

2.3 Air Quality

This section considers impacts to the existing ambient air quality and potential effects to air quality resulting from the implementation of the proposed project. Information and analysis in this section have been compiled based on an understanding of the existing ambient air quality of the San Diego Air Basin (SDAB) and review of existing technical data, applicable laws, regulations, and guidelines. Analysis specifically pertaining to greenhouse gas emissions and the potential for the proposed project to conflict with the goals and strategies of Assembly Bill (AB) 32 is discussed in Section 3.1.3, Greenhouse Gas Emissions, of this Environmental Impact Report (EIR).

2.3.1 Existing Conditions

This section presents a discussion of the regional climate and meteorological conditions and ambient air quality in the project area.

Geographic Setting

The proposed project would apply to properties located in the unincorporated portions of the County of San Diego (County) over which the County has land use jurisdiction. There are two defined project areas: (1) for small wind turbines and Meteorological Testing (MET) facilities, the project area includes all properties in the unincorporated County over which the County has jurisdiction, as depicted in Figure 1-3; (2) for large wind turbines, the project area is defined by wind resource areas within the unincorporated County, as depicted in Figure 1-4. Reliable wind resources areas are mainly concentrated in the communities of Borrego, North Mountain, Ramona, Central Mountain, Alpine, Julian, Cuyamaca, Descanso, Pine Valley, Mountain Empire, Boulevard, Lake Moreno/Campo, and Jacumba.

Climate and Meteorology

The County has a climate that is dominated by a semipermanent high-pressure cell located over the Pacific Ocean. This cell influences the direction of prevailing winds (westerly to northwesterly) and maintains clear skies for much of the year. The proposed project area is located within the SDAB. The regional climate of SDAB is primarily Mediterranean in character, consisting of dry, hot summers and cool, moderately wet winters. The local climate in eastern San Diego County, which is primarily desert, consists of dry, hot summers (temperatures reaching 120° Fahrenheit (F)) and milder winters (daytime temperature in the 80s). The SDAB is an area of high air pollution potential due to its climate. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. A Santa Ana occurs when a strong high pressure develops over the Nevada–Utah area and

overcomes the prevailing westerly coastal winds, sending strong, steady, hot, dry northeasterly winds over the mountains and out to sea.

The SDAB experiences frequent temperature inversions. Under an inversion condition, temperature increases as altitude increases, thereby preventing air close to the ground from mixing with the air above it. As a result, air pollutants are trapped near the ground. During the summer, an upper layer of warm air mass forms over the cool marine layer, preventing air pollutants from dispersing upward. Additionally, hydrocarbons and nitrogen dioxide (NO₂) react under strong sunlight, creating smog. Light daytime winds, predominantly from the west, further aggravate the condition by driving air pollutants inland, toward the mountains. During the fall and winter, high carbon monoxide (CO) levels are due to a nightly shallow inversion layer that forms between the cooled air at the ground and warmer air above. This can trap vehicle pollutants. Since CO is produced almost entirely from automobiles, the highest CO concentrations in the basin are associated with heavy traffic. NO₂ levels are generally higher during fall and winter as well.

Under certain conditions, a change in air flow results from an offshore transport of air from the Los Angeles region to San Diego County. This often results in high ozone (O₃) concentrations at air pollutant monitoring stations in San Diego County.

Air Quality Characteristics

Air pollution is a general term that refers to one or more chemical substances that degrade the quality of the atmosphere. Individual air pollutants may adversely affect human or animal health, reduce visibility, damage property, and reduce the productivity or vigor of crops and natural vegetation.

The California Air Resources Board (CARB), with assistance from the San Diego Air Pollution Control District (SDAPCD), compiles inventories and projections of emissions of the major pollutants and monitors air quality conditions. Air quality conditions are tracked for “criteria air pollutants” and “toxic air contaminants” (TACs). Criteria air pollutants refer to a group of pollutants for which CARB or the U.S. Environmental Protection Agency (EPA) has adopted health-based ambient air quality standards and region-wide pollution reduction plans. Seven air pollutants have been identified by the EPA as being of concern nationwide: (O₃; NO₂; CO; particulate matter less than or equal to 10 microns (PM₁₀), also called respirable particulate matter or coarse particulate matter; fine particulate matter less than or equal to 2.5 microns in size (PM_{2.5}), also called fine particulate matter; sulfur dioxide (SO₂); and lead. These pollutants are collectively referred to as “criteria” pollutants. The sources of these pollutants, their effects on human health and the region’s welfare, and their final deposition in the atmosphere vary considerably.

Ozone (O₃). O₃ is the principal component of smog and is formed in the atmosphere through a series of reactions involving reactive organic gases (ROGs), also referred to as volatile organic compounds or VOCs, and oxides of nitrogen (NO_x) in the presence of sunlight. ROGs and NO_x are called precursors of O₃. NO_x includes various combinations of nitrogen and oxygen, primarily consisting of nitric oxide (NO) and NO₂. O₃ is a principal cause of lung and eye irritation in the urban environment. It is also the primary air pollution problem in the SDAB. The SDAB is currently designated as a federal and state non-attainment area for O₃ (see Section 2.3.2, Regulatory Setting, for further details).

Significant O₃ concentrations are primarily produced in the summer, when atmospheric inversions are greatest and temperatures are high. ROG and NO_x emissions are both considered critical in O₃ formation. Control strategies for O₃ have focused on reducing emissions from motor vehicles; industrial processes using solvents and coatings; stationary combustion devices, such as boilers, engines, and gas turbines; and consumer products. However, local agencies cannot control the source or transportation of pollutants from outside the SDAB. Under certain meteorological conditions, such as Santa Ana winds, O₃ and other pollutants are transported from the Los Angeles Basin and combine with local emission source to produce heightened O₃ levels within SDAB. Therefore, the SDAPCD focuses on controlling local sources effectively enough to reduce contamination to clean air standards, and as a result, has successfully reduced O₃ levels in the SDAB.

Carbon Monoxide (CO). CO is a colorless and odorless gas that, in the urban environment, is associated primarily with the incomplete combustion of fossil fuels in motor vehicles. Relatively high concentrations are typically found near crowded intersections and along heavily used roadways carrying slow-moving traffic. Even under the most severe meteorological and traffic conditions, high concentrations of CO are limited to locations within a relatively short distance (300 to 600 feet) of heavily traveled roadways. Overall, CO emissions have decreased as a result of the state and federal motor vehicle control programs that have mandated increasingly lower emission levels for vehicles manufactured since 1973, as well as inspection and maintenance programs and reformulated gasoline. CO concentrations in the atmosphere are typically higher in winter. The use of oxygenated gasoline in the winter months is required to reduce CO emissions.

Respirable Particulate Matter (PM₁₀). Particulate matter includes both liquid and solid particles in a wide range of sizes and composition. Within San Diego County, sources of PM₁₀ include automobile exhaust as well as dust from construction and from the action of vehicle wheels on paved and unpaved roads. In addition, agriculture, wind-blown sand, and fireplaces can also generate PM₁₀ emissions. PM₁₀ can cause increased respiratory disease, lung damage, and premature death. Control of PM₁₀ is typically achieved through the control of dust at construction sites, the cleaning of paved roads, and the wetting or paving of frequently used unpaved roads.

Fine Particulate Matter (PM_{2.5}). The sources, health effects, and control of PM_{2.5} are similar to those of PM₁₀. In 1997, the EPA determined that the health effects of PM_{2.5} were severe enough to warrant an additional standard (62 FR 38651–38760). CARB adopted an annual standard for PM_{2.5} in June 2002 (CARB 2002).

Other Criteria Pollutants. The national and state standards for NO₂, SO₂, and lead are being met in the SDAB, and the latest pollutant trends suggest that these standards will not be exceeded in the foreseeable future.

2.3.2 Regulatory Setting

Air quality is defined by ambient air concentrations of specific pollutants that are related to health and welfare of the general public, as identified by the EPA. The EPA is responsible for enforcing the federal Clean Air Act (CAA) of 1970, and its 1977 and 1990 amendments. The CAA required the EPA to establish National Ambient Air Quality Standards (NAAQS), which identify concentrations of pollutants in the ambient air below which no adverse effects on the public health and welfare are anticipated.

The CAA allows states to adopt ambient air quality standards (AAQS) and other regulations provided they are at least as stringent as federal standards. CARB has established the more stringent California Ambient Air Quality Standards (CAAQS) for six criteria pollutants through the California Clean Air Act (CCAA) of 1988, and also has established CAAQS for additional pollutants, including sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. Areas that do not meet the NAAQS or the CAAQS for a particular pollutant are considered “non-attainment areas” for that pollutant. Table 2.3-1 presents a summary of the AAQS adopted by the federal CAA and CCAA. The SDAB is currently classified as a non-attainment area under the CAAQS for O₃, PM_{2.5}, and PM₁₀ (see Table 2.3-2).

The CCAA requires areas that have not attained CAAQS for O₃, CO, SO₂, or NO₂ to prepare plans to attain the standards by the earliest practicable date. San Diego County has been designated by CARB as a non-attainment area for O₃, PM_{2.5}, and PM₁₀. Because the region is a non-attainment area for O₃, the SDAPCD and San Diego Association of Governments (SANDAG) have jointly developed the San Diego Regional Air Quality Strategy (SDRAQS) to identify feasible emission control measures to achieve compliance with the state O₃ standard. The local air district has the primary responsibility for the development and implementation of rules and regulations designed to attain the NAAQS and CAAQS, as well as the permitting of new or modified sources, development of air quality management plans, and adoption and enforcement of air pollution regulations. SDAPCD is the local agency responsible for the administration and enforcement of air quality regulations for San Diego County.

SDAPCD and SANDAG are responsible for developing and implementing the clean air plan for attainment and maintenance of the ambient air quality standards in the SDAB. The SDRAQS outlines SDAPCD's plans and control measures designed to attain the state air quality standards for O₃. SDAPCD has also developed input to the State Implementation Plan (SIP), which is required under the CAA for areas that are out of attainment of air quality standards. The SIP includes SDAPCD's plans and control measures for attaining the O₃ NAAQS. The SDAB has been designated as an O₃ attainment area for the 1-hour NAAQS for O₃. Also, as discussed below, the SDAB has been designated as a non-attainment area for the new 8-hour NAAQS for O₃.

The SDRAQS relies on information from CARB and SANDAG, including mobile area source emissions and information regarding projected growth in San Diego County, to project future emissions, and then determines the strategies necessary for reduction of emissions through regulatory controls. The CARB mobile source emission projections and SANDAG growth projections are based on population and vehicle trends and land use plans developed by the cities and County as part of the development of the County's General Plan. As such, projects that propose development consistent with the growth anticipated by the general plan and SANDAG's growth forecasts would be consistent with the SDRAQS and the SIP.

The SIP relies on the information from SANDAG to develop emission inventories and reduction strategies that are included in the attainment demonstration for the air basin. The SIP also includes rules and regulations that have been adopted by the SDAPCD to control emissions from stationary sources. These SIP-approved rules may be used as a guideline to determine whether a project's emissions would have the potential to conflict with the SIP and thereby impact attainment of the NAAQS for O₃.

In addition to the aforementioned regulations, the County has also published guidelines for analyzing air quality impacts for the California Environmental Quality Act (CEQA). The County's (2007a) *Guidelines for Determining Significance: Air Quality* provides analysis methodology and significance thresholds. The County has identified daily pollutant emission thresholds against which all projects located within the jurisdiction of the County would be screened (see Table 2.3-3).

Attainment Status

CARB designates those portions of the state where NAAQS or CAAQS are not met as "non-attainment" areas. Table 2.3-4 summarizes the air quality attainment status for the SDAB. As discussed above, where a pollutant exceeds standards, the federal CAA and CCAA require air quality management plans that demonstrate how the standards will be achieved. These laws also provide the basis for the implementing agencies to develop mobile and stationary source performance standards.

Toxic Air Contaminants

TACs refer to a category of air pollutants that pose a present or potential hazard to human health, but which tend to have more localized impacts than criteria pollutants. CARB recently identified diesel particulate matter as the predominant TAC in California. Diesel particulate matter is emitted into the air via diesel-powered mobile vehicles. Such vehicles include heavy-duty diesel trucks, construction equipment, and passenger cars. Certain reactive organic gases may also qualify as TACs. Because no safe region-wide level of emissions can be established for TACs, their regulation is based on the levels of cancer risk.

National Emissions Standards for Hazardous Air Pollutants (NESHAPS) Program

Under federal law, 188 substances are listed as hazardous air pollutants (HAPs). Major sources of specific HAPs are subject to the requirements of the NESHAPS program. The EPA is establishing regulatory schemes for specific source categories and requires implementation of Maximum Achievable Control Technologies (MACTs) for major sources of HAPs in each source category. State law has established the framework for California's TAC identification and control program, which is generally more stringent than the federal program and is aimed at HAPs that are a problem in California. The state has formally identified more than 200 substances as TACs and is adopting appropriate control measures for each. Once adopted at the state level, each district will be required to adopt a measure that is equally or more stringent.

California Air Toxics "Hot Spots" Information and Assessment Act (AB 2588)

The California Air Toxics "Hot Spots" Information and Assessment Act (AB 2588) is a statewide program enacted in 1987. AB 2588 requires hundreds of facilities in the County to quantify the emissions of TACs and in some cases conduct a health risk assessment and notify the public, while developing risk reduction strategies. SDAPCD Rule 1210 implements the public notification and risk reduction requirements of AB 2588 and requires facilities to reduce risks to acceptable levels within 5 years. In addition, Rule 1200 establishes acceptable risk levels and emission control requirements for new and modified facilities that may emit additional TACs (County of San Diego 2007a).

Greenhouse Gases

Atmospheric gases and clouds within the Earth's atmosphere influence the Earth's temperature by absorbing most of the infrared radiation that rises from the Earth's sun-warmed surface and that would otherwise escape into space. This process is commonly known as the "greenhouse effect." Greenhouse gases (GHGs) are emitted by natural processes and human activities. The earth's surface temperature averages about 58°F because of the greenhouse effect. The resulting

balance between incoming solar radiation and outgoing radiation from both the Earth's surface and atmosphere keeps the planet habitable.

GHGs, as defined under California's AB 32, include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). Anthropogenic emissions of GHGs into the atmosphere enhance the greenhouse effect by absorbing the radiation from other atmospheric GHGs that would otherwise escape to space, thereby trapping more radiation in the atmosphere and causing temperature to increase. The most common GHG is CO₂, which constitutes approximately 84% of all GHG emissions in California. Worldwide, the State of California ranks as the 12th to 16th largest emitter of CO₂ and is responsible for approximately 2% of the world's CO₂ emissions. Refer to Section 3.1.3 for a project analysis pertaining to GHGs.

2.3.3 Analysis of Project Effects and Determination of Significance

The proposed project consists of amendments to the Zoning Ordinance related to wind turbines and temporary MET facilities. Under the proposed project, large turbines will continue to require approval of a Major Use Permit while a small wind turbine or MET facility meeting the height designator of the zone in which it is located would be allowed without discretionary review. The impact analysis below has been separated into "Small Turbine(s)/MET Facilities" and "Large Turbine(s)" to reflect the distinction in the level of review required for the establishment of each use (discretionary vs. non-discretionary).

2.3.3.1 Conformance to the SDRAQS and SIP

Guidelines for the Determination of Significance

For the purpose of this EIR, the County's *Guidelines for Determining Significance: Air Quality* (County of San Diego 2007a) applies to the direct and indirect impact analysis, as well as the cumulative impact analysis. A significant impact would result if:

- The project will conflict with or obstruct the implementation of the SDRAQS or applicable portions of the SIP.

Analysis

The SDRAQS outlines SDAPCD's plans and control measures designed to attain the state air quality standards for O₃. In addition, the SDAPCD relies on the SIP, which includes the SDAPCD's plans and control measures for attaining the O₃ NAAQS. These plans accommodate emissions from all sources, including even natural sources, through implementation of control measures, where feasible, on stationary sources to attain the standards. The SDRAQS relies on

information from CARB and SANDAG to predict future emissions and determine strategies for reducing stationary source emissions. The CARB mobile source emission projections and SANDAG growth projections are based on population and vehicle trends and land use plans developed by the cities and by the County. Therefore, if the proposed project includes development that is greater than anticipated in the County's General Plan and SANDAG's growth projections, the proposed project would conflict with the implementation of SDRAQS and SIP.

Small Turbine(s)/MET Facilities

The proposed project is consistent with the County's General Plan. Small wind turbines and MET facilities would not generate growth, increase population, or require the alteration of an existing land use designation through amendments to general plans or changes to zoning. Therefore, the proposed project relative to small wind turbines and MET facilities would not conflict with the applicable land use plans and would not conflict with or obstruct the implementation of the SDRAQS and applicable portions of the SIP. Impacts would be **less than significant**.

Large Turbine(s)

The proposed project amends certain provisions of the County's Zoning Ordinance related to large turbines. These updates are necessary to address advancements in technology that have obviated many of the current provisions. The proposed amendments related to large wind turbines consist of updated definitions and requirements related to setbacks, noise, height, and locations where large turbines are permissible. The proposed amendments are consistent with the County's General Plan would not generate growth, increase population, or require the alteration of an existing land use designation through amendments to general plans or changes to zoning.

Additionally, all future large turbine projects will be subject to discretionary review and required to obtain a Major Use Permit. As part of the County's discretionary review process, all future projects would be evaluated under CEQA and would be required to demonstrate compliance with the SDRAQS and applicable portions of the SIP. Because future large wind turbines would be required to comply with the SDRAQS and applicable portions of the SIP prior to approval, the project would not conflict with or obstruct the implementation of these air quality plans; impacts would be **less than significant**.

2.3.3.2 Conformance to Federal and State Air Quality Standards

Guidelines for the Determination of Significance

For the purpose of this EIR, the County's *Guidelines for Determining Significance: Air Quality* (County of San Diego 2007a) applies to the direct and indirect impact analysis, as well as the cumulative impact analysis. A significant impact would result if:

- The project would result in emissions that would violate any air quality standards or contribute substantially to an existing or projected air quality violation.

Analysis

The air pollutants of greatest concern in the County are O₃, PM₁₀, and PM_{2.5} because of the current nonattainment status for the NAAQS (O₃) and CAAQS (O₃, PM₁₀, and PM_{2.5}). O₃ is formed when VOCs and NO_x react in the presence of sunlight. VOC sources include any source that burns fuels (e.g., gasoline, natural gas, wood, oil), solvents, petroleum processing and storage, and pesticides. Sources of PM₁₀ in both urban and rural areas include motor vehicles, wood-burning stoves and fireplaces, dust from construction, landfills, agriculture, wildfires, brush/waste burning, and industrial sources of windblown dust from open lands. Main contributors to PM_{2.5} in the County are combustion organic carbon, and ammonium sulfate and ammonium nitrate from combustion sources. Although the proposed project facilitates the development of renewable energy sources in place of a typical fossil fuel-based electrical generation resulting in long-term air quality benefits, future wind turbine and MET facility development could have the potential to result in emissions related to vehicle trips. Therefore, future wind turbines and MET facilities may have the potential to violate air quality standards or contribute substantially to an existing or projected air quality violation.

Small Turbine(s)/MET Facilities

Emissions associated with small wind turbines or MET facilities could include PM₁₀, NO_x, and VOCs from construction/grading activities, as well as VOCs as a result of traffic from operations at the facility.

Construction

Construction emissions would be generated from two principal sources: (1) engine exhaust of construction equipment and vehicles, and (2) particulate emissions from soil disturbance due to grading, earth-moving, and vehicle activity on unpaved roads and work areas. Particulate pollutants of concern are diesel particulate matter from construction equipment and particulates in dust raised by earth-moving and grading; diesel particulate matter contributes to PM_{2.5} air

quality emission levels. Additional emissions would be generated by any workers commuting to the project sites and vehicle travel on unpaved roadways.

Construction activities for small wind turbines and MET facilities may generate a minimal amount of traffic on project-area roadways. Construction traffic would be limited to the delivery of component parts and equipment (if the turbine is too large for the individual property owner to manage), and if a concrete foundation must be poured or if assistance is needed to erect the turbine tower, one or two additional vehicles/equipment. Some smaller turbines such as roof-mounted turbines would not require construction vehicles at the project site since they can typically be installed by the property owner. Only turbines requiring substantial earth-moving activities or those requiring the delivery of larger scale turbine tower or hub equipment would require heavy, drivable equipment. Due to the brief construction time period associated with the installation of small-scale wind turbines and MET facilities (usually lasting one day), and because traffic generated by the construction of these facilities would be relatively minor, air quality impacts as a result of construction emissions would be less than significant.

Additionally, future small wind turbines and MET facilities requiring substantial earth-moving activities would be subject to the County Grading Ordinance, which requires the implementation of dust control measures. Contractors would be required to minimize land disturbance to the extent feasible, and all active grading areas would be watered at least twice daily to decrease ambient particulate matter. Speed limits will be required to restrict vehicles traveling on unpaved roads and trucks hauling soil material will be required to be covered. Therefore, impacts associated with the construction of future small wind turbines and MET facilities would be less than significant.

Operation and Maintenance

The principal pollutant of concern during maintenance activities would be CO, which would be generated by maintenance vehicles traveling to future small wind turbines or MET facilities sites. The actual locations and actions of future projects are unknown at this time; therefore, the actual maximum daily emission rates cannot be quantified. However, due to the fact that future maintenance activities for small wind turbines and MET facilities would be infrequent and would occur for short periods of time, the emission of CO from maintenance activities would be minimal and below the screening-level thresholds, as shown in Table 2.3-3. Maintenance activities for small wind turbines and MET facilities usually occur every one to three years, or as needs arise, and may not require vehicle trips. Often times, annual maintenance may consist of the property owner visually inspecting facilities with a pair of binoculars and also checking that bearings are lubricated. If additional maintenance is required, it is anticipated that one vehicle and a small amount of equipment would access the site. Due to the small number of vehicles and equipment required for maintenance at future project sites, future small wind turbines and MET

facilities implemented under the proposed project are not expected to result in the exceedance of any federal or state air quality standards. Impacts related to emissions from small wind turbines and MET facilities would not violate any air quality standards or contribute substantially to an existing or projected air quality violation; impacts would be **less than significant**.

Large Turbine(s)

The proposed project amends certain provisions of the County's Zoning Ordinance related to large turbines. These updates are necessary to address advancements in technology that have obviated many of the current provisions. The proposed amendments related to large wind turbines consist of updated definitions and requirements related to setbacks, noise, height, and locations where large turbines are permissible. All future large turbine projects will be subject to discretionary review and required to obtain a Major Use Permit. As part of the County's discretionary review process, projects would be evaluated under CEQA and would be required to implement measures to minimize air quality impacts, as necessary. CEQA requires proposed projects to provide detailed information on the potentially significant environmental effects they are likely to have, list ways in which the significant environmental effects would be minimized, and identify alternatives that would reduce or avoid the significant impacts identified for the project.

The SDAPCD specifies Air Quality Impact Analysis trigger levels for new or modified stationary sources (SDAPCD 1998a, 1998b). These screening-level thresholds, as shown in Table 2.3-3, may be used for CEQA purposes to evaluate if a proposed project could potentially have a significant adverse impact due to increased emissions. Pursuant to the County's *Report Format and Content Requirements: Air Quality* (County of San Diego 2007b), County staff would evaluate all large wind turbine projects using screening-level thresholds to determine if the preparation of an Air Quality Study (AQS) is warranted. If required, an AQS would include project-specific emissions totals generated by specific scientific calculations or modeling programs such as Urban Emissions Model (URBEMIS) to demonstrate that the project's total air quality impacts result in ground-level concentrations that are below the CAAQS and NAAQS. The AQS would assess site-specific conditions and would require projects to apply the maximum feasible mitigation, as necessary.

The actual locations and actions of future projects are unknown at this time; therefore, the actual maximum daily emission rates for future large wind turbines cannot be quantified. However, in order to determine if a future large wind turbine project would have the potential to exceed screening-level criteria, a review of two sample projects was conducted. The first sample project would construct and operate 33 large wind turbines with a 2.3-3.0 megawatt (MW) capacity range and would reach a total capacity of approximately 80 MW. The second sample project

would construct and operate 128 large wind turbines with a 1.5-3.0 MW generating capacity range for a total capacity of approximately 200MW.

Construction

During construction, the first sample project is expected to exceed daily screening-level criteria for NO_x, PM₁₀ and PM_{2.5}. The vast majority of particulate matter would be emitted as fugitive dust during site grading, as well as from vehicle traffic on local roads and highways. This disturbance would be short term and would only occur during a fraction of the entire construction timeframe. Nonetheless, NO_x, PM₁₀ and PM_{2.5} emissions occurring during construction of the first sample project would result in a significant impact. The second sample project is expected to exceed VOC, NO_x, CO, PM₁₀ and PM_{2.5} screening levels during construction. As projects increase in size and capacity, it can be expected that they will increasingly exceed screening levels. Similarly, large wind turbine projects that are smaller in nature may remain under screening levels and may not result in air quality violations.

Operation and Maintenance

The operation and maintenance activities for both sample projects would not exceed screening levels and would not adversely impact air quality. The operation of large wind turbines does not produce direct emissions. There could be some minor VOC emissions during routine changes of lubricating and cooling fluids and greases. Other operations and maintenance may generate fugitive dust from road travel, vehicular exhaust, and brush clearing in addition to the tailpipe emissions associated with vehicle travel. Maintenance activities would be limited to routine maintenance and infrequent major overhauls and repairs. However, all these activities would be limited in extent and duration and would have no appreciable air quality impact.

Impacts related to emissions from future large wind turbines may violate air quality standards or contribute substantially to an existing or projected air quality violation due to construction activities. As part of the County's discretionary review process, all future projects would be evaluated under CEQA and required to implement the maximum feasible mitigation measures. However, as there is ultimately no guarantee on a project-specific level that mitigation measures will reduce impacts to a level below significant, the proposed project may result in significant impacts related to emissions that could potentially violate air quality standards (AQ-1).

2.3.3.3 *Non-Attainment Criteria Pollutants*

Guidelines for the Determination of Significance

For the purpose of this EIR, the County's *Guidelines for Determining Significance: Air Quality* (County of San Diego 2007a) applies to the direct and indirect impact analysis, as well as the cumulative impact analysis. A significant impact would result if:

- The project would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?

Analysis

The SDAB is currently classified as a non-attainment area for the NAAQS and CAAQS for O₃, which is caused by contributions from O₃ precursors NO_x and VOCs. The SDAB is also classified as a non-attainment area for the CAAQS for PM₁₀, and PM_{2.5}. As discussed in Section 2.3.3.2, emissions from future small wind turbines and MET facilities would not violate any air quality standards or contribute substantially to an existing or projected air quality violation. Future large wind turbines, however, could potentially result in emissions that would exceed screening-level thresholds and could potentially result in impacts that would not be mitigated to a level below significant. These emissions would primarily come from vehicle trips and equipment during construction.

Small Turbine(s)/MET Facilities

Emissions associated with small wind turbines or MET facilities could include PM₁₀, NO_x, and VOCs from construction/grading activities, as well as VOCs as a result of traffic from operations at the facility. However, as described in Section 2.3.3.2, traffic generated by the construction of these facilities would be relatively minor and any substantial earth-moving activities would be subject to the County Grading Ordinance. Future maintenance activities for small wind turbines and MET facilities would be infrequent and would occur for short periods of time. Therefore, the emissions associated with small wind turbines and MET facilities is anticipated to be minimal and would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for O₃ precursors). It is also important to note that wind turbines would contribute to lowering polluting emissions from large power plants supplying power to the County. Impacts relative to emissions from small wind turbines and MET facilities would be **less than significant**.

Large Turbine(s)

The proposed project amends certain provisions of the County's Zoning Ordinance related to large turbines. These updates are necessary to address advancements in technology that have obviated many of the current provisions. The proposed amendments related to large wind turbines consist of updated definitions and requirements related to setbacks, noise, height, and locations where large turbines are permissible. The actual locations and actions of future projects are unknown at this time; therefore, the actual maximum daily emission rates for large wind turbines cannot be quantified. However, two sample large wind turbine projects were evaluated, as described in Section 2.3.3.2, and it was determined that some future large wind turbines may result in impacts due to emissions (specifically VOC, NO_x, CO, PM₁₀ and PM_{2.5}) from construction activities. The SDAB is classified as a non-attainment for all of these except CO. As part of the County's discretionary review process, all future projects would be evaluated under CEQA and required to implement the maximum feasible mitigation measures. Ultimately, as there is no guarantee on a project-specific level that mitigation measures will reduce impacts to a level below significant, the proposed project could result in a cumulatively considerable net increase of a criteria pollutant for which the project region is non-attainment (AQ-2).

2.3.3.4 Sensitive Receptors

Guidelines for the Determination of Significance

For the purpose of this EIR, the County's *Guidelines for Determining Significance: Air Quality* (County of San Diego 2007a) applies to the direct and indirect impact analysis, as well as the cumulative impact analysis. A significant impact would result if:

- The project will expose sensitive receptors to substantial pollutant concentrations.

Analysis

As described in Section 2.3.2, TACs refer to a category of air pollutants that pose a present or potential hazard to human health, but which tend to have more localized impacts than criteria pollutants. Because no safe region-wide level of emissions can be established for TACs, their regulation is based on the levels of cancer risk. Project impacts may include emissions of pollutants identified by the federal and state government as TACs. The risks are mainly attributable to exposure to emissions from on-road vehicles, especially diesel particulate matter from truck trips.

Sensitive receptors are typically defined as schools (preschool–12th grade), hospitals, resident care facilities, day-care centers, or other facilities that may house individuals with health

conditions that would be adversely impacted by changes in air quality. For the purposes of CEQA analysis in the County, the definition of a sensitive receptor also includes residents.

Small Wind Turbine(s) and MET Facilities

Traffic generated by small wind turbines and MET facilities would be limited to construction and maintenance vehicles traveling to and from future project sites throughout the County. As described in Section 2.3.3.2, the amount of construction vehicle trips generated by future small wind turbines and MET facilities is anticipated to be minimal and short term. In addition, the maintenance trips would be sporadic and would not result in any permanent increases in vehicle trips that would contribute to long-term exhaust emissions resulting in substantial pollutant concentrations. Therefore, small wind turbine and MET facility projects are not anticipated to create “hotspots” or result in TACs near sensitive receptors; impacts to sensitive receptors would be **less than significant**.

Large Turbine(s)

The proposed project amends certain provisions of the County’s Zoning Ordinance related to large turbines. These updates are necessary to address advancements in technology that have obviated many of the current provisions. The proposed amendments related to large wind turbines consist of updated definitions and requirements related to setbacks, noise, height, and locations where large turbines are permissible. The actual locations and actions of future projects are unknown at this time; therefore, the actual maximum daily emission rates or pollutant concentrations for large wind turbines cannot be quantified. However, two sample large wind turbine projects were evaluated, as described in Section 2.3.3.2, and it was determined that some future large wind turbines may result in emissions from construction activities, including diesel particulate matter. This disturbance would be short term and would only occur during a fraction of the entire construction timeframe, after which project-related TAC emissions, such as diesel particulate matter, would cease. No residual TAC emissions and corresponding cancer risk are anticipated after construction. Additionally, as part of the County’s discretionary review process, all future projects would be evaluated under CEQA and required to implement the maximum feasible mitigation measures. Because of the temporary and minimal nature of TAC emissions related to future large wind turbines, as well as required setbacks, the proposed project is not expected to result in the exposure of sensitive receptors to substantial pollutant concentrations, and impacts would be **less than significant**.

2.3.3.5 Odors

Guidelines for the Determination of Significance

For the purpose of this EIR, the County's *Guidelines for Determining Significance: Air Quality* (County of San Diego 2007a) applies to the direct and indirect impact analysis, as well as the cumulative impact analysis. A significant impact would result if:

- The project, which is not an agricultural, commercial, or an industrial activity subject to SDAPCD standards, as a result of implementation will either generate objectionable odors or place sensitive receptors next to existing objectionable odors, which will affect a considerable number of persons or the public.

Analysis

SDAPCD (1969) Rule 51 (Nuisance) prohibits emission of any material that causes nuisance to a considerable number of persons or endangers the comfort, health, or safety of any person. As defined by the South Coast Air Quality Management District (SCAQMD), sources of objectionable odors include landfills, agricultural operations, wastewater treatment plants, food processing plants, chemical plants, composting, dairies, and fiberglass molding. Furthermore, objectionable odors could result from projects that emit VOCs, ammonia, CO₂, hydrogen sulfide, CH₄, alcohols, aldehydes, amines, carbonyls, esters, disulfides dust, and endotoxins during construction or operation phases.

Small Wind Turbine(s) and MET Facilities

Small wind turbines and MET facilities are not listed as a source of objectionable odors as defined by SCAQMD. During construction of small turbines or MET facilities, diesel equipment operating at the site may generate some nuisance odors. However, due to the brief construction time period associated with the installation of small-scale wind turbines and MET facilities (usually lasting one day), and because traffic generated by the construction of these facilities would be relatively minor, the proposed project would not generate objectionable odors or place sensitive receptors next to existing objectionable odors, which would affect a considerable number of persons or the public. Additionally, some smaller turbines such as roof-mounted turbines would not require construction vehicles at the project site since they can typically be installed by the property owner.

Maintenance activities that use diesel equipment may also generate some nuisance odors; however, as described in Section 2.3.3.2, future maintenance activities for small wind turbines and MET facilities would be infrequent and would occur for short periods of time. Maintenance activities for small wind turbines and MET facilities usually occur every one to three years, or as

needs arise, and may not require vehicle trips. Therefore, impacts associated with odors related to small wind turbine and MET facilities would be **less than significant**.

Large Turbine(s)

The proposed project amends certain provisions of the County's Zoning Ordinance related to large turbines. These updates are necessary to address advancements in technology that have obviated many of the current provisions. The proposed amendments related to large wind turbines consist of updated definitions and requirements related to setbacks, noise, height, and locations where large turbines are permissible. Due to the nature of the proposed project, odor impacts are unlikely. As with small wind turbines and MET facilities, one potential source of odor that may result from the development of large wind turbines is diesel engine emissions. Diesel-powered equipment idling times may be limited to reduce any potential impacts and construction activities would be short term and intermittent.

Additionally, Section 6318 of the County's Zoning Ordinance requires that all commercial and industrial uses be operated so as not to emit matter causing unpleasant odors that are perceptible by the average person at or beyond any lot line of the lot containing said uses. Section 6318 goes on to further provide specific dilution standards that must be met "at or beyond any lot line of the lot containing the uses" (County of San Diego 1978). SDAPCD Rule 51 (Public Nuisance) also prohibits emission of any material that causes nuisance to a considerable number of persons or endangers the comfort, health, or safety of any person.

All future large turbine projects will also be subject to discretionary review and required to obtain a Major Use Permit. As part of the County's discretionary review process, all future projects would be evaluated under CEQA and may be required to prepare an AQS, as discussed in Section 2.3.3.2. Because the development of future large wind turbines is unlikely to generate objectionable odors that will affect a considerable number of persons or the public and all future projects would be required to comply with Section 6318 of the County's Zoning Ordinance and SDAPCD Rule 51 prior to approval, the proposed project would result in **less-than-significant** impacts related to objectionable odors.

2.3.4 Cumulative Impact Analysis

The geographic scope of the cumulative impact analysis for air quality includes the SDAB for reactive air pollutants and the vicinity surrounding the SDAB for non-reactive or less reactive pollutants.

2.3.4.1 *Conformance to the SDRAQS and SIP*

Cumulative projects located in the San Diego region would have the potential to result in a cumulative impact to SDRAQS and SIP if, in combination, they would be inconsistent with the regional planning documents they are based on. Projects included in Table 1-4e, Private Project Not Included in the General Plan Update, may propose development beyond what is accounted for in the SDRAQS and SIP, which is based on General Plan projections. For example, the proposed Meadowood development project in Fallbrook proposes to construct 886 new residential units. The project may not be consistent with SANDAG's or the General Plan's projected growth for that area. The Draft EIR for the Meadowood project concludes a significant and unmitigable direct and cumulative impact related to consistency with the SDRAQS and SIP. Additionally, cumulative projects located in Mexico or on tribal lands and federally managed lands would not be subject to the SIP or SDRAQS. Therefore, cumulative projects in the region would have the potential to result in cumulatively considerable impacts associated with air quality plans.

Small Turbine(s)/MET Facilities

As described in Section 2.3.3.1, future small wind turbines and MET facilities would not generate growth, increase population, or require the alteration of an existing land use designation through amendments to general plans or changes to zoning. Although minor emissions may result from construction activities and operational maintenance vehicle exhaust, these would have no appreciable impact. Therefore, the development of small wind turbines and MET facilities under the proposed project **would not contribute to a cumulatively considerable impact.**

Large Turbine(s)

As described in Section 2.3.3.1, future large wind turbines would not will conflict with or obstruct the implementation of the SDRAQS or applicable portions of the SIP. Therefore, the development of large wind turbines under the proposed project **would not contribute to a cumulatively considerable impact.**

2.3.4.2 *Conformance to Federal and State Air Quality Standards*

Cumulative projects located in the San Diego region would have the potential to result in a significant cumulative air quality impact if, in combination, they would violate any air quality standards or contribute substantially to an existing or projected air quality violation. For example, the proposed Jacumba Valley Ranch project, listed in Table 1-4e, proposes the development of 2,100 new residential units in the Mountain Empire Subregion, a relatively undeveloped area of the County. A violation of the CAAQS or NAAQS could result from the emission of criteria pollutants due to increased vehicle trips in this area from the Jacumba Valley

Ranch project or other similar residential projects. Projects within the County and surrounding jurisdictions, including incorporated cities, adjacent counties, and federal and state-managed lands would be required to comply with NAAQS and CAAQS pursuant to CEQA prior to approval. As described in Section 2.3.3.1, CEQA requires proposed projects to provide detailed information on potentially significant environmental effects, as well as mitigation measures, as necessary. However, some environmental impacts associated with the development of such projects may be significant and unavoidable. Additionally, cumulative projects in Mexico would not be required to comply with NAAQS or CAAQS. Therefore, cumulative projects in the region would have the potential to result in cumulatively considerable impacts associated with air quality violations.

Small Turbine(s)/MET Facilities

As described in Section 2.3.3.2, future small wind turbines and MET facilities are not expected to result in the exceedance of any federal or state air quality standards. Therefore, small wind turbines and MET facilities developed under the proposed project **would not contribute to a cumulatively considerable impact** associated with air quality violations.

Large Turbine(s)

As described in Section 2.3.3.2, some future large wind turbines would not violate any air quality standards or contribute substantially to an existing or projected air quality violation. Compliance with the County Grading Ordinance would ensure dust control measures are provided to reduce CO, PM₁₀, and PM_{2.5} emissions that may result during construction. However, there is ultimately no guarantee that mitigation measures for all future large wind turbines projects will reduce impacts to a level below significant. Therefore, the proposed project would potentially contribute to a cumulatively considerable impact associated with air quality violations **(AQ-4)**.

2.3.4.3 *Non-Attainment Criteria Pollutants*

Cumulative projects located in the San Diego region would have the potential to result in a cumulatively considerable impact associated with non-attainment criteria pollutants if, in combination, they would result in a net increase of any criteria pollutant for which the SDAB is non-attainment. The SDAB is presently in nonattainment status for the NAAQS (O₃) and CAAQS (O₃, PM₁₀, and PM_{2.5}). Cumulative projects would have the potential to result in new sources of particulate matter from construction activities, as well as increased emissions of O₃ precursors from increased vehicle trips. As described in Section 2.3.4.2, the Jacumba Valley Ranch project proposes 2,100 new residential units in the Mountain Empire, which would increase vehicle trips on County roads, thereby increasing emissions of O₃ precursors. Projects within the County and surrounding jurisdictions, including incorporated cities, adjacent counties,

and federal and state-managed lands would be required to comply with NAAQS and CAAQS pursuant to CEQA prior to approval. As described in Section 2.3.3.1, CEQA requires proposed projects to provide detailed information on potentially significant environmental effects, as well as mitigation measures, as necessary. However, some environmental impacts associated with the development of such projects may be significant and unavoidable. In addition, cumulative projects in Mexico would not be required to comply with NAAQS or CAAQS and would have the potential to result in an increase of criteria pollutant emission for which SDAB and the surrounding vicinity are in non-attainment. Therefore, cumulative projects in the region would have the potential to result in cumulatively considerable impacts associated with non-attainment criteria pollutants.

Small Turbine(s)/MET Facilities

As described in Section 2.3.3.3, the emissions associated with small wind turbines and MET facilities is anticipated to be minimal and would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for O₃ precursors). Therefore, small wind turbines and MET facilities developed under the proposed project **would not contribute to a cumulatively considerable impact** associated with non-attainment criteria pollutants.

Large Turbine(s)

As described in Section 2.3.3.3, some future large wind turbines are expected to result in a cumulative net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard. Compliance with the County Grading Ordinance would ensure dust control measures are provided to reduce criteria pollutants such as PM₁₀ and PM_{2.5} emissions that may result during construction. However, there is ultimately no guarantee that mitigation measures for all future large wind turbines projects will reduce impacts to a level below significant. Therefore, the proposed project would potentially contribute to a cumulatively considerable impact associated with non-attainment criteria pollutants (AQ-5).

2.3.4.4 *Sensitive Receptors*

Cumulative projects located in the San Diego region would have the potential to result in a cumulatively considerable impact associated with sensitive receptors if, in combination, they would expose sensitive receptors to a substantial concentration of TACs or HAPs that would significantly increase cancer risk. As described in Section 2.3.3.4, the risks are especially attributable to emissions from diesel particulate matter from truck trips. The construction of

cumulative projects would result in a temporary increase in truck trips related to hauling construction materials to and from a project site. Increases in truck trips may also result from new industrial or commercial development due to project operation. For example, the retail shops proposed on the Pauma and Yuima Reservation, listed as a cumulative project in Table 1-4f, Proposed Projects on Tribal Lands, would increase truck trips to and from the area to transport retail merchandise. Projects such as these would be required to comply with federal regulations such as the NESHAPS program, which identifies 188 substances as HAPs and establishes requirements for these pollutants, including implementation of MACTs.

Placement of new sensitive receptors near existing TAC or HAP emissions may also have the potential to result in a cumulatively considerable impact. Residential development projects that are proposed to be located in close proximity to industrial or extractive land uses may result in these impacts. Cumulative projects located in adjacent jurisdictions, including incorporated cities, adjacent counties, and state-managed lands, would be required to comply with the CARB's recommendations for siting new sensitive receptors in the SDAB and would be required to comply with emissions thresholds for TACs and HAPs. However, some cumulative projects located outside of the SDAB, such as on tribal land or in Mexico, may not be subject to these regulations. Therefore, cumulative projects in the region may result in cumulatively considerable impacts associated with sensitive receptors.

Small Wind Turbine(s) and MET Facilities

As described in Section 2.3.3.4, small wind turbines and MET facilities are not anticipated to result in TACs near sensitive receptors. The amount of construction vehicle trips generated by future small wind turbines and MET facilities is anticipated to be minimal and short term. In addition, the maintenance trips would be sporadic and would not result in any permanent increases in vehicle trips that would contribute to long-term exhaust emissions resulting in substantial pollutant concentrations. Therefore, small wind turbines and MET facilities developed under the proposed project **would not contribute to a cumulatively considerable impact** associated with sensitive receptors.

Large Turbine(s)

As described in Section 2.3.3.4, future large wind turbines are not expected to expose sensitive receptors to substantial pollutants. Large wind turbine projects would be subject to CEQA and required to comply with AB 2588, SDAPCD Rule 1210, and CARB standards for diesel engines. Additionally, the amount of construction vehicle trips generated by future large wind turbines would not contribute to long-term exhaust emissions resulting in substantial pollutant concentrations. Therefore, large wind turbines developed pursuant to the proposed project **would not contribute to a cumulatively considerable impact** associated with sensitive receptors.

2.3.4.5 Odors

Cumulative projects located in the San Diego region would have the potential to result in a cumulatively considerable impact associated with objectionable odors or, in combination, would create objectionable odors or place sensitive receptors next to existing objectionable odors. One example from the cumulative list of projects is Ramona Ridge Estates, included in Table 1-4e. The Ramona Ridge Estates project is a residential development that would be located in the Ramona community planning area, which also contains the Ramona Landfill as a source of objectionable odors. The Ramona Landfill is required to comply with SDAPCD Rule 51, which prohibits objectionable odors from a landfill that would impact off-site uses; therefore, odor impacts to the Ramona Ridge Estates project would not occur. However, some project located outside of the SDAB, such as those within tribal lands or in Mexico, may not be subject to SDAPCD Rule 51 or a similar regulation. Therefore, cumulative projects in the region may result in cumulatively considerable impacts associated with objectionable odors.

Small Wind Turbine(s) and MET Facilities

Small wind turbines and MET facilities are not listed as a source of objectionable odors as defined by SCAQMD. As described in Section 2.3.3.5, small turbines or MET facilities may generate some nuisance odors during construction due to construction equipment; however, due to the brief construction time period (usually lasting one day), the proposed project would not generate objectionable odors or place sensitive receptors next to existing objectionable odors, which would affect a considerable number of persons or the public. Additionally, some smaller turbines such as roof-mounted turbines would not require construction vehicles at the project site since they can typically be installed by the property owner. Maintenance activities that use diesel equipment may also generate some nuisance odors; however, as described in Section 2.3.3.2, future maintenance activities would be infrequent and would occur for short periods of time. Therefore, small wind turbines and MET facilities developed under the proposed project **would not contribute to a cumulatively considerable impact** associated with objectionable odors.

Large Turbine(s)

Large wind turbines are not listed as a source of objectionable odors as defined by SCAQMD. As described in Section 2.3.3.5, the development of future large wind turbines is unlikely to generate objectionable odors that will affect a considerable number of persons or the public and all future projects would be required to comply with Section 6318 of the County's Zoning Ordinance and SDAPCD Rule 51 prior to approval. Therefore, the development of large wind turbines under the proposed project **would not contribute to a cumulatively considerable impact** associated with objectionable odors.

2.3.5 Significance of Impacts Prior to Mitigation

The proposed project would result in potentially significant impacts associated with conformance to air quality standards and non-attainment criteria pollutants due to the development of large wind turbines. The proposed project would not result in potentially significant impacts relative to conformance with the SDRAQS and SIP, objectionable odors or sensitive receptors due to the development of large wind turbines. There are no potentially significant air quality impacts associated with the development of small wind turbines and MET facilities.

2.3.6 Mitigation

There are no potentially significant air quality impacts associated with the development of small wind turbines and MET facilities. Therefore, the following discussion only pertains to the development of large wind turbines under the proposed project.

2.3.6.1 *Conformance to the SDRAQS and SIP*

The proposed project would not conflict or obstruct the implementation of the SDRAQS and SIP; therefore, no mitigation measures are required.

2.3.6.2 *Conformance to Federal and State Air Quality Standards*

The proposed project would allow for the development of large wind turbines that could potentially exceed screening-level thresholds. Mitigation measures (described below) have been identified that would reduce impacts to air quality standards, but not below a significant level.

Mitigation Measures

M-AQ-1: During the environmental review process for future discretionary permits for wind turbines, the County Guidelines for Determining Significance for Air Quality shall be applied. When impacts are determined to be significant, feasible and appropriate project-specific mitigation measures shall be incorporated. Examples of standard mitigation measures within the County Guidelines include: dust control efforts; grading or fuel use restrictions; use of modified equipment; and restrictions on vehicle idling time.

Infeasible Mitigation Measures

The following measures were considered in attempting to reduce direct and cumulative impacts to air quality standards to below a level of significance. However, the County has determined that these measures would be infeasible, as described below. Therefore, the following mitigation measures would not be implemented.

- Require all construction activities to use equipment that is CARB certified Tier 3 or better. This measure could not be accomplished because it would require all construction contractors working within the County to turn over their existing equipment that remains usable, and it would require a more stringent emissions standard than implemented by CARB. The CARB is implementing regulations that require turnover of equipment to meet its regulatory standards for large vehicle fleets. The measure would limit which construction contractors would be allowed to work within the County and could result in undue costs to project applicants.
- Prohibit large wind turbines that would result in emissions from new vehicle trips that would exceed screening level thresholds. This measure is not feasible as it would conflict with the project objectives of facilitating the use of renewable wind energy within the County, to maximize the production of energy from renewable wind sources, and to reduce the potential for energy shortages and outages by facilitating local energy supply.

Because the measures listed above are infeasible, impacts would remain potentially significant and unavoidable. Chapter 4, Project Alternatives, provides a discussion of alternatives to the proposed project that would result in some reduced impacts associated with air quality as compared to the proposed project. It should also be noted that future large wind turbines projects may be able to mitigate emissions associated with their individual development.

2.3.6.3 Non-Attainment Criteria Pollutants

The proposed project would allow for the development of large wind turbines with a Major Use Permit that could potentially result in impacts associated with air quality violations. Mitigation Measure **M-AQ-1**, listed in Section 2.3.6.2, Conformance to Federal and State Air Quality Standards, is also applicable to this issue and is incorporated here by reference. Incorporation of this mitigation measure could reduce potentially significant impacts to air quality, but not below a significant level.

Infeasible Mitigation Measures

The following measures were considered in attempting to reduce direct/cumulative impacts related to non-attainment criteria pollutants below a level of significance. However, the County has determined that these measures would be infeasible, as described below. Therefore, the following mitigation measures would not be implemented.

- Require all construction activities to use equipment that is CARB certified Tier 3 or better. This measure could not be accomplished because it would require all construction contractors working within the County to turn over their existing equipment that remains usable, and it would require a more stringent emissions standard than implemented by

CARB. The CARB is implementing regulations that require turnover of equipment to meet its regulatory standards for large vehicle fleets. The measure would limit which construction contractors would be allowed to work within the County and could result in undue costs to project applicants.

- Prohibit large wind turbines that would result in emissions from new vehicle trips that would exceed screening level thresholds. This measure is not feasible as it would conflict with the project objectives of facilitating the use of renewable wind energy within the County, to maximize the production of energy from renewable wind sources, and to reduce the potential for energy shortages and outages by facilitating local energy supply.

Because the measures listed above are infeasible, impacts would remain potentially significant and unavoidable. Chapter 4, Project Alternatives, provides a discussion of alternatives to the proposed project that would result in some reduced impacts associated with air quality as compared to the proposed project.

2.3.6.4 Sensitive Receptors

The proposed project would not result in any significant impacts associated with sensitive receptors, and no mitigation measures are required.

2.3.6.5 Odors

The proposed project will not result in any significant impacts relative to objectionable odors, and no mitigation measures are required.

2.3.7 Conclusion

The discussion below provides a synopsis of the conclusion reached in each of the above impact analyses, and the level of impact that would occur after mitigation measures are implemented.

Conformance to the SDRAQS and SIP

The proposed project would not conflict or obstruct the implementation of the SDRAQS and SIP, and therefore would not result in any potential significant impacts.

Conformance to Federal and State Air Quality Standards

Development of small wind turbines and temporary MET facilities pursuant to the proposed Zoning Ordinance amendments would not exceed screening-level thresholds and would not conflict with or obstruct the implementation of federal and state air quality standards. Therefore, impacts would be less than significant. Development of large wind turbines pursuant to the

proposed Zoning Ordinance amendment would potentially exceed screening-level thresholds and therefore would potentially conflict with or obstruction the implementation of federal and state air quality standards. Impacts would remain potentially significant and unavoidable. Future large wind turbine projects may be able to mitigate emissions to a level below significant on an individual basis, although it cannot be guaranteed.

Non-Attainment Criteria Pollutants

Development of small wind turbines and temporary MET facilities pursuant to the proposed Zoning Ordinance amendments would not result in significant impacts associated with non-attainment criteria pollutants. Development of large wind turbines pursuant to the proposed Zoning Ordinance amendments would potentially result in direct/cumulative impacts associated with non-attainment criteria pollutants. Impacts would remain potentially significant and unavoidable. Future large wind turbines projects may be able to mitigate emissions to a level below significant on an individual basis, although it cannot be guaranteed.

Sensitive Receptors

The proposed project would not result in significant impacts associated with sensitive receptors.

Odors

The proposed project would not result in significant impacts associated with objectionable odors.

Table 2.3-1, Ambient Air Quality Standards

Pollutant	Averaging Period	California Standards ¹		Federal ²		
		Concentration ³	Method ⁴	Primary ^{3,5}	Secondary ^{3,6}	Method ⁷
Ozone (O ₃)	1-hour	0.09 ppm (180 µg/m ³)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8-hour	0.07 ppm (137 µg/m ³)		0.075 ppm (147 µg/m ³)		
Respirable Particulate Matter (PM ₁₀)	24-hour	50 µg/m ³	Gravimetric or Beta Attenuation	150 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m ³		—		
Fine Particulate Matter (PM _{2.5})	24-hour	No Separate State Standard		35 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m ³	Gravimetric or Beta Attenuation	15.0 µg/m ³		
Carbon Monoxide (CO)	8-hour	9.0 ppm (10 mg/m ³)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m ³)	None	Non-Dispersive Infrared Photometry (NDIR)
	1-hour	20 ppm (23 mg/m ³)		35 ppm (40 mg/m ³)		
	8-hour (Lake Tahoe)	6 ppm (7mg./m ³)		—		
Nitrogen Dioxide (NO ₂)	Annual Arithmetic Mean	0.030 ppm (57 µg/m ³)	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m ³)	Same as Primary Standard	Gas Phase Chemiluminescence
	1-hour	0.18 ppm (339 µg/m ³)		—		
Sulfur Dioxide (SO ₂)	Annual Arithmetic Mean	—	Ultraviolet Fluorescence	0.03 ppm (80 µg/m ³)	—	Spectrophotometry (Pararosaniline Method)
	24-hour	0.04 ppm (105 µg/m ³)		0.14 ppm (365 µg/m ³)	—	
	3-hour	—		—	0.5 ppm (1300 µg/m ³)	
	1-hour	0.25 ppm (655 µg/m ³)		—	—	
Lead	30-day average	1.5 µg/m ³	Atomic Absorption	—	Same as Primary Standard	High Volume Sampler and Atomic
	Calendar Quarter	—		1.5 µg/m ³		
	Rolling 3-Month Average ⁹	—		0.15 µg/m ³		

Table 2.3-1, Ambient Air Quality Standards

Pollutant	Averaging Period	California Standards ¹		Federal ²		
		Concentration ³	Method ⁴	Primary ^{3,5}	Secondary ^{3,6}	Method ⁷
Visibility Reducing Particles	8-Hour	Extinction coefficient of 0.23 per kilometre – visibility of ten miles or more (0.07 – 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70%. Method: Beta Attenuation and Transmittance through Filter Tape.		No Federal Standards		
Sulfates	24-Hour	25 µg/m ³	Ion Chromatography			
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m ³)	Ultraviolet Fluorescence			
Vinyl Chloride ⁸	24-Hour	0.01 ppm (26 µg/m ³)	Gas Chromatography			

Notes:

ppm = parts per million

µg/m³ = micrograms per cubic metermg/m³ = milligrams per cubic meter

- California standards for O₃, CO (except Lake Tahoe), SO₂ (1- and 24-hour), NO₂, suspended particulate matter—PM₁₀, PM_{2.5}, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equalled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
- National standards (other than O₃, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The O₃ standard is attained when the fourth highest eight hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM₁₀, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than one. For PM_{2.5}, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.
Contact the EPA for further clarification and current federal policies.
- Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
- Any equivalent procedure which can be shown to the satisfaction of CARB to give equivalent results at or near the level of the air quality standard may be used.
- National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
- National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
- Reference method as described by the EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the EPA.
- CARB has identified lead and vinyl chloride as TACs with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
- National lead standard, rolling 3-month average: final rule signed October 15, 2008.

Source: CARB 2010.

Table 2.3-2, State and Federal Attainment Designations for San Diego County

Air Pollutant	State Designation	Federal Designation
Ozone (O ₃) (1-hour) ¹	Nonattainment	Attainment
Ozone (8-hour)	Nonattainment	Nonattainment
Nitrogen Dioxide (NO ₂)	Attainment	Attainment
Carbon Monoxide (CO)	Attainment	Attainment
Sulfur Dioxide (SO ₂)	Attainment	Attainment
Respirable Particulate Matter (PM ₁₀)	Nonattainment	Unclassifiable
Fine Particulate Matter (PM _{2.5})	Nonattainment	Attainment
Lead	Attainment	Attainment
Sulfates ²	Attainment	N/A
Hydrogen Sulfide ²	Unclassified ³	N/A
Vinyl Chloride ²	Unclassified ³	N/A
Visibility-Reducing Particles ²	Unclassified ³	N/A

Notes:

¹ The federal 1-hour standard of 12 parts per hundred million (pphm) was in effect from 1979 through June 15, 2005. The revoked standard is referenced here because it was employed for such a long period and because this benchmark is addressed in SIPs.

² No NAAQS have been established for these pollutants.

³ At the time of designation, if the available data does not support a designation of attainment or nonattainment, the area is designated as unclassifiable.

Source: SDAPCD 2010 and CARB 2009a.

Table 2.3-3, Screening-Level Criteria for Air Quality Impacts

Pollutants	Total Emissions		
	Lbs. per Hour	Lbs. per Day	Tons per Year
Respirable particulate matter (PM ₁₀)	—	100	15
Fine particulate matter (PM _{2.5})	—	55 ¹	10 ¹
Oxides of nitrogen (NO _x)	25	250	40
Oxides of sulfur (SO _x)	25	250	40
Carbon monoxide (CO)	100	550	100
Lead and lead compounds	—	3.2	0.6
Volatile organic compounds (VOC) ¹	—	75 ²	13.7 ³

Notes:

¹EPA "Proposed Rule to Implement the Fine Particle National Ambient Air Quality Standards" published September 8, 2005. Also used by the SCAQMD.

²Threshold for VOCs based on the threshold of significance for VOCs from the South Coast Air quality Management District for the Coachella Valley.

³13.7 Tons Per Year threshold based on 75 lbs/day multiplied by 365 days/year and divided by 2,000 lbs/ton.

Source: County of San Diego 2007a.

Table 2.3-4, Summary of Ambient Air Quality Data – San Diego Air Basin 2003–2007

Averaging Period	Units	Ambient Air Quality Standard	2003	2004	2005	2006	2007
<i>Ozone (O₃)</i>							
Maximum 1-hour concentration	ppm	—	0.125	0.129	0.113	0.121	0.134
Days over state standard	—	0.09 ppm	24	12	16	23	21
Maximum 8-hour concentration (state standard)	ppm	—	0.104	0.096	0.090	0.100	0.092
Days over state standard	—	0.070 ppm (state)	59	43	51	68	50
Maximum 8-hour concentration (federal standard)	ppm	—	0.103	0.095	0.089	0.100	0.092
Days over federal standard ¹	—	0.075 ppm (federal)	38	23	24	38	27
<i>Nitrogen Dioxide (NO₂)</i>							
Maximum 1-hour concentration	ppm	—	0.148	0.125	0.109	0.097	0.098
Days over state standard ²	—	0.18 ppm	0	0	0	0	0
Annual concentration	ppm	0.030 ppm (state) 0.053 ppm (federal)	0.019	0.017	0.015	0.017	0.015
<i>Carbon Monoxide (CO)</i>							
Maximum 8-hour concentration	ppm	—	10.64	4.11	4.71	3.61	5.18
Days over state standard	—	9.0 ppm	1	0	0	0	0
Days over federal standard	—	9 ppm	1	0	0	0	0
<i>Respirable Particulate Matter (PM₁₀)</i>							
Maximum 24-hour conc. (state method)	µg/m ³	—	284	138	154	133	392
Samples over state standard	—	50 µg/m ³	24	30	29	27	27
Maximum 24-hour conc. (federal method)	µg/m ³	—	280	137	155	134	394
Samples over federal standard	—	150 µg/m ³	1	0	1	0	1
Annual concentration (state method)	µg/m ³	20 µg/m ³	52.6	51.7	28.6	54.1	58.6
<i>Fine Particulate Matter (PM_{2.5})</i>							
Maximum 24-hour conc. (state method)	µg/m ³	—	239.2	67.3	43.1	63.3	126.2
Maximum 24-hour conc. (federal method)	—	—	239.2	67.3	43.1	63.3	126.2
Samples over federal standard	—	35 µg/m ³	3	9	4	2	11
Annual concentration (state method)	µg/m ³	12 µg/m ³	14.4	14.1	ND	13.1	13.3
Annual concentration (federal method)	µg/m ³	15.0 µg/m ³	14.4	14.1	ND	13.1	13.3
<i>Sulfur Dioxide (SO₂)</i>							
Maximum 24-hour concentration	ppm	—	0.011	0.016	0.013	0.009	0.009
Days exceeding state standard	—	0.04 ppm	0	0	0	0	0
Annual concentration	—	0.030 ppm	0.004	0.006	0.005	0.004	0.003

Notes:

ND – insufficient data available to determine; 2008 measurements were not available at the time of analysis.

¹ The federal O₃ was revised effective May 27, 2008, to lower the 8-hour standard to 0.075 ppm. The statistics for O₃ reflect the previous federal standard of 0.080 ppm.

² The state NO₂ standard was amended February 22, 2007, to lower the 1-hour state standard to 0.18 ppm and establish a new annual state standard of 0.03 ppm. The statistics for NO₂ reflect the previous state standard of 0.25 ppm.

Sources: CARB 2009b