

## ***7 AIR QUALITY***

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## 7 AIR QUALITY

This chapter describes the existing air quality conditions in the San Francisco and Sacramento Valley Air Basins where the Montezuma II wind project is located and the project's potential effects on air quality. The chapter summarizes the major applicable federal, state, and local air quality regulations; evaluates the potential impacts emissions from the construction and operation of the proposed project; and identifies mitigation measures to address the impacts found to be significant.

Much of the information and analyses contained in this chapter are based on the "Air Quality Study for the Proposed Montezuma II Wind Project Solano County, California," which was prepared by ICF International for the Applicant in October 2010. This report, presented in Appendix B, assesses the anticipated air quality impacts of the Project during construction and operation. Where appropriate, Point Impact Analysis has supplemented the report by providing new analyses and data to reflect current conditions and changes in the project after October 2010. The analyses identify the changes in assumptions from the Applicant's report and reference any new sources used.

### 7.1 AIR QUALITY SETTING

The Montezuma Hills are located in a gap in the interior coastal range that separates the San Francisco Bay Air Basin from the Sacramento Valley Air Basin, and the project area spans two air districts, the Bay Area Air Quality Management District (BAAQMD) and the Yolo-Solano Air Quality Management District (YSAQMD).

#### 7.1.1 Climate

The climate of the project area is influenced by the cool air that flows from the Pacific Ocean and San Francisco Bay through the Carquinez Strait to lower areas in Solano County, where it mixes with warm air in the Sacramento Valley. The difference in temperatures and atmospheric surface pressure circulation results in high wind speeds in the Montezuma Hills, creating the winds that led to the development of wind projects in the area. In addition to strong winds, the climatic transition between the air basins also creates dry summers and rainy winters. Average temperatures recorded at Rio Vista range from lows of 37° Fahrenheit (F) to 44° F and highs of 53° F to 65° F from November to March, and lows of 47° F to 58° F and highs of 71° F to 91° F from April to October. When temperatures are highest, precipitation is lowest, averaging 0.3 inch in July and August (Solano County 2010). In the spring, summer, and early fall, winds from the west average about 13 miles per hour (mph), but windspeeds up to 25 to 30 mph are common. Winds are more variable in speed and direction in winter (Solano County 2002).

#### 7.1.2 Existing Air Quality

Agencies assess air quality by measuring ambient concentrations of criteria pollutants and comparing them to adopted standards. The Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for seven criteria air pollutants pursuant to the Clean Air Act (CAA). EPA set primary standards to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings. The seven criteria air pollutants that have promulgated NAAQS are:

- sulfur dioxide (SO<sub>2</sub>)

- nitrogen dioxide (NO<sub>2</sub>)
- particulate matter with diameters less than or equal to 10 microns (PM<sub>10</sub>)
- particulate matter with diameters less than or equal to 2.5 microns (PM<sub>2.5</sub>)
- carbon monoxide (CO)
- ozone (O<sub>3</sub>)
- lead (Pb)

Ozone is not emitted directly from emission sources but the result of a chemical reaction between oxides of nitrogen (NO<sub>x</sub>) and reactive organic gases (ROG) in the presence of sunlight. Air agencies consider NO<sub>x</sub> and ROG ozone precursors and regulated them to prevent ground-level ozone formation.

The State of California has established separate California Ambient Air Quality Standards (CAAQS) under the California Clean Air Act for the seven federal criteria pollutants as well as sulfates, hydrogen sulfide (H<sub>2</sub>S), vinyl chloride, and visibility-reducing particulate matter. Table 7.1-1 summarizes the NAAQS and CAAQS.

The California Air Resources Board (CARB) monitors criteria pollutants and Toxic Air Contaminants in the air basins in California. The CARB monitoring data collected in the region is used to characterize the existing air quality conditions in the project area. There are four active air quality monitoring stations in Solano County: Fairfield - Chadbourne, Vacaville – Merchant Street, Vacaville - Ulatis Drive, and Vallejo. The Fairfield – Chadbourne and Vallejo monitoring stations, located within the BAAQMD, are approximately 14 miles northwest and 23 miles west of the project site, respectively. The Fairfield - Chadbourne monitoring station monitors only for O<sub>3</sub>, while the Vallejo station monitors for CO, SO<sub>2</sub>, NO<sub>2</sub>, O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. The Vacaville - Merchant Street and Vacaville - Ulatis Drive monitoring stations, located within the YSAQMD, are both approximately 16 miles northwest of the project site. The Vacaville – Merchant Street monitoring station monitors only for PM<sub>10</sub>, while the Vacaville – Ulatis Drive station monitors for O<sub>3</sub>, and PM<sub>2.5</sub>.

Table 7.1-2 summarizes air quality monitoring data for O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> from these stations for the last three years for which complete data are available (2007-2009). Detailed air quality measured at nearby receptors is included in Appendix B.

**Table 7.1-1  
SUMMARY OF NATIONAL AND CALIFORNIA  
AMBIENT AIR QUALITY STANDARDS**

Pollutant	Averaging Time	NAAQS		CAAQS
		Primary	Secondary	
CO	8-hour	9 ppm <sup>(a)</sup>	-	9 ppm
	1-hour	35 ppm <sup>(a)</sup>	-	20 ppm
Lead	3-month (rolling average)	0.15 µg/m <sup>3</sup>	0.15 µg/m <sup>3</sup>	-
	Quarterly/30-Day Average	1.5 µg/m <sup>3</sup>	1.5 µg/m <sup>3</sup>	1.5 µg/m <sup>3</sup>
NO <sub>2</sub>	Annual	0.053 ppm	0.053 ppm	0.030 ppm
	1-hour	0.100 ppm <sup>(b)</sup>	-	0.18 ppm
Ozone	8-hour	0.075 ppm <sup>(c)</sup>	0.075 ppm <sup>(c)</sup>	0.070 ppm
	1-hour	-	-	0.09 ppm
PM <sub>10</sub>	Annual	-	-	20 µg/m <sup>3</sup>
	24-hour	150 µg/m <sup>3</sup> <sup>(d)</sup>	150 µg/m <sup>3</sup> <sup>(d)</sup>	50 µg/m <sup>3</sup>
PM <sub>2.5</sub>	Annual	15.0 µg/m <sup>3</sup> <sup>(e)</sup>	15.0 µg/m <sup>3</sup> <sup>(e)</sup>	12 µg/m <sup>3</sup>
	24-hour	35 µg/m <sup>3</sup> <sup>(f)</sup>	35 µg/m <sup>3</sup> <sup>(f)</sup>	-
SO <sub>2</sub>	Annual	0.03 ppm	-	-
	24-hour	0.14 ppm <sup>(a)</sup>	-	0.04 ppm
	3-hour	-	0.5 ppm <sup>(a)</sup>	-
Sulfates	1-hour	-	-	0.25 ppm
	24-hour	-	-	25 µg/m <sup>3</sup>
H <sub>2</sub> S	1-hour	-	-	0.03 ppm
Vinyl chloride	24-hour	-	-	0.01 ppm
Visibility reducing particles	8-hour	-	-	See footnote g.

Sources: 40 CFR Part 50; 17 CCR §§ 70200.

Key:

µg/m<sup>3</sup> = micrograms per cubic meter

ppm = parts per million

Notes:

a. Not to be exceeded more than once per year.

b. The 3-year average of the 98th percentile of the daily maximum 1-hour average.

c. To attain this standard, the 3-year average of the fourth highest daily maximum 8-hour average concentration over year must not exceed the standard.

d. Not to be exceeded more than once per year on average over 3 years.

e. The 3-year average of the 98th percentile of 24-hour concentrations within an area must not exceed the standard.

f. To attain this standard, the 3-year average of the 98th percentile must not exceed the standard.

g. Extinction coefficient of 0.23 per km visibility of 10 miles or more due to particles when relative humidity is less than 70 percent.

**Table 7.1-2  
 AMBIENT AIR QUALITY MEASURED AT NEARBY RECEPTORS**

	BAAQMD <sup>a</sup>			YSAQMD <sup>b</sup>		
	2007	2008	2009	2007	2008	2009
<b>1-Hour Ozone</b>						
Maximum 1-hour concentration (ppm)	0.089	0.116	0.104	0.103	0.112	0.106
1-hour California designation value	0.10	0.10	0.10	0.10	0.11	0.10
Number of days standard exceeded <sup>c</sup>						
CAAQS 1-hour (>0.09 ppm)	0	2	2	1	4	3
<b>8-Hour Ozone</b>						
8-hour national designation value	0.066	0.068	0.067	0.074	0.075	0.072
8-hour California designation value	0.077	0.077	0.085	0.087	0.088	0.085
Number of days standard exceeded <sup>c</sup>						
NAAQS 8-hour (>0.075 ppm)	0	1	2	2	4	2
CAAQS 8-hour (>0.070 ppm)	0	2	5	4	7	2
<b>Particulate Matter (PM<sub>10</sub>)<sup>d</sup></b>						
State annual average concentration (µg/m <sup>3</sup> ) <sup>e</sup>	18.9	-	-	14.6	16.5	13.6
Number of days standard exceeded <sup>c</sup>						
NAAQS 24-hour (>150 µg/m <sup>3</sup> ) <sub>f</sub>	0	-	-	0	0	0
CAAQS 24-hour (>50 µg/m <sup>3</sup> ) <sub>f</sub>	12.5	-	-	0	0.6	0
<b>Particulate Matter (PM<sub>2.5</sub>)</b>						
National annual designation value (µg/m <sup>3</sup> )	9.8	9.8	9.8	-	-	-
State annual designation value (µg/m <sup>3</sup> )	12.0	12.0	12.0	-	-	-
Number of days standard exceeded <sup>c</sup>						
NAAQS 24-hour (>35 µg/m <sup>3</sup> ) <sup>f</sup>	12.1	7.1	5.4	-	-	-

Sources: California Air Resources Board 2009; U.S. Environmental Protection Agency 2009.

Notes: CAAQS = California ambient air quality standards.

NAAQS = national ambient air quality standards.

- = insufficient data available to determine the value.

a BAAQMD ozone from Fairfield-Chadbourne monitoring station, PM from Vallejo monitoring station.

b YSAQMD ozone from Vacaville – Merchant Street, PM from Vacaville – Ulatis Dr monitoring station.

c An exceedance is not necessarily a violation.

b National statistics are based on standard conditions data. In addition, national statistics are based on samplers using federal reference or equivalent methods.

c State statistics are based on local conditions data, except in the South Coast Air Basin, for which statistics are based on standard conditions data. In addition, State statistics are based on California approved samplers.

d Measurements usually are collected every 6 days.

e State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

f Mathematical estimate of how many days concentrations would have been measured as higher than the level of the standard had each day been monitored. Values have been rounded

## **7.2 AIR QUALITY REGULATORY SETTING**

This section summarizes laws, regulations, plans, and agencies that govern air quality management in the project area.

### **7.2.1 Federal**

The Federal Clean Air Act (CAA) establishes EPA's responsibilities to protect and improve the nation's air quality. EPA oversees the implementation of federal programs for setting air quality standards, permitting new and modified stationary sources, controlling toxic air contaminants, and reducing emissions from motor vehicles and other mobile sources. EPA also requires that each state prepare and submit a State Implementation Plan (SIP) that consists of background information, rules, technical documentation, and agreements that an individual state will use to attain compliance with the NAAQS within federally-imposed deadlines. State and local agencies implement the plans and rules associated with the SIP, but the rules are also federally enforceable.

### **7.2.2 State**

The California Clean Air Act establishes a statewide air pollution control program for California. CARB is the primary administrator of the California Clean Air Act. CARB's main responsibilities are to develop, adopt, implement, and enforce the state's motor vehicle pollution control program; administer and coordinate the state's air pollution research program; adopt and update the state's ambient air quality standards; review the operations of the local air pollution control districts; and review and coordinate the state's SIP for achieving federal ambient air quality standards.

The SIP for demonstrating attainment of the 1997 federal 8-hour ozone standard was adopted by CARB and the local air districts in California and submitted to the EPA in 1997. In August 2009, CARB submitted SIP revisions to EPA to account for emission reductions from the regulations adopted in 2007 and 2008, including a commitment for emission reductions in the Sacramento area.

### **7.2.3 Regional**

CARB divides into 15 air basins based on geographic and meteorological features. One or more local air districts administer air quality management within each basin. These air districts develop local air quality/pollutant regulations and prepare air quality plans that set goals and measures for achieving attainment with ambient air quality standards. The districts also develop emission inventories, collect air monitoring data, and perform dispersion modeling simulations to establish strategies to reduce emissions and improve air quality. Local air regulations and air quality plans include measures to reduce air pollutant emissions from industrial facilities, commercial processes, motor vehicles, and other sources.

The majority of project would be located within the Sacramento Valley Air Basin under the jurisdiction the YSAQMD. A section of the project between of the Pacific Gas and Electric 500-kV transmission lines and Collinsville Road would be located within the San Francisco Bay Area Air Basin under the jurisdiction of the BAAQMD. This area is south of the YSAQMD, and the BAAQMD boundary extends east for another six miles. The prevailing wind is from the west and southwest and could potentially transport emissions from the BAAQMD to the YSAQMD.

### **Bay Area Air Quality Management District**

BAAQMD published *CEQA Guidelines – Assessing the Air Quality Impacts of Projects and Plans* (BAAQMD 1999) in December 1999. On June 2, 2010, BAAQMD approved an update to its CEQA air quality guidelines (BAAQMD 2010a and 2010b). The update includes revisions to significance thresholds, assessment methodologies, and mitigation strategies for criteria pollutants, air toxics, odors, and GHG emissions.

**BAAQMD Regulation 6, Rule 1 – General Requirements.** This rule limits no more than three minutes in any hour a visible emission which is dark or darker than No. 1 on the Ringlemann chart.

**BAAQMD Regulation 8, Rule 3 – Architectural Coating.** This rule limits volatile organic compounds in industrial maintenance coatings to 250 grams/liter.

### **Yolo-Solano Air Quality Management District**

YSAQMD developed the *Handbook for Assessing and Mitigating Air Quality Impacts* (YSAQMD 2007) as an advisory document for lead agencies, consultants, and project applicants with procedures for addressing air quality impacts in California Environmental Quality Act (CEQA) documents.

**YSAQMD Rule 2.3 – Ringlemann Chart.** This rule requires visible emissions from an emission source, including all (on-road and off-road) diesel-powered equipment, not exceed 40% opacity for more than 3 minutes in any 1 hour.

**YSAQMD Rule 2.14 – Architectural Coatings.** This rule limits volatile organic compounds to 250 grams/liter for all paints and architectural coatings sold or applied in the district in containers greater than a quart.

**YSAQMD Rule 2.32 – Stationary Internal Combustion Engines** – This rule limits NO<sub>x</sub> and carbon monoxide emissions from stationary internal combustion engines, but exempts emergency standby engines if maintenance is limited to 50 hours a year or less.

### **Attainment Status**

Agencies assess the air quality of an area and determine its status in attaining compliance with ambient air quality standards. EPA compares ambient air criteria pollutant measurements with the NAAQS. Similarly, CARB compares air pollutant measurements with CAAQS. Based on these comparisons, regions are placed in one of the following categories:

**Attainment** – A region is “in attainment” if monitoring shows ambient concentrations of a specific pollutant are less than or equal to NAAQS or CAAQS. In addition, an area that has been re-designated from nonattainment to attainment is classified as a “maintenance area” for 10 years to ensure that the air quality improvements are sustained.

**Nonattainment** – If the NAAQS or CAAQS are exceeded for a pollutant, the region is designated as nonattainment for that pollutant.

**Unclassified** – An area is unclassified if the ambient air monitoring data are incomplete and do not support a designation of attainment or nonattainment.

On April 15, 2004, the EPA designated areas in the United States that violated the federal 8-hour ozone standard. As a result, each nonattainment area was assigned an attainment deadline based on the severity of its ozone problem. EPA strengthened the air quality standards for ground-level ozone in 2008. The designation process for the 2008 ground-level ozone standards has been extended by one year to March 2011. The portion of the Sacramento Valley Air Basin (i.e., YSAQMD) where project activities would occur is currently designated as nonattainment for ozone (NAAQS and CAAQS), PM<sub>2.5</sub> (NAAQS only), and PM<sub>10</sub> (CAAQS only). The portion of the San Francisco Bay Air Basin (i.e., BAAQMD) where project activities would occur is currently designated as nonattainment for ozone and PM<sub>2.5</sub> (NAAQS and CAAQS) and PM<sub>10</sub> (CAAQS only). These areas are designated as attainment and/or unclassified for all other pollutant NAAQS and CAAQS. Table 7.2-1 shows the attainment status of the YSAQMD and the BAAQMD.

**Table 7.2-1  
ATTAINMENT STATUS OF THE PROPOSED PROJECT AREA**

Pollutant	BAAQMD <sup>a</sup>		YSAQMD <sup>a</sup>	
	NAAQS	CAAQS	NAAQS	CAAQS
CO	A/U	A	A/U	A
Lead	A	A	A	A
NO <sub>2</sub>	A/U	A	A/U	A
Ozone	NA	NA	NA	NA
PM <sub>10</sub>	U	NA	U	NA
PM <sub>2.5</sub>	NA	NA	NA	U
SO <sub>2</sub>	A	A	U	A
Sulfates	--	A	-	A
H <sub>2</sub> S	--	U	-	U
VRP	--	U	-	U

A = attainment

A/U = attainment/unclassified

NA = nonattainment

U = unclassified

VRP = visibility reducing particles

a Refers only to the portion of the air district where project activities would occur.

## 7.2.4 Local

Local councils of government, county transportation agencies, cities and counties and various nongovernmental agencies also join in the efforts to improve air quality through a variety of programs. These programs include the adoption of regulations and policies as well as implementation of various education and public outreach program.

## *Solano County General Plan*

The Public Health and Safety Chapter of the General Plan has established policies for managing air quality, as follows (Solano County 2008):

- **HS.P-43:** Support land use, transportation management, infrastructure, and environmental planning programs that reduce vehicle emissions and improve air quality.
- **RS.P-45:** Promote consistency and cooperation in air quality planning efforts.

In addition, the Public Health and Safety chapter requires the implementation of best management practices to reduce air pollutant emissions associated with the construction of all development and infrastructure projects (HS.I-59).

### **7.3 SIGNIFICANCE CRITERIA FOR AIR QUALITY IMPACTS**

The evaluation of potential impacts related to construction and operation of the proposed on air quality considered the following criteria. The proposed project would be considered to have a significant impact on air quality if it would:

- Conflict with or obstruct implementation of an applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

Table 7.3-1 includes a summary of the project-level thresholds of significance as established by the YSAQMD and the BAAQMD for air quality impacts related to construction and operational activities. The significant thresholds include both daily and annual criteria.

The YSAQMD responded to the Notice of Preparation for the Montezuma II project EIR and requested that the air quality analysis use the District's Handbook for Assessment and Mitigation Air Quality Impacts as guidance, address the thresholds of significance for particulates and ozone precursors, use URBEMIS 2007, v. 9.2 to estimate emissions, analyze construction impacts and ensure that the project uses Best Management Practices during construction, discuss the proposed impact on the ability to achieve Assembly Bill (AB) 32 goals on climate change, consider any applicable regulation applicable to the emergency diesel generator, and evaluate the applicability of rules on visibility of emissions from stationary diesel powered equipment, registration of portable diesel equipment, architectural coatings, and permitting of stationary equipment. The impact analysis in this chapter addresses these considerations.

**Table 7.3-1  
THRESHOLDS OF SIGNIFICANCE FOR  
CRITERIA POLLUTANTS OF CONCERN**

Pollutant	YSAQMD Thresholds		BAAQMD Thresholds <sup>a</sup>	
	Construction and Operational-Related		Construction-Related	Operational-Related
ROG	10 tons/year		54 lb/day	54 lb/day and 10 tons/year
NO <sub>x</sub>	10 tons/year		54 lb/day	54 lb/day and 10 tons/year
PM <sub>10</sub> (total)	80 lb/day		-	-
PM <sub>10</sub> (exhaust)	-		82 lb/day	82 lb/day and 15 tons/year
PM <sub>2.5</sub> (exhaust)	-		54 lb/day	54 lb/day and 10 tons/year
PM <sub>10</sub> /PM <sub>2.5</sub> (fugitive dust)	-		Best Management Practices	-
CO	Violation of a CAAQS		-	Violation of a CAAQS

<sup>a</sup> BAAQMD significance thresholds apply to average daily emission and maximum annual emissions.

#### 7.4 AIR QUALITY IMPACT ANALYSIS AND MITIGATION

The project has the potential for short-term air quality impacts due to construction activities and long-term air quality impacts due to their ongoing operation and maintenance. Short-term emissions include exhaust from diesel and gasoline-fueled construction equipment and vehicles. On-site earthmoving activities and vehicle travel on local/access roads would also generate fugitive dust. Operational emissions include emissions from the emergency natural gas generator and diesel-powered maintenance equipment. Ultimately, however, Project operations would displace electricity generated from fossil-fueled power plants and would result in long-term benefits to air quality.

Project emissions would contribute to emissions in their respective air basin and could affect sensitive receptors, individuals or groups of individuals that are particularly vulnerable to reductions in ambient air quality. Typical sensitive receptors include hospitals, convalescence centers, schools, and residences. The sensitive receptors in or near the project area are residences on agricultural properties. Based on the proposed turbine locations in this Draft EIR, the nearest residence is on Montezuma Hills Road approximately 1,500 feet from the nearest turbine location. One access road alternative would pass within 75 feet of this residence, and one meteorological tower is 965 feet from the nearest residence on Collinsville Road. The locations of sensitive receptors in the vicinity of the project are discussed in Chapter 14, Noise, and Chapter 15, Land Use and Population.

With regard to potential odor-related air impacts, due to the distance separating sensitive receptors from project components, odors produced from construction of the Project are not expected to impact nearby sensitive receptors and thus no further analysis is warranted.

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### **Impact AIR-1: Short-term Increase in Emissions of Criteria Pollutants from Construction Equipment and Vehicles**

Construction of the proposed project would require grading of the temporary and permanent laydown areas, access roads and turbine pads, substation site, and operations and maintenance areas (O&M), permanent meteorological tower locations and installation of the proposed facilities, including the operation of the large cranes used to lift the nacelles and blades to the top of the towers.

Construction would begin in August 2011 and would require approximately five months to complete. Several crews may be working on construction at the same time, and site grading and facility installation activities may occur simultaneously at different locations. Air pollutant emissions would be generated during various activities associated with these construction activities. Air pollutants would be emitted from engine exhaust of diesel and gasoline-fueled on-site construction equipment and on-road vehicles (i.e., delivery trucks and worker vehicles). Appendix B lists the anticipated equipment that would be used to construct the project, including delivery vehicles and cranes, and the expected duration of daily and annual operations.

All portable diesel fueled equipment greater than 50 hp would be registered with either the CARB Portable Equipment Registration Program or with the Districts. Current CARB regulations require equipment to limit unnecessary idling to 5 minutes and limit emissions  $\text{NO}_x$  from off-road diesel equipment, which constitute the adopted Best Management Practices for construction equipment exhaust.

The proposed turbines and towers would be painted offsite by the manufacturer, but some touch up and spot painting would occur in the field with coatings that would conform to BAAQMD regulation 8, rule 3 and YSCAPCD rule 2.14.

Daily and total air pollutant emissions were estimated for site grading and facility installation using URBEMIS 2007 version 9.2.4 for Solano County within Yolo Solano Air Quality Management District. The analysis determined significance by comparing daily emissions with the daily significance thresholds and total emissions to the annual significance thresholds.

The total area to be disturbed during construction, including construction of foundations, access roads, underground electrical trenches, substation, and other facilities, would be approximately 220 acres. The estimates of maximum daily emissions assume that 29 acres would be disturbed on any given day (more than two pads and three miles of access road construction). Because the proposed project locations are within the jurisdictions of the BAAQMD and YSAQMD, modeled emissions associated with project construction were apportioned to each air district based on the size of the project area located within each air district. Most of the proposed facility locations in the BAAQMD are south of the boundary between the two districts and the prevailing winds from the west would not transport these emissions into YSAQMD. Based on the January 2011 project layout shown in Figure 3.5-1, approximately 653 acres of the project area fall within the BAAQMD and 1,886 acres fall within the YSAQMD. Consequently, emissions from project construction were multiplied by 0.257 and 0.743 to determine emissions within the BAAQMD and YSAQMD, respectively.

Table 7.3-1 presents a summary of estimated daily maximum emissions for the construction phase. A summary of estimated annual emissions for project construction is in table 7.3-2. Appendix B provides a detailed summary of emission calculations.

**Table 7.4-1**  
**ESTIMATED DAILY CONSTRUCTION EMISSIONS**

Pollutant	Project Construction	Daily Emissions (lb/day)	
		Threshold	Significant
<b>BAAQMD Emissions<sup>a</sup></b>			
ROG	3.5	54	No
NO <sub>x</sub>	28.2	54	No
CO	19.8	-	n/a
PM <sub>10</sub> (total, mitigated/unmitigated)	149.3/71.5	-	n/a
PM <sub>10</sub> (exhaust)	1.5	82	No
PM <sub>2.5</sub> (exhaust)	1.4	54	No
PM <sub>10</sub> (fugitive dust, mitigated/unmitigated)	148.9/70.0	-	n/a
PM <sub>2.5</sub> (fugitive dust, mitigated/unmitigated)	31.1/14.6	-	n/a
<b>YSAQMD Emissions<sup>b</sup></b>			
ROG	10.0	-	n/a
NO <sub>x</sub>	81.8	-	n/a
CO	57.2	-	n/a
PM <sub>10</sub> (total, mitigated/unmitigated)	432.6/207.1	80	Yes
PM <sub>10</sub> (exhaust)	4.4	-	n/a
PM <sub>2.5</sub> (exhaust)	4.1	-	n/a
PM <sub>10</sub> (fugitive dust, mitigated/unmitigated)	431.3/202.7	-	n/a
PM <sub>2.5</sub> (fugitive dust, mitigated/unmitigated)	90.1/42.2	-	n/a

- Indicates no threshold

a Assumed to be 25.7% of total emissions for project construction in Table 4 of Appendix B.

b Assumed to be 74.3% of total emissions for project construction in Table 4 of Appendix B.

Note: Totals may not sum due to rounding

**Table 7.4-2**  
**ESTIMATED TOTAL CONSTRUCTION EMISSIONS**

Pollutant	Total Emissions (Tons)		
	Project Construction	Threshold	Significant?
<b>BAAQMD Emissions<sup>a</sup></b>			
ROG	0.2	-	n/a
NO <sub>x</sub>	1.6	-	n/a
CO	1.1	-	n/a
PM <sub>10</sub> (total, mitigated/unmitigated)	4.7/2.3	-	n/a
PM <sub>10</sub> (exhaust)	0.1	-	n/a
PM <sub>2.5</sub> (exhaust)	0.1	-	n/a
PM <sub>10</sub> (fugitive dust, mitigated/unmitigated)	4.6/2.2	-	n/a
PM <sub>2.5</sub> (fugitive dust, mitigated/unmitigated)	0.9/0.5	-	n/a
<b>YSAQMD Emissions<sup>b</sup></b>			
ROG	0.6	10	No
NO <sub>x</sub>	4.6	10	No
CO	3.4	-	n/a
PM <sub>10</sub> (total, mitigated/unmitigated)	13.6/6.5	-	n/a
PM <sub>10</sub> (exhaust)	0.2	-	n/a
PM <sub>2.5</sub> (exhaust)	0.2	-	n/a
PM <sub>10</sub> (fugitive dust, mitigated/unmitigated)	13.4/6.3	-	n/a
PM <sub>2.5</sub> (fugitive dust, mitigated/unmitigated)	2.8/1.3	-	n/a

- Indicates no threshold

a Assumed to be 25.7% of total emissions for project construction in Table 4 of Appendix B.

b Assumed to be 74.3% of total emissions for project construction in Table 4 of Appendix B.

Note: Totals may not sum due to rounding

Based on these calculations, project construction would not individually or cumulatively exceed significance thresholds for ROG and NO<sub>x</sub> for the BAAQMD or YSAQMD. Vehicle, equipment, and earthmoving emissions during construction of the project would not exceed emission thresholds for PM<sub>10</sub> exhaust established for the BAAQMD.

This table demonstrates that the project would not result in significant adverse construction equipment related impacts. We note that construction-related fugitive dust emissions would cause total PM<sub>10</sub> to exceed YSAQMD significance threshold. This impact is addressed separately in impact AIR-2.

If the prevailing winds transport the emission from the BAAQMD district to the YSAQMD district or if all 29 acres of maximum construction activity were to occur within the YSAQMD, the combined total emissions of NO<sub>x</sub> and ROG from construction equipment would still not exceed the YSAQMD annual significance thresholds, but total PM<sub>10</sub> emissions would increase and exceed the YSAQMD daily significance threshold. The YSAQMD does not have daily significance thresholds for NO<sub>x</sub> and ROG.

The BAAQMD significance thresholds are daily averages and maximum annual totals. Even if occasional winds transport the emissions from the YSAQMD to the BAAQMD or if the maximum expected daily construction activities were all to occur in the BAAQMD until all pads in the area were constructed, the average daily emissions of NO<sub>x</sub> and ROG during the five-month construction period would not exceed the BAAQMD significance thresholds.

**Level of Significance:** Less than Significant

#### **Impact AIR-2: Temporary Increase in Fugitive Dust**

On-site earthmoving activities and vehicle travel on local/access roads would also generate fugitive dust. Emissions of airborne dust could contribute to existing violations of PM<sub>10</sub> standards during the construction period. Based on a maximum of 29 acres being worked on any given day, the project would generate a maximum daily emissions rate of approximately 580 lbs/day (uncontrolled) of fugitive dust, with 158.7 and 421.4 in BAAQMD and YSAQMD respectively. With the use of watering twice daily, the daily fugitive dust emission level is estimated at approximately 279 lbs/day, with 71.5 and 207.1 in BAAQMD and YSAQMD respectively. Summary PM emissions are presented in Table 7.4-1.

The level of fugitive dust emissions causes total PM<sub>10</sub> emissions to exceed the YSAQMD significance threshold of 80 lb/day. Increased dust emissions from construction activities could affect sensitive receptors near the project, most commonly nearby residents. This is a significant impact and mitigation is required.

**Level of Significance:** Potentially Significant

#### **Mitigation Measure AIR-2: Fugitive Dust Controls**

During construction, the applicant shall reduce fugitive dust emissions by implementing the standard mitigation measures outlined in Table 7.4-3.

During periods of high wind conditions (i.e., winds exceeding 25 miles per hour [mph]), the Applicant shall reduce fugitive dust emissions from construction activities by implementing the mitigation measures outlined in Table 7.4-4.

**Table 7.4-3  
STANDARD FUGITIVE DUST MITIGATION MEASURES**

<b>Fugitive Dust Source</b>	<b>Control Measure</b>
Earthmoving	1. For any earth-moving more than 100 feet from all property lines, conduct watering as necessary to prevent visible dust emissions from exceeding 100 feet in any direction.
Disturbed surface areas (except completed grading areas)	2a. Apply dust suppression in a sufficient quantity and frequency to maintain a stabilized surface; any areas that cannot be stabilized, as evidenced by wind-driven dust, must have an application of water at least twice per day to at least 80% of the unstabilized area.
Disturbed surface areas – completed grading areas	2b. Apply chemical stabilizers within five working days of grading completion; OR 2c. Take action 3a or 3c as specified for inactive disturbed surface areas.
Inactive disturbed surface areas	3a. Apply water to at least 80% of all inactive disturbed surface areas on a daily basis when there is evidence of wind-driven fugitive dust, excluding any areas that are inaccessible due to excessive slope or other safety conditions; OR 3b. Apply dust suppressants in sufficient quantity and frequency to maintain a stabilized surface; OR 3c. Establish a vegetative ground cover within 21 days after active operations have ceased; ground cover must be of sufficient density to expose less than 30% of unstabilized ground within 90 days of planting and at all times thereafter; OR 3d. Use any combination of control actions 3a, 3b, and 3c such that, in total, they apply to all inactive disturbed surface areas.
Unpaved Roads	4a. Water all roads used for any vehicular traffic at least once per every two hours of active operations; OR 4b. Water all roads used for any vehicular traffic once daily and restrict vehicle speed to 15 mph; OR 4c. Apply chemical stabilizer to all unpaved road surfaces in sufficient quantity and frequency to maintain a stabilized surface.
Open storage piles	5a. Apply chemical stabilizers; OR 5b. Apply water to at least 80% of the surface areas of all open storage piles on a daily basis when there is evidence of wind-driven fugitive dust; OR 5c. Install a three-sided enclosure with walls with no more than 50% porosity that extend, at a minimum, to the top of the pile.
Track-out control	6a. Pave or apply chemical stabilization at sufficient concentration and frequency to maintain a stabilized surface starting from the point of

**Table 7.4-3  
STANDARD FUGITIVE DUST MITIGATION MEASURES**

Fugitive Dust Source	Control Measure
All categories	<p>intersection with the public paved surface and extending for a centerline distance of at least 100 feet and width of at least 20 feet; OR</p> <p>6b. Pave from the point of intersection with the public paved road surface and extending for a centerline distance of at least 25 feet and a width of at least 20 feet and install a track-out control device immediately adjacent to the paved surface such that exiting vehicles do not travel on any unpaved road surface after passing through the track-out control device.</p> <p>7. Any other control measures approved by the local air district where necessary.</p>

In addition to the mitigation measures outlined in Tables 7.4-3 and 7.4-4, the Applicant shall reduce fugitive dust emissions from construction activities by implementing the following standard mitigation measures recommended by the BAAQMD and YSAQMD:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) and construction sites not controlled with one of the methods outlined in Table 7.4-3 or Table 7.4-4 shall be watered when there is evidence of wind-driven dust.
- Hydroseed or apply nontoxic stabilizers to construction areas that are scheduled to be inactive for more than four consecutive days during all wind conditions.
- Haul trucks transporting soil, sand, or other loose material off-site shall be covered or haul trucks shall maintain at least two feet of freeboard during all wind conditions
- All visible mud or dirt track-out onto paved access roads, parking areas, staging areas, and adjacent public roads shall be cleaned using wet power street sweepers or vacuum trucks at least once per day. The use of dry power sweeping is prohibited
- All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads will be laid as soon as possible after grading unless seeding or soil binders are used.
- A publicly visible sign shall be posted with the telephone number and person to contact at the lead agency regarding dust complaints. This person will respond and take corrective action within 48 hours. The local air district's phone number will also be visible to ensure compliance with applicable regulations.

Since construction-related emissions could exceed the applicable thresholds of significance, the following additional construction mitigation measures (recommended by the local air districts) shall be implemented:

- Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.

**Table 7.4-4  
FUGITIVE DUST MITIGATION MEASURES DURING HIGH WIND  
CONDITIONS**

Fugitive Dust Source	Control Measure
Earthmoving	1a. Apply water to soil not more than 15 minutes prior to moving such soil.
Disturbed surface areas	2a. On the last day of active operations prior to a weekend, holiday, or any other period when active operations will not occur for not more than four consecutive days: apply water with a mixture of chemical stabilizer diluted to not less than 1/20 of the concentration required to maintain a stabilized surface for a period of six months; OR 2b. Apply chemical stabilizers prior to a wind event; OR 2c. Apply water to all unstabilized disturbed areas three times per day; if there is any evidence of wind-driven fugitive dust, watering frequency is increased to a minimum of four times per day; OR 2d. Use any combination of control actions specified above, such that, in total, they apply to all disturbed surface areas.
Unpaved roads	3a. Apply chemical stabilizers prior to a wind event; OR 3b. Apply water twice per hour during active operation.
Open storage piles	4a. Apply water twice per hour; OR 4b. Install temporary coverings.
Paved road track-out	5a. Cover all haul vehicles; OR 5b. Comply with the vehicle freeboard requirements of Section 23114 of the California Vehicle Code for operation on both public and private roads.
All categories	6a. Any other control measures approved by the local air district as necessary.

Prior to the commencement of construction activities, the Applicant shall prepare a Construction Fugitive Dust Control Plan and submit it to the County for approval. This plan shall describe how to minimize fugitive dust generated by construction activities and shall include the following:

- A description of each active operation that may result in the generation of fugitive dust;
- Identification of all sources of fugitive dust (e.g., earthmoving, storage piles, and vehicular traffic);
- A description of the control measures to be applied to each of the sources of dust emissions identified above. The description will be sufficiently detailed to demonstrate that the applicable best available control measure(s) will be utilized and/or installed during all periods of active operations;

- In the event that there are special technical circumstances (e.g., non-economic), including safety, which prevent the use of at least one of the required mitigation measures for any of the sources identified, a justification statement will be provided to explain the reason(s) why the required control measures cannot be implemented; and
- A process for addressing complaints received by sensitive receptors (either directly or through the County) due to dust and alternative strategies to resolve such complaints, such as increased watering and implementation of additional dust control measures.

Upon completion of construction, the applicant shall restore and stabilize all areas that will only be temporarily disturbed (i.e., areas that will not be covered with surface structures such as buildings and pavement and or gravel) according to Mitigation Measure BIO-1.

Implementation of these mitigation measures would significantly reduce fugitive dust emissions. In particular, according to BAAQMD CEQA Guidelines<sup>4</sup>, watering all exposed soil twice daily would effectively reduce approximately 53 percent of dust emissions. Nonetheless, even with a watering program and the other identified best available dust control mitigation measures, it is anticipated that dust emissions from project construction activities would exceed YSAQMD's significance thresholds for total PM<sub>10</sub> fugitive dust emissions and remain a significant impact.

**Level of Significance with Mitigation:** Significant and Unavoidable

### **Impact AIR-3: Long-Term Emissions from Operations and Maintenance**

Operation of the project turbines would not generate significant emissions of criteria pollutants or fugitive dust from mobile sources such as vehicle and equipment operation because of the limited nature and extent of maintenance and operations activities. As currently proposed, the project would not involve stockpiling dirt or other materials that could emit dust during operation in excess of BAAQMD or YSAQMD thresholds. Likewise, the 150 kW emergency generator would operate no more than 48 hours per year of maintenance operation and would therefore be exempt from YSAQMD Stationary Internal Combustion Engines Rule 2.32, will. Use of other equipment with greater than 50 hp engines is not anticipated.

Air pollutant emissions would also be generated from the operation and maintenance of the transmission line and substation. Specifically, combustion products would be emitted from vehicles used during routine inspection and maintenance. Tables 7.4-5 and 7.4-6 provides a summary of criteria pollutant emissions associated with operation of the existing enXco facility, the proposed Montezuma II wind project, and the anticipated net increase in emissions from the proposed project. Tables 7.4-5 and 7.4-6 present the same information in different units (pounds per day and tons per year) in order to compare the appropriate air district thresholds.

Overall, by generating energy from the Montezuma II Wind Energy Project in lieu of construction of a fossil fuel power plant to meet increased energy needs, the project contributes to reducing dependency on fossil fuels that have significantly greater operational emissions. CARB estimates that each MWhr of wind generated displaces generation from existing natural gas peakers with emissions of 0.7 lbs/MWhr ROG, 0.1 lbs/MWhr NO<sub>x</sub>, 0.02 lbs/MWhr SO<sub>x</sub>, 0.4 lbs/MWhr CO, and 0.06 lbs/MWhr PM<sub>2.5</sub>. To calculate avoided potential criteria pollutant, Point Impact, the County's

air quality consultant, first multiplied the rated capacity by a capacity factor and hours in a year to estimate the average annual production. The proposed project would have a capacity factor as high as 37 percent. Point Impact estimated that with performance 33 to 37 percent capacity, the project would produce between 225,000 and 250,000 MWhrs per year. Point Impact then multiplied the estimated annual production by the existing natural gas peaker emissions factor to find the displaced emissions from generation, and compared the displaced emissions to the baseline conditions (including existing enXco V turbines). Table 7.4-7 summarizes the net impact on criteria pollutant emissions from the proposed project. This analysis demonstrates that by displacing fossil generation, the proposed Project would result in a net emissions reductions of at least 1,030 tons of NO<sub>x</sub> and 90 tons of ROB over the lifetime of the project. Therefore, operation of the wind turbines would cumulatively benefit air quality in the San Francisco Bay Air Basin and Sacramento Valley Air Basin with respect to long-term emissions. In light of the net benefit and because any operation emissions are well below BAAQMD's and YSAQMD's thresholds of significant, the Project's operations emissions of criteria pollutants would result in a less than significant impact.

**Level of Significance:** Less than Significant

**Table 7.4-5**  
**ESTIMATED DAILY OPERATIONS EMISSIONS**

Pollutant	Daily Emissions (lb/day)				Significant?
	Existing enXco V	Proposed Project <sup>c</sup>	Net Increase	Significance Threshold	
<b>BAAQMD Emissions<sup>a</sup></b>					
ROG	4.8	6.0	1.2	54	No
NO <sub>x</sub>	8.2	9.5	1.3	54	No
CO	68.3	87.3	19.0	-	n/a
PM <sub>10</sub> (total)	11.0	14.5	3.5	82	No
PM <sub>2.5</sub> (total)	2.2	2.9	0.7	-	n/a
<b>YSAQMD Emissions<sup>b</sup></b>					
ROG	5.3	17.5	12.2	-	n/a
NO <sub>x</sub>	9.1	30.5	21.4	-	n/a
CO	75.8	261.7	185.9	-	n/a
PM <sub>10</sub> (total)	12.2	42.2	29.9	80	No
PM <sub>2.5</sub> (total)	2.4	8.3	5.9	-	n/a

- Indicates no threshold

a Assumed to be 25.7% of total emissions

b Assumed to be 74.3% of total emissions

c Includes 48 operational hours of the 201 horsepower LPG generator. Also include ROG emissions associated with facility upkeep.

Note: Totals may not sum due to rounding

**Table 7.4-6  
ESTIMATED ANNUAL OPERATIONS EMISSIONS**

Pollutant	Existing enXco V	Annual Emissions (Tons)			Significance Threshold	Significant?
		Proposed Project <sup>c</sup>	Net Increase			
<b>BAAQMD Emissions<sup>a</sup></b>						
ROG	0.9	1.2	0.3	-	n/a	
NO <sub>x</sub>	1.7	2.0	0.3	-	n/a	
CO	12.6	16.1	3.5	-	n/a	
PM <sub>10</sub> (total)	2.0	2.6	0.6	-	n/a	
PM <sub>2.5</sub> (total)	0.4	0.6	0.1	-	n/a	
<b>YSAQMD Emissions<sup>b</sup></b>						
ROG	1.0	3.5	2.5	10	No	
NO <sub>x</sub>	1.9	5.7	3.9	10	No	
CO	14.0	46.7	32.6	-	n/a	
PM <sub>10</sub> (total)	2.2	7.7	5.4	-	n/a	
PM <sub>2.5</sub> (total)	0.5	1.5	1.1	-	n/a	

- Indicates no threshold

a Assumed to be 25.7% of total emissions

b Assumed to be 74.3% of total emissions

c Includes 48 operational hours of the 201 horsepower LPG generator. Also include ROG emissions associated with facility upkeep.

Note: Totals may not sum due to rounding

Based on the data in tables 7.4-3 and 7.4-4, it is expected the operation of the project would not exceed BAAQMD and YSAQMD thresholds and result in a less than significant impact.

**Table 7.4-7**  
**NET IMPACT ON CRITERIA POLLUTANTS FROM PROPOSED PROJECT (tons)**

<b>Project</b>	<b>Activity</b>	<b>ROG</b>		<b>NO<sub>x</sub></b>		<b>CO</b>		<b>PM<sub>2.5</sub></b>	
Existing enXco V Project <sup>1</sup> Annual Emissions	Operational Emissions <sup>2</sup>	2.0		3.6		26.7		0.9	
	Displaced Emissions from Generation <sup>3</sup>	3.0		17.2		17.2		2.6	
	Emissions Benefit	1.1		13.7		-9.4		1.7	
Proposed Project Annual Emissions	Operational Emissions <sup>2</sup>	4.7		7.7		62.8		2.1	
	Displaced Emissions from Generation <sup>3</sup>	7.9		45.0		45.0		6.8	
	Emissions Benefit	3.2		37.3		-17.7		4.7	
Proposed Project Compared to Existing Project <sup>1</sup>	Existing Project Emissions Benefit 2011-2015	5.0		63.8		-43.9		7.9	
	Proposed Project Lifetime Emissions Benefit	94.2	120.4	1,104.1	1,254.1	-524.6	-374.6	139.3	161.8
	<b>Proposed Project Lifetime Emissions Benefit Compared to Baseline<sup>4</sup></b>	<b>89.2</b>	<b>115.5</b>	<b>1,040.3</b>	<b>1,190.3</b>	<b>-480.6</b>	<b>-330.6</b>	<b>131.4</b>	<b>153.9</b>

1 Approximately 200 enXco V turbines in the Montezuma II project area, assumed operational until May 2011 with proposed project or until December 2015 without proposed project

2 From ICF Revised Air Quality Study for the Proposed Montezuma II Wind Project

3 Estimated annual generation multiplied by CARB emissions factor for existing natural gas peaker factor.

4 Emissions benefits of the proposed project over 30 year life minus construction emissions and avoided emissions benefits from enXco V during the almost 5 year period from May 2011 to December 2015 that enXco V would be operational in the no project scenario

5 Capacity Factor (CF) used to estimate production and associated emissions reductions

## 7.5 REFERENCES

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