oxides, and particulates associated with the extraction and transportation of natural gas.

Therefore, as the energy produced by the Project displaces the need for other energy produced by fossil fuel combustion, operation of the Project will have a positive effect on air quality and climate change by reducing overall air emissions.

### **3.2.3 Odor**

Construction of the Project will produce limited odors associated with exhaust from diesel equipment and vehicles. Mitigation efforts are described in section 3.2.5 'Mitigation Measures'.

Operation of the Project will create no odors as no combustion is involved and no odor-producing materials are used in Project operations.

### **3.2.4 Dust**

Construction of the Project will create fugitive dust emissions from construction-related traffic and additional wind-blown dust as a result of ground disturbance. The Applicant will implement an effective dust control program to minimize any potential disturbance from construction-related dust. Dust suppression will be accomplished through application of either water or a water-based, environmentally safe dust palliative such as lignin, in accordance with the Proposed Dust Abatement Policy developed by Kittitas County Public Works Department (this draft policy has not been formally adopted by the Board of County Commissioners.) The use of a dust palliative such as lignin (a non-toxic, non-hazardous compound derived from trees) would result in the use of substantially less water for dust suppression (see Section 3.3.7 'Water Use During Construction and Operations') and therefore less traffic from water trucks to the construction site. The final decision regarding dust suppression techniques will be made by the EPC contractor in consultation with local authorities.

Operation of the Project will result in minimal or no increase in dust levels. Project related-traffic increases on gravel access roads will generate small amounts of additional fugitive dust. This increased traffic is expected to consist largely of weekly or less frequent trips to turbines in service vehicles for maintenance and repair activities. Upgrading existing roads from dirt to gravel surfaces will, however, result in some reduction in dust levels from current traffic on existing dirt roads.

### **3.2.5 Mitigation Measures**

The following mitigation measures for construction-related air emissions and dust are proposed:

- All vehicles used during construction will comply with applicable Federal and state air quality regulations;
- Operational measures such as limiting engine idling time and shutting down equipment when not in use will be implemented;
- Active dust suppression will be implemented on unpaved construction access roads, parking areas and staging areas, using water-based dust suppression materials in compliance with state and local regulations;
- Traffic speeds on unpaved access roads will be kept to 25 mph to minimize generation of dust;
- Carpooling among construction workers will be encouraged to minimize construction-related traffic and associated emissions;
- Disturbed areas will be replanted or graveled to reduce wind-blown dust;
- Erosion control measures will be implemented to limit deposition of silt to roadways.

Mitigation measures for construction impacts are described in greater detail in Section 2.3, 'Construction On-Site' and Section 1.4, 'Mitigation Measures'.

No mitigation is proposed for Project operations as there will be no air or odor emissions.