

Chapter 21 Air Quality

Words in **bold** and acronyms are defined in Chapter 32, Glossary and Acronyms.

This chapter describes existing air quality in the project area, and how the project alternatives could affect air quality. Related information can be found in Chapter 22, Greenhouse Gases.

21.1 Affected Environment

The airsheds in the project area are regulated by the Southwest Clean Air Agency (SWCAA) in Washington and the Department of Environmental Quality (ODEQ) in Oregon (SWCAA 2011). Both the SWCAA and ODEQ are delegated by the EPA to implement requirements of the Clean Air Act (CAA) and their own air quality programs. However, the SWCAA, ODEQ, and EPA do not have air quality rules or permitting programs for transmission lines.

Both the SWCAA and the ODEQ operate monitoring stations throughout their respective jurisdictional areas. Based on data collected, the action alternatives are within airsheds that are in “attainment or unclassified” for the national ambient air quality standards (NAAQS) for all pollutants. The pollutants for which the airsheds are “in attainment or unclassified” are carbon monoxide, nitrogen dioxide, ozone, sulfur dioxide, lead, and particulate matter (PM) including PM 2.5 (less than 2.5 microns in aerodynamic diameter), PM 10 (less than 10 microns in diameter (PM 10), and total suspended particulate. The Portland, Oregon and Vancouver, Washington areas are considered “**maintenance areas**” for carbon monoxide, meaning that, at one time, they were classified as “**non-attainment**,” but currently demonstrate compliance with the NAAQS. The Portland and Vancouver metro areas have met the carbon monoxide standard since 1996.

Portions of the West Alternative, Segment 52 and the Sundial substation site (common to all action alternatives), are in the Portland/Vancouver metro area where there are more industrial sources of air pollution and higher levels of traffic congestion that create more air emissions. Longview, Washington is the second most populated portion of the project area (it is crossed by the West and Crossover alternatives and Central Option 2), experiencing moderate amounts of traffic-related air emissions and possible sources of air pollution from lumber mills and yards.

For the remaining portions of the action alternatives, the landscape is rural with few or no sources of industrial air pollution. Local air pollutant emissions in the rural areas are limited primarily to windblown dust from agricultural or logging operations and tailpipe emissions from traffic along highways and local roads.

Since regional visibility can be affected by air quality, some areas within the U.S. have been given elevated visibility status. Congress has required that air quality be preserved, protected, and enhanced in specific areas of national or regional natural, recreational, scenic, or historic value. These areas are defined as Class 1 areas. None of the action alternatives pass through or near the border of any Class 1 areas in Washington or Oregon.

21.2 Environmental Consequences

General impacts that would occur for the action alternatives are discussed below. Impacts would be similar for all action alternatives.

21.2.1 Impact Levels

Impacts would be **high** where project activities would cause the following:

- A permanent regional reduction in air quality
- A change in air quality that is a likely risk to human health and safety

Impacts would be **moderate** where project activities would cause the following:

- A permanent localized reduction in air quality
- A change in air quality that is a possible, but unlikely risk to human health and safety

Impacts would be **low** where project activities would cause the following:

- A temporary reduction in air quality near construction and vegetation clearing sites
- A change in air quality that is an insignificant or very unlikely risk to human health and safety

No impact would occur to air quality if there would be no measureable air emission increase above background levels and there is no increased hazard to human health and safety.

21.2.2 Impacts Common to Action Alternatives

21.2.2.1 Construction

Air quality impacts created by construction of the transmission line, substations, and access roads would be common to all action alternatives. The primary type of air pollution during construction would be particulate matter (PM), including dust from disturbed soils becoming airborne (fugitive dust) and combustion pollutants from equipment exhaust.

Construction is described in detail in Chapter 3, Project Components and Construction, Operation and Maintenance Activities. Construction activities that could create dust include road building and grading, on-site travel on unpaved surfaces, work area clearing and preparation for tower removal or construction, and blasting for tower footings. Many soils that would be crossed by the project are susceptible to erosion (see Chapter 14, Geology and Soils), and any disruption to these soils from these activities could create fugitive dust. Gravel used as surface material on unpaved access roads would reduce the amount of particulate matter released into the air. Using water on heavily travelled roads may be necessary during dry periods.

Vegetation removal may also emit fugitive dust. The action alternatives cross mostly forested land on proposed new or existing right-of-way. Most existing rights-of-way have been vacant for decades and the vegetation has not been cleared. Scattered among forested areas, the West Alternative contains open patches of land used for agriculture and pasture. The more eastern alternatives have similar open patches of land where acres of timber have been harvested and replanted with young trees. Erosion control measures and reseeding used on disturbed areas would reduce the amount of fugitive dust produced.

After merchantable timber is removed, clearing tall brush and low-growing trees and vegetation would produce debris that would need to be disposed of by lop and scatter, chipping, wood waste recycling, or transported to a landfill. These activities could create particulate matter including fugitive dust. No debris would be burned. Wind-caused erosion of disturbed areas could also contribute to fugitive dust.

Heavy equipment and vehicles, including those with diesel internal combustion engines, would emit pollutants such as carbon monoxide, carbon dioxide, sulfur oxides, PM 2.5, oxides of nitrogen, volatile organic hydrocarbons, aldehydes, and polycyclic aromatic hydrocarbons. All mobile equipment is required to comply with SWCAA, ODEQ, and EPA air quality standards.

The amount of pollutants emitted from construction equipment and vehicles would be comparable to the operation of agricultural and logging equipment in rural areas, and to land development activities in more urban and suburban areas.

Because construction activities would be localized and short-lived, impacts would be **low**. Substation construction would last from 13 to 24 months in one location, but would be localized in a small area; the first two phases of the three-phase substation construction would involve outdoor work with potential to impact air quality (see Chapter 3). Mitigation measures listed in Chapter 3 would be implemented to minimize the impacts that would occur. Under the action alternatives impacts to regional air quality from construction would be **low**.

21.2.2.2 Operation and Maintenance

Transmission line operation would cause limited air emissions. During operation, high electric field strength causes a breakdown of air at the surface of the conductors called corona. Corona is most noticeable when the transmission line is wet from high humidity, fog, or precipitation. Small amounts of ozone and nitrogen oxides are produced as a result of corona. However, studies have shown that the resulting ambient concentrations are generally not detectable above background levels and would not have significant effects on humans, plants, or animals (Arora 1995). Potential emissions would be very small, temporary, and localized.

Maintenance of the transmission line, access roads, and substations would be infrequent and have minimal impact on air quality both locally and regionally. During the life of the project, BPA would perform routine maintenance and inspect transmission lines, make emergency repairs, occasionally access the substations, and manage vegetation to ensure the lines are not compromised. These activities would require maintenance vehicles to travel along paved and unpaved access roads. This would lead to temporary fugitive emissions of dust and exhaust from maintenance vehicles. Unpaved access roads may need additional blading and rocking to repair surface deterioration from vehicles and weather. These activities would be infrequent and temporary.

Impacts during operation and maintenance would be **low** because they would be temporary, can be mitigated, and are not a major influence to air quality on the regional scale. Discharges from corona would also have **no** impact to regional air quality because pollutants would be emitted intermittently and would not be detectable above background levels.

21.2.3 Recommended Mitigation Measures

Mitigation measures included as part of the project are identified in Table 3-2. BPA is considering the following additional mitigation measures to further reduce or eliminate adverse air impacts by the action alternatives. If implemented, these measures would be completed before, during, or immediately after project construction unless otherwise noted.

- Covering material transport vehicles to prevent materials from becoming airborne
- Lopping and scattering cleared vegetation within the right-of-way

21.2.4 Unavoidable Impacts

Unavoidable impacts on air quality would include fugitive dust and vehicle emissions.

21.2.5 No Action Alternative

Under the No Action Alternative, air emissions for construction, operation, and maintenance of the proposed project would not occur. However, urban traffic emissions and fugitive dust emissions from existing agricultural, forest, and industrial practices would continue. If the No Action Alternative leads to lower system reliability, it is possible that transmission line outages could occur, causing businesses and residents to use emergency generators, if available, or wood-burning stoves. The particulates emitted by these sources would create impacts in areas where they occur. Such emissions would be short-lived and widely dispersed throughout the outage area.