3.3 Air Quality

This Programmatic Environmental Impact Statement (EIS) considers the adverse environmental impacts on air quality that would result from the types of facilities described in Chapter 2, Overview of Transmission Facilities, Development Considerations, and Regulations. This section addresses the following topics related to the new construction, operation and maintenance, upgrade, and modification of high-voltage electric transmission facilities (transmission facilities) in Washington:

- Section 3.3.1 identifies regulatory, siting, and design considerations.
- Section 3.3.2 describes the affected environment.
- Section 3.3.3 describes the adverse environmental impacts.
- Section 3.3.4 describes Mitigation Measures.
- Section 3.3.5 identifies probable significant adverse environmental impacts on air quality.

3.3.1 Regulatory, Siting, and Design Considerations

This Programmatic EIS establishes a broad framework for compliance, outlining general laws, regulations, best management practices (BMPs), and design considerations. It is assumed that project-specific applications would be developed within this pre-established regulatory context and comply with existing laws and regulations. Any projects not complying with applicable laws and regulations or failing to adhere to design considerations or BMPs would require additional project-specific environmental analysis and mitigation. The federal, state, and local laws and regulations that apply to air quality resources are summarized in **Table 3.3-1**.

The Clean Air Act, regulated by the U.S. Environmental Protection Agency (EPA), is the primary federal statute governing air quality. In Washington, the Washington State Department of Ecology (Ecology), and, in some specific areas, local clean air agencies, regulate air quality. Washington has established regulations for permitting new

sources in both attainment[1] and nonattainment[2] areas of the state, and additional requirements may be imposed by local authorities. Tribal governments also regulate air quality within their reservations, with technical assistance from the EPA, though Tribal lands are beyond the scope of this Programmatic EIS. Additionally, the Washington Energy Facility Site Evaluation Council (EFSEC) has superseding authority for state and local air quality permitting and compliance for transmission facilities that go through its siting process.

Table 3.3-1: Laws and Regulations for Air Quality

Applicable Legislation	Agency	Summary Information
40 CFR Title 40, Part 86 – Mobile Source Emission Standards	U.S. Environmental Protection Agency	Mobile source regulations generally apply to mobile source equipment manufacturers prior to sale, who must certify that their equipment complies with applicable standards.
42 USC §7401 – Clean Air Act	U.S. Environmental Protection Agency	Air quality is measured relative to the following NAAQS[3] area designations: ▪ Attainment area (in compliance) ▪ Nonattainment area (failure to comply) ▪ "Criteria" pollutants are defined as air pollutants that can harm the environment and public health. These pollutants include the following: ▪ CO, NO_2, PM (PM_{10} and $PM_{2.5}$), O_3, SO_2, and Pb
Clean Energy Transformation Act	Washington State Department of Commerce	This law commits Washington to an electricity supply free of GHG[4] emissions by 2045. It includes provision for enhancing transmission infrastructure to support the integration of renewable energy.

[1] A geographic region that meets or exceeds the National Ambient Air Quality Standards (NAAQS) set by the EPA.
[2] Regions that do not meet the National Ambient Air Quality Standards (NAAQS) set by the U.S. Environmental Protection Agency (EPA) for certain pollutants.
[3] National Ambient Air Quality Standards: Regulations established by the EPA under the Clean Air Act. These standards are designed to protect public health and the environment by setting limits on the concentration of specific air pollutants.
[4] Gases in the Earth's atmosphere that trap heat, contributing to the greenhouse effect.

Applicable Legislation	Agency	Summary Information
Washington State Clean Air Act (RCW 70A.15)	Local Air Pollution Control Authorities[(a)]	The Washington Clean Air Act created a regulatory framework for state (Ecology) and local agencies to manage air quality across Washington state. Both Ecology and local clean air agencies are responsible for enforcing regulations, permitting, and ensuring compliance across their jurisdiction. Project proponents must coordinate with the appropriate regional agency or Ecology office based on project location.
Washington State Environmental Policy Act	▪ Washington State Agencies ▪ Local Air Pollution Control Authorities	This act is a process that identifies and analyzes adverse environmental impacts that can be related to issuing permits. SEPA helps applicants and decision-makers understand how a proposed project will impact the environment. Certain projects, as defined in the SEPA Rules (WAC 197-11-704) and that are not exempt, are required to go through the SEPA process.
WAC 173-400, General Regulations for Air Pollution Sources	Washington State Department of Ecology[(a)]	This chapter establishes standards and rules to control and prevent pollution from air contaminant sources in Washington. This chapter provides emission standards, permit requirements, and monitoring and reporting requirements and describes compliance and enforcement.
WAC 173-423-081, Medium- and Heavy-Duty Engine Standards	Washington State Department of Ecology[(a)]	These standards establish criteria and procedures for the manufacture, testing, distribution, and sale of new on-highway[5] medium-duty[6] and heavy-duty[7] trucks and engines.
WAC 173-441, Reporting of Emissions of Greenhouse Gas	Washington State Department of Ecology[(a)]	This code establishes an inventory of GHG emissions through a mandatory GHG reporting rule for certain operations that emit at least 10,000 metric tons of CO_2 equivalent per year.[8]

[5] Long-haul trucks, dump trucks, and other large commercial vehicles with a gross vehicle weight rating over 26,000 pounds.
[6] Typically include delivery trucks, utility trucks, and some vocational trucks. These vehicles have a gross vehicle weight rating (GVWR) between 10,001 and 26,000 pounds.
[7] Include long-haul trucks, dump trucks, and other large commercial vehicles with a GVWR over 26,000 pounds.
[8] A metric used to compare the emissions of various greenhouse gases based on their global warming potential.

Applicable Legislation	Agency	Summary Information
WAC 173-460, Controls for New Sources of Toxic Air Pollutants	Washington State Department of Ecology[(a)]	WAC 173-460 establishes regulations for managing emissions from new or modified sources of toxic air pollutants in Washington.
WAC 173-476, Ambient Air Quality [9] Standards [10]	Washington State Department of Ecology[(a)]	WAC 173-476 establishes the maximum acceptable levels of various pollutants in the ambient air to protect public health and the environment. This chapter sets standards for Washington's six criteria pollutants: CO, NO_2, PM (PM_{10} and $PM_{2.5}$), O_3, SO_2, and Pb. Local air quality is measured relative to these standards.
Prohibitory rules (e.g., emission limits) for specific categories of stationary sources of air pollution	Local Air Pollution Control Authorities[(a)]	Local rules and regulations for potential sources of air pollution are included under Ecology and EFSEC review for energy facilities and addressed under a Notice of Construction [11] review.[(b)]
County dust emission limits	Local agencies[(a)]	Counties often provide guidelines for dust suppression or outline methods to minimize dust emissions and compliance is enforced by local air quality agencies.

Notes:

(a) The agency responsible for administering most permits or authorizations for the identified regulation. However, if EFSEC is determined to be the agency responsible for approving a proposal, EFSEC can administer several types of permits at the state and local levels. EFSEC provides a streamlined process for siting and licensing major energy facilities, including transmission facilities in Washington. EFSEC coordinates all evaluation and licensing steps, specifies the conditions for construction and operation, and issues a Site Certification Agreement, which assumes the responsibility for issuing individual state or local permits. By consolidating these permits into a single Site Certification Agreement, EFSEC can simplify the regulatory process for energy facility developers. While EFSEC itself does not directly administer federal permits, it works closely with federal agencies to ensure that all necessary federal requirements are met during the evaluation and licensing of energy facilities. Local air pollution control authorities include several regional offices or agencies that implement and enforce air quality regulations within their jurisdictions.

(b) Construction and operation activities of transmission facilities typically do not involve major new or modified sources of air pollution that would trigger PSD regulations. Consequently, PSD regulations are generally not applicable to transmission facilities.

[9] The quality of the air in the outdoor environment. It is determined by the concentration of pollutants in the atmosphere, which can affect human health and the environment.

[10] Regulatory limits set to protect public health and the environment from harmful levels of air pollutants. These standards define the maximum allowable concentrations of specific pollutants in the outdoor air over a given period.

[11] A formal document used to inform relevant parties and regulatory bodies about the commencement, progress, or completion of a construction project.

Tables 3.3-1 Notes (cont.)
CFR = Code of Federal Regulations; **CO** = carbon monoxide; [12] **Ecology** = Washington State Department of Ecology; **EFSEC** = Washington Energy Facility Site Evaluation Council; **GHG** = greenhouse gases; **NAAQS** = National Ambient Air Quality Standards; **NO_2** = nitrogen dioxide; **O_3** = ozone; **Pb** = lead; **PM** = particulate matter; **PM_{10}** = particulate matter less than 10 microns in diameter; **$PM_{2.5}$** = particulate matter less than 2.5 microns in diameter; **PSD** = Prevention of Significant Deterioration [13]; **RCW** = Revised Code of Washington **SEPA** = State Environmental Policy Act; **SO_2** = sulfur dioxide; [14] **USC** = United States Code; **WAC** = Washington Administrative Code

The siting of transmission facilities is determined by engineering, technical, environmental, and socioeconomic factors. **Table 3.3-2** summarizes guidance documents and management plans that outline the design considerations and BMPs generally used to avoid or minimize adverse environmental impacts on air quality.

Table 3.3-2: Siting and Design Considerations for Air Quality

Siting and Design Consideration	Description
Methods for Dust Control (Ecology 2016)	This publication provides guidelines and techniques for controlling dust emissions from various activities.
Guide to Handling Fugitive Dust from Construction Projects (AGC and Fugitive Dust Task Force 1997)	This publication provides comprehensive guidelines for managing and mitigating fugitive dust [15] emissions from construction activities.
Washington State Implementation Plan [16] (Ecology n.d.[a])	This publication is a comprehensive plan that outlines how Washington meets and maintains national air quality standards. It includes sections on attainment plans, [17] maintenance plans, and infrastructure plans.
Air Quality, Greenhouse Gas, and Energy Guidance (WSDOT 2022)	This document provides guidelines for evaluating air quality, GHG emissions, and energy impacts in project documentation to meet NEPA, SEPA, and Clean Air Act requirements.
WSDOT Environmental Guidance – Air Quality, Energy and Greenhouse Gas Emissions (WSDOT 2025)	This guidance helps determine the type of analysis and documentation required for projects, ensuring compliance with air quality, energy, and GHG emissions standards. [18]

[12] Carbon monoxide is a pollutant gas, which is predominantly produced by incomplete combustion of carbon-containing materials.
[13] A key component of the Clean Air Act, designed to protect air quality in areas that meet or exceed the National Ambient Air Quality Standards.
[14] A pollutant gas that is emitted when fuels that contain sulfur are combusted.
[15] Tiny particles that become airborne due to various activities, rather than being emitted through a confined flow stream like a chimney or exhaust pipe.
[16] A comprehensive plan developed by the Washington State Department of Ecology to ensure that the state meets the National Ambient Air Quality Standards (NAAQS) set by the Environmental Protection Agency (EPA).
[17] A detailed strategy developed to bring a specific geographic area into compliance with the NAAQS set by the EPA.
[18] Regulatory limits set by governments that specify the maximum allowable levels of pollutants that can be released into the atmosphere from various sources.

Siting and Design Consideration	Description
Fugitive Dust Control Measures and Best Practices (EPA 2022)	This resource provides guidelines for controlling fugitive dust emissions from various sources and emphasizes best practices to minimize dust generation and protect air quality.
Clean Air Act Permit Modeling Guidance (EPA 2024)	This guide provides recommendations on modeling techniques and guidance for estimating pollutant concentrations to assess control strategies and determine emission limits.
Air Quality Analysis Checklist (EPA 2024)	This checklist highlights important aspects of an air quality analysis with appropriate references to existing EPA policy and guidance to assist in the development and review of the compliance demonstration modeling as part of an overall air quality assessment.
Recommended Siting Practices for Electric Transmission Developers (Americans for a Clean Energy Grid 2023)	This document outlines best practices for siting electric transmission facilities, including: ▪ Early and transparent engagement ▪ Respect and fair dealing ▪ Environmental considerations ▪ Interagency coordination ▪ Use of existing infrastructure

Ecology = Washington State Department of Ecology; **EPA** = U.S. Environmental Protection Agency; **GHG** = greenhouse gas; **NEPA** = National Environmental Policy Act; **SEPA** = State Environmental Policy Act; **WSDOT** = Washington State Department of Transportation

3.3.2 Affected Environment

This section describes existing air quality conditions within the Study Area (see Chapter 1, Introduction). The analysis of the affected environment incorporates the following:

- Climate
- Ambient Air Quality
- Greenhouse Gas (GHG) Emissions
- Odor

3.3.2.1 Climate

Atmospheric conditions such as wind speed, wind direction, atmospheric stability, and air temperature gradients interact with the physical features of the landscape to

determine the movement and dispersal of air pollutants,[19] which affects ambient air quality. For example, higher winds could contribute to the windblown dispersal of fugitive dust. Fugitive dust is particulate matter (PM) that is suspended in the air by wind or human activities, such as construction (AGC and Fugitive Dust Task Force 1997).

The climate in Washington varies across the state's geography and is influenced by elevation, latitude, topographic features, vegetative cover, proximity to large waterbodies, and ocean currents. Washington has seven distinct physiographic[20] regions, which include the Pacific coastline, the Cascade Range, and the fields of the Columbia Basin, among others. The Cascade Range divides the state into two parts: western Washington and eastern Washington. Western Washington is the most densely populated; approximately 60 percent of the state's residents live west of the mountains. Many of Washington's more populous cities, such as Seattle, Tacoma, Olympia, Vancouver, and Bellingham, are located on the western side of the state (DOC n.d.).

Western Washington, often identified as the area west of the Cascade Mountains, is known for its damp and temperate climate, receiving more precipitation than eastern Washington due to the rain shadow effect[21] of the Cascades. The weather in western Washington may be summarized as follows:

- **Snowfall:** Snow is infrequent, but winter nighttime temperatures can easily drop to between 20 and 30 degrees Fahrenheit (°F).
- **Sunshine:** The percentage of possible sunshine received each month ranges from approximately 25 percent in winter to 60 percent in summer (WRCC n.d.).
- **Rainfall:** The greater Seattle area receives about 37 inches of rain annually. July and August are the driest months, while January and February are the wettest (DOC n.d.).
- **Seasonal Weather:** Summer temperatures rarely exceed 79°F, and winter daytime temperatures seldom fall below 45°F.

[19] The process by which air pollutants spread from their source into the surrounding atmosphere. This process is crucial for understanding and predicting air quality impacts.
[20] Physiography is defined as the study of physical features of the Earth's surface. Physiographic regions are defined by their distinct geology and topography, such as hills, valleys, and flat areas.
[21] A phenomenon that occurs when a mountain range blocks the passage of rain-producing weather systems, casting a "shadow" of dryness behind it.

- **Temperature:** The average maximum temperature in July is near 70°F along the coast and 75°F in the foothills. Minimum temperatures are around 50°F. In winter, the warmer areas are near the coast. In January, maximum temperatures range from 43°F to 48°F and minimum temperatures from 32°F to 38°F (WRCC n.d.).

As mentioned, the Cascades capture most of the rain from the atmosphere moving eastward across the state, which affects weather and climate in that area. The climate in eastern Washington may be characterized as follows:

- **Snowfall:** The mountains can receive up to 200 inches of snowfall annually.
- **Sunshine:** Cities like Wenatchee, Ellensburg, and the Tri-Cities get up to 300 days of sunshine a year, with minimal rainfall.
- **Rainfall:** Annual precipitation ranges from 7 to 9 inches near the confluence of the Snake and Columbia Rivers, 15 to 30 inches along the eastern border, and 75 to 90 inches near the summit of the Cascade Mountains (WRCC n.d.).
- **Seasonal Weather:** In the central part of the state, summers are hot and mostly clear, while winters are cold and partly cloudy. Annual rainfall in the central region is about 7 to 9 inches, whereas Spokane, on the eastern edge of the state, receives 15 to 30 inches per year.
- **Temperature:** Average summer highs range from the upper 80s°F to mid-90s°F, and winter daytime temperatures can vary from the upper 30s°F to just above 0°F (DOC n.d.).

3.3.2.2 Ambient Air Quality

Air quality contributes to the health and wellness of people, as well as the environment. Air quality is affected by natural factors such as geography, topography, and wind speed and direction, as well as by human sources, including stationary sources (e.g., industrial development) and mobile sources (e.g., passenger vehicles, heavy-duty trucks). Emissions from these sources could potentially expose nearby sensitive receptors[22] to pollutant concentrations.

[22] In relation to air quality, sensitive receptors are people who are considered to be more sensitive than others to air pollutants.

The EPA has set the National Ambient Air Quality Standards (NAAQS) for six common air pollutants: PM, lead, sulfur dioxide, nitrogen oxides,[23] ozone, and carbon monoxide. These standards are designed to protect public health with an adequate margin of safety. NAAQS are expressed in concentration levels in ambient air, averaged over a specific time interval. The State of Washington has adopted the same standards as the federal level. State and local clean air agencies monitor and track emissions to make sure that levels of outdoor air pollutants meet federal and state air quality standards. State and local agencies currently operate 56 air quality monitoring stations throughout their respective jurisdictional areas, located as follows:

- Twenty-two stations are located in urban areas (the Puget Sound region, the Tri-Cities, and Vancouver, Spokane, and Yakima Counties).
- Nineteen stations are located in small communities outside of urban areas that have local sources of particulate matter less than 2.5 microns in diameter ($PM_{2.5}$).
- Seven are located in agricultural areas.
- Seven are located on Tribal reservations.
- One is in a natural rural location (Olympic Peninsula) (Ecology n.d.[b]).

Areas that comply with the NAAQS are designated "attainment areas," and areas that do not meet the NAAQS are designated as "nonattainment" areas.

The collection of regional emissions data is a key and necessary component of air quality planning by the federal, state, and regional agencies responsible for attaining and maintaining ambient air quality standards. The EPA collects air quality data from outdoor monitors across the United States and publishes the Air Quality Statistics Report (EPA 2025b). This report shows yearly summaries of air pollution values for six criteria air pollutants, per city, county, and state. It shows the highest values reported during the year by all monitors in the state and highlights values that exceed the NAAQS.

Table 3.3-3 shows exceedances of $PM_{2.5}$ in 24-hour and annual standards in Okanogan County and annual standards in Stevens and Yakima Counties in 2023. Additionally, exceedances of the 24-hour standard for particulate matter less than 10 microns in diameter (PM_{10}) were recorded in Benton, Spokane, Stevens, Walla Walla, and Yakima Counties. In recent years, Washington experienced extended smoke events from

[23] Nitrogen oxides are a group of gases that include nitric oxide (NO) and nitrogen dioxide (NO_2) which are predominantly produced by combustion of fossil fuels.

regional wildfires in the Pacific Northwest (Ecology n.d.[c]). These events have caused repeated exceedances of the PM standards and are generally considered exceptional events that are excluded from attainment determinations.

Table 3.3-3: 2023 Annual Ambient Air Quality Monitors Data per County in Washington

County	Criteria Air Pollutants and Area's Maximum Air Quality Statistics[a]													
	CO 1-hour	CO 8-hour	NO2 1-hour	NO2 1-hour	Ozone 1-hour	Ozone 8-hour	SO2 1-hour	SO2 24-hour	SO2 1-hour	PM2.5 24-hour	PM2.5 annual	PM10 24-hour	PM10 annual(d)	Lead 3-Month Average
Benton	-[b]	-	-	-	0.08	0.067	-	-	-	-	-	185[c]	19	-
Clallam	0.4	0.4	-	-	0.06	0.05	-	-	-	-	-	-	-	-
Clark	-	-	-	-	0.08	0.062	-	-	-	25	6.4	-	-	-
Columbia	-	-	-	-	0.06	0.057	-	-	-	-	-	-	-	-
King	1.3	1	50	15	0.09	0.068	3	2	1	24	7.9	-	-	-
Kitsap	-	-	-	-	-	-	-	-	-	19	4.9	-	-	-
Kittitas	-	-	-	-	-	-	-	-	-	18	6.5	-	-	-
Okanogan	-	-	-	-	-	-	-	-	-	51[c]	11.8[c]	-	-	-
Pierce	-	-	37	13	0.07	0.057	-	-	-	29	7.3	-	-	-
Skagit	-	-	-	-	0.06	0.046	4	1	0	12	5.3	-	-	-
Snohomish	-	-	-	-	.	.	-	-	-	26	8.5	-	-	-
Spokane	-	-	-	-	0.07	0.062	-	-	-	25	7.7	189[c]	16	-
Stevens	-	-	-	-	.	.	-	-	-	31	10.1[c]	167[c]	24	-
Thurston	-	-	-	-	0.07	0.055	-	-	-	-	-	-	-	-
Walla Walla	-	-	-	-	.	.	-	-	-	-	-	201[c]	22	-
Whatcom	-	-	-	-	0.07	0.055	4	1	0	12	5	-	-	-
Yakima	-	-	-	-	-	-	-	-	-	26	9.5[c]	168[c]	20	-

Source: EPA 2025b

Notes:

[a] EPA Air Quality Standards are listed as follows: carbon monoxide: 35 ppm (1-hour), 9 ppm (8-hour); nitrogen dioxide: 100 ppb (1-hour), 53 ppb (annual); ozone: 0.12 ppm (1-hour), 0.070 ppm (8-hour); sulfur dioxide: 75 ppb (1-hour), 140 ppb (24-hour), 30 ppb (annual); $PM_{2.5}$: 35 µg/m³ (24-hour), 9.0 µg/m³ (annual); PM_{10}: 150 µg/m³ (24-hour), lead: 0.15 µg/m³ (3-month average)

[b] - indicates no data reported or monitored at this location.

[c] Exceeds NAAQS

[d] The EPA does not have an annual PM_{10} standard. The EPA's NAAQS for PM_{10} include only a 24-hour standard. This standard should not be exceeded more than once per year on average over three years.

µg/m³ = micrograms per cubic meter; **CO** = carbon monoxide; **EPA** = U.S. Environmental Protection Agency; **NAAQS** = National Ambient Air Quality Standards; **NO_2** = nitrogen dioxide; **ppb** = particles per billion; **ppm** = particles per million; **$PM_{2.5}$** = particulate matter less than 2.5 microns in diameter; **PM_{10}** = particulate matter; **SO_2** = sulfur dioxide

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In addition to collecting ambient air quality data, Ecology regularly tabulates and reports emission sources in an emissions inventory for Washington, which contains data for five of the six criteria air pollutants (except lead) in 24 source categories that include both natural and manufactured sources. The latest published emissions inventory in 2020 for the state indicates that fugitive dust from construction activities represents 18.36 and 4.81 percent of statewide emissions of PM_{10} and $PM_{2.5}$, respectively. Sources of fugitive dust (i.e., agricultural operations, construction activity, and roadways) contribute to a large amount of the PM_{10} and $PM_{2.5}$ emissions in the state—about 63 and 24 percent, respectively (Ecology 2024). Besides fugitive dust, the development of transmission facilities could generate emissions from mobile sources, such as nitrogen oxides[24] (NO_X), carbon monoxide[25] (CO), sulfur dioxide (SO_2), and volatile organic compounds[26] (VOCs), which are pollutants that result primarily from combustion. Mobile sources, such as on- and off-road vehicles, boats, aircraft, and locomotives, account for about 58, 43, and 3 percent of all NO_X, CO, and SO_2 state emissions, respectively, and for about 5 percent of VOC emissions statewide (Ecology 2024). Emissions typically vary in location, emission rate, and emission release patterns over time. To understand the adverse environmental impact, expected emissions are calculated and compared to existing, background, and regional (i.e., countywide) data. The most current regional emissions inventory, as well as national and state standards (i.e., NAAQS), are used to determine the baseline conditions. Wind and dry conditions can exacerbate dust generation and dispersion.

3.3.2.3 Greenhouse Gas Emissions

GHGs absorb infrared radiation in the atmosphere. The infrared radiation is selectively absorbed or "trapped" by GHGs, and heat is then reradiated[27] back toward the earth's surface and warming it, as well as the lower atmosphere (EPA 2025c). Atmospheric concentrations of GHGs have risen dramatically since the Industrial Revolution

[24] Nitrogen oxides are a group of gases that include nitric oxide (NO) and nitrogen dioxide (NO_2) which are predominantly produced by combustion of fossil fuels.
[25] Carbon monoxide is a pollutant gas, which is predominantly produced by incomplete combustion of carbon-containing materials.
[26] Volatile organic compounds are emitted as gases from certain solids or liquids, some of which may have short- and long-term adverse health effects.
[27] The process by which absorbed energy is emitted again, typically in the form of radiation.

(EPA 2025a).[28] This has resulted in a gradually increasing global temperature, thereby increasing the potential for indirect effects such as:

- Decrease in precipitation as snow
- Gradual melting of polar ice caps
- Increase in severe weather
- Changes to plant and animal species and habitat
- Rise in sea level

Climate impacts are not attributable to any single action but are exacerbated by diverse individual sources of emissions that each make relatively small additions to GHG concentrations. Both natural processes and human activities emit GHGs. Human activities known to emit GHGs include industrial manufacturing, utilities, transportation, residential activities, and agricultural activities. The GHGs that enter the atmosphere because of human activities are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated carbons (hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride [SF^6]) (EPA 2025c).

Washington's GHG emissions inventory requirements are focused on the state's largest emitting sources and industries. Construction, operation and maintenance, upgrade, and modification of transmission facilities are not anticipated to involve the use of major sources of GHGs that would be subject to these requirements.

The GHGs CO_2, CH_4, and N_2O are emitted during the combustion of fuels in mobile sources. New construction of transmission facilities would result in temporary generation of GHG emissions related to mobile sources, such as on-road vehicle operations and off-road equipment.

Emissions of CO_2, and small amounts of CH_4 and N_2O, can also be attributed to the generation of electricity in the power sector, whereas SF_6 can be linked to electricity transmission and distribution equipment (EPA 2025e). SF_6 is a GHG that serves as an electric insulator and interrupter in equipment that transmits and distributes electricity, such as circuit breakers and switches in substations. Less than 1 percent of GHG emissions from the U.S. power sector come from SF_6 (EPA 2025d). The EPA is working with the electric power industry to reduce emissions through the SF_6 Emission

[28] A transformative period from the late 18th to the early 19th century, marked by a shift from agrarian and handicraft economies to industrial and machine manufacturing economies.

Reduction Partnership for Electric Power Systems. National and state practices to reduce SF_6 emissions include annual reporting, as well as application of BMPs such as leak detection and repair, use of recycling equipment, and consideration of alternative technologies that do not use SF_6 (EPA 2025e).

3.3.2.4 Odor

Cities and towns with dense populations are more sensitive to odor emissions due to proximity to residential, commercial, and industrial activities. Odors from traffic, industrial processes, and waste management facilities can impact air quality and public health. In rural areas, agricultural activities such as livestock farming and crop production can be sources of odors. Ecology and local air quality agencies monitor and regulate odor emissions to ensure that they do not exceed acceptable levels or cause nuisance or health issues.

Minor odors may be generated from the exhaust of diesel-fueled vehicles and equipment. These odors are expected to be temporary and confined to the immediate vicinity of construction sites.

3.3.3 Impacts

For this Programmatic EIS, adverse environmental impacts were assessed for the new construction, operation and maintenance, upgrade, and modification of transmission facilities within the Study Area.

3.3.3.1 Method of Analysis

The study area for a project-specific application would typically encompass several key regions and features, such as the following:

- **Project Site and Immediate Vicinity:** This includes the specific location of the project and the surrounding area that might be directly affected by new construction, operation and maintenance, upgrade, and modification activities.
- **Air Basin:**[29] Depending on the project components identified for the development of a transmission facility, a specific analysis of the meteorology

[29] A geographic area characterized by similar meteorological and geographic conditions throughout. These areas are often defined by natural boundaries such as mountains, which can trap air and pollutants within the basin, leading to unique air quality challenges.

and regional area would be required. The reported ambient monitoring data of three years should be analyzed.

This Programmatic EIS analyzes the affected environment and adverse environmental impacts on air quality within the Study Area (see Chapter 1, Introduction). Four project stages for each transmission facility type (overhead or underground) were considered: new construction, operation and maintenance, upgrade, and modification.

This evaluation considers both overhead and underground transmission facilities for each stage. Overhead transmission facilities consist of transmission lines, substations, and ancillary infrastructure. Overhead and underground transmission facilities may involve similar aboveground infrastructure. Underground transmission facilities consist of underground transmission lines, underground access vaults, and other infrastructure located below the ground surface. The new construction of underground transmission facilities could include both open-trench and trenchless construction methods.

Impact Determination

The discussion of adverse environmental impacts is qualitative, given the high-level nature of a Programmatic EIS; quantification would require project-specific details to analyze. **Table 3.3-4** describes the criteria used to evaluate adverse environmental impacts from the Action Alternative and No Action Alternative. Information reviewed to identify adverse environmental impacts on air quality in the Study Area was obtained from federal agencies, state agencies, local planning documents, and public scoping.

Table 3.3-4: Criteria for Assessing the Impact Determination on Air Quality

Impact Determination	Description
Nil	No foreseeable adverse environmental impacts are expected. A project would not create sources of air pollutants or emissions that would adversely affect air quality.
Negligible	A project would have minimal adverse environmental impacts on air quality. Changes would either be non-detectable or, if detected, would have only slight effects. A project would produce some emissions, such as dust or exhaust from construction equipment. Negligible impacts would be short-term in duration. BMPs and design considerations are expected to be effective.
Low	A project would result in noticeable adverse environmental impacts on air quality, even with the implementation of BMPs and design considerations. These adverse environmental impacts may include an increase in emissions, such as dust or exhaust from equipment, but these would be limited and controlled. Adverse

Impact Determination	Description
	impacts on air quality would be localized and may be short or long term in duration.
Medium	A project would result in adverse environmental impacts on air quality, even with the implementation of BMPs and design considerations. A project would result in a noticeable increase in emissions, such as dust, vehicle exhaust, and emissions from construction equipment. Medium impacts may be short or long-term in duration.
High	A project would result in adverse and potentially severe environmental impacts on air quality, even after implementation of BMPs and design considerations. A project would cause extensive and considerable increases in emissions, such as dust, vehicle exhaust, and emissions from construction equipment. These adverse environmental impacts have the potential to exceed relevant air quality standards and regulations. Adverse environmental impacts on air quality may affect a larger area, not just localized to the construction site. High adverse environmental impacts may be short or long term.

BMP = best management practice; **SEPA** = State Environmental Policy Act

To clearly understand the potential severity of adverse environmental impacts without any interventions, the following impact determinations exclude the use of Avoidance Criteria and Mitigation Measures. The ratings assume compliance with all federal, state, and local laws and regulations, as well as standardized BMPs and design considerations. Assessing adverse environmental impacts without Avoidance Criteria or Mitigation Measures offers a baseline understanding of potential environmental effects, helping to identify the true extent of these impacts. Environmental laws often require that initial impact assessments be conducted without considering mitigation to maintain the integrity of the environmental review process.

When impact determinations are identified as medium or high, then either the applicant would adopt applicable Mitigation Measures from this Programmatic EIS, or the State Environmental Policy Act (SEPA) Lead Agency may require other applicable mitigation measures to be implemented to reduce project-specific adverse environmental impacts. When impact determinations are low, applicable Mitigation Measures should still be considered by the applicant and the SEPA Lead Agency, as these measures would help to further reduce adverse environmental impacts, including the project's contribution to cumulative impacts. These Mitigation Measures would be implemented in addition to compliance with laws, regulations, environmental permits, plans, and design considerations required for transmission facilities.

3.3.3.2 Action Alternative

New Construction

Overhead Transmission Facilities

Activities for the new construction of overhead transmission facilities would vary and depend on the scale of the facility and site characteristics. New construction could include a relatively short site preparation period (e.g., a few months), followed by a longer construction and start-up period. It is assumed that new construction of overhead transmission facilities, per mile, would have a shorter duration than underground construction. Overhead transmission facilities could have the following adverse environmental impacts related to air quality during new construction:

- Increased Fugitive Dust Emissions
- Increased Emissions from Fuel-Burning Equipment
- Increased SF_6 Emissions
- GHG Emissions
- Odor

The primary type of air pollution during new construction would be PM2.5 and PM10, including fugitive dust and combustion pollutants from stationary and mobile equipment exhaust.

Increased Fugitive Dust Emissions

Construction activities and material handling may generate considerable fugitive dust during new construction. Based on the size of the PM, fugitive dust emissions could affect visibility and have health effects related to respiratory issues. Construction activities that could create fugitive dust include road building and grading, on-site travel on unpaved surfaces, work area clearing and preparation for tower removal or construction and blasting[30] for tower footings. The movement of heavy construction equipment and vehicles over unpaved surfaces may contribute substantially to fugitive dust emissions. Any disruption of soils susceptible to erosion could also create fugitive dust, as well as vegetation removal and debris disposal. c 173-400-040(9)(a) requires owners and operators of fugitive dust sources to take reasonable measures to prevent dust from becoming airborne and to minimize emissions. Additionally,

[30] Controlled use of explosives to break, excavate, or shape rock, concrete, or other materials.

Ecology and local air authorities require the use of BMPs to minimize fugitive dust emissions during new construction, including measures such as:

- Watering or stabilizing disturbed soils
- Covering stockpiles and haul trucks
- Limiting vehicle speeds on unpaved surfaces
- Scheduling new construction to avoid high-wind conditions

The Authority Having Jurisdiction (AHJ) air quality agency should be contacted for clarity on local requirements.

Impact Determination: Adverse environmental impacts on air quality resulting from increased fugitive dust emissions during the new construction of overhead transmission facilities are expected to vary depending on the scale of the project and site-specific conditions. In the absence of mitigation, these adverse environmental impacts could range from low to medium.

Increased Emissions from Fuel-Burning Equipment

Portable generators and other mobile sources, such as concrete batch plants, may be used during new construction. The temporary use of this equipment is expected to be permitted, separately from projects, by the owners/operators of the equipment. Construction activities are considered to be temporary sources and are exempt from permitting review. No air quality permits are expected to be required for new construction or operation and maintenance of any of the transmission facilities.

Mobile sources with diesel internal combustion engines, including heavy equipment, would emit pollutants such as CO, CO_2, $PM_{2.5}$, NO_X, SO_X, VOC, and others. The Clean Air Act requires all mobile equipment to meet national and state regulations. Factors like localization and duration of new construction could be analyzed to estimate the magnitude of adverse environmental impacts. New construction of transmission facilities typically lasts from 12 months to as much as 24 months. Construction would be localized to a specific corridor area and would not involve major sources of air pollutants.

Construction emissions associated with exhaust from heavy equipment, delivery vehicles, and haul trucks could be calculated and compared to existing background air quality levels to determine whether estimated pollutant emissions would exceed NAAQS.

Impact Determination: Adverse environmental impacts on air quality resulting from increased emissions from fuel-burning equipment during the new construction of overhead transmission facilities are expected to vary depending on the scale of the project and site-specific conditions. In the absence of mitigation, these adverse environmental impacts could range from low to medium.

Increased SF_6 Emissions

During the new construction of transmission facilities, SF_6 emissions could occur primarily from the installation and handling of gas-insulated switchgear and other electrical equipment that use SF_6 as an insulating and arc-quenching[31] medium. SF_6 could be released during the initial filling of gas-insulated equipment. Proper handling and filling procedures are crucial to minimize emissions.

Impact Determination: Adverse environmental impacts on air quality resulting from increased SF_6 emissions during the new construction of overhead transmission facilities are expected to vary depending on the scale of the project and site-specific conditions. In the absence of mitigation, these adverse environmental impacts could range from negligible to medium.

GHG Emissions

During new construction, GHG emissions would be produced primarily from internal combustion engines such as those found in gas and diesel-powered vehicles and equipment, vehicles transporting construction workers to and from project sites, and heavy-duty trucks used to export earth materials off-site. Additionally, SF_6 emissions, used as an insulator in high-voltage circuit breakers, switches, and other pieces of equipment used in transmission and distribution systems, could also be released as addressed in the above paragraph.

Impact Determination: Adverse environmental impacts on air quality resulting from GHG emissions during the new construction of overhead transmission facilities are expected to vary depending on the scale of the project and site-specific conditions. In the absence of mitigation, these adverse environmental impacts could range from low to medium.

[31] The process of extinguishing an electrical arc that forms when current-carrying contacts in a circuit breaker or switchgear separate. This arc is a highly ionized, conductive path that can cause damage if not properly managed. Effective arc-quenching is crucial for ensuring the safe and efficient interruption of electrical currents.

Odor

During construction activities, temporary odors from vehicle exhaust, construction equipment engines, application of asphalt, and architectural coatings may occur. Standard construction BMPs would minimize odor impacts from construction. In addition, construction-related odors would be short-term, confined to the immediate vicinity of the construction sites, and would cease upon completion of construction.

Impact Determination: Adverse environmental impacts on air quality resulting from odor during the new construction of overhead transmission facilities are expected to vary depending on the scale of the project and site-specific conditions. In the absence of mitigation, these adverse environmental impacts could range from nil to low.

Underground Transmission Facilities

Activities for the new construction of underground transmission facilities would vary and depend on the scale of the facility and site characteristics. New construction could include a site preparation period of relatively short duration (e.g., a few months), followed by a longer construction and start-up period. It is assumed that the new construction of underground transmission facilities, per mile, would have a longer duration than overhead projects. Underground transmission facilities could have the following adverse environmental impacts during new construction:

- Increased Fugitive Dust Emissions
- Increased Emissions from Fuel-Burning Equipment
- GHG Emissions
- Odor

Increased Fugitive Dust Emissions

The trenching, excavation, and new construction of underground transmission facilities could generate more fugitive dust than an overhead transmission facility.

Expected emissions from these sources could be calculated and compared to existing, background, and regional (i.e., countywide) emissions using the most current regional emissions inventory, as well as national and state standards (i.e., NAAQS).

Impact Determination: Adverse environmental impacts on air quality resulting from increased fugitive dust emissions during the new construction of underground transmission facilities are expected to vary depending on the scale of the project and

site-specific conditions. In the absence of mitigation, these adverse environmental impacts could range from low to medium.

Increased Emissions from Fuel-Burning Equipment

New construction activities for underground transmission facilities often involve the use of heavy machinery and vehicles that burn fossil fuels, leading to the emission of pollutants. The trenching, excavation, and new construction of underground transmission facilities could generate more emissions than an overhead transmission facility. Expected emissions from these sources could be calculated and compared to existing, background, regional (i.e., countywide) emissions using the most current regional emissions inventory, as well as national and state standards (i.e., NAAQS).

Impact Determination: Adverse environmental impacts on air quality resulting from increased emissions from fuel-burning equipment during the new construction of underground transmission facilities are expected to vary depending on the scale of the project and site-specific conditions. In the absence of mitigation, these adverse environmental impacts could range from low to medium.

GHG Emissions

Similar to new overhead transmission facility construction, GHG emissions would be produced primarily from internal combustion engines such as those found in gas and diesel-powered vehicles and equipment, vehicles transporting construction workers to and from project sites, and heavy-duty trucks used to export earth materials off-site. Underground transmission facilities typically result in greater amounts of GHG emissions due to more extensive site preparation and grading activities.

Impact Determination: Adverse environmental impacts on air quality resulting from GHG emissions during the new construction of underground transmission facilities are expected to vary depending on the scale of the project and site-specific conditions. In the absence of mitigation, these adverse environmental impacts could range from low to medium.

Odor

Similar to new overhead transmission facility construction, temporary odors from vehicle exhaust, construction equipment engines, application of asphalt, and architectural coatings may occur. However, excavation and equipment use for new underground transmission facility construction may be more extensive and prolonged compared to new overhead construction. As a result, odor-generating activities may occur over a longer duration in areas where new underground construction is taking

place. Standard construction BMPs would minimize odor impacts from new construction. In addition, construction-related odors would remain short-term in nature, confined to the immediate vicinity of the construction sites, and would cease upon completion of new construction activities.

Impact Determination: Adverse environmental impacts on air quality resulting from odor during the new construction of underground transmission facilities are expected to vary depending on the scale of the project and site-specific conditions. In the absence of mitigation, these adverse environmental impacts could range from negligible to low.

Operation and Maintenance

Overhead Transmission Facilities

Activities for the operation and maintenance stage of overhead transmission facilities would vary based on the type of facility, scale, and site characteristics. Facilities are not expected to have staff on site daily, but maintenance crews are anticipated to be regularly deployed. Transmission facilities require ongoing maintenance for equipment and rights-of-way (ROWs). Overhead transmission facilities could have the following adverse environmental impacts during the operation and maintenance stage:

- Increased Fugitive Dust Emissions
- Increased Emissions from Fuel-Burning Equipment
- Increased SF_6 Emissions
- GHG Emissions
- Odor

Increased Fugitive Dust Emissions

During the operation and maintenance stage, routine maintenance and inspections of transmission facilities, including emergency repairs and vegetation management, would take place. These activities would necessitate the use of maintenance vehicles traveling on both paved and unpaved access roads. As a result, there would be temporary fugitive dust emissions, similar to what occurs during new construction activities, though at a reduced frequency and volume.

Impact Determination: Adverse environmental impacts on air quality resulting from increased fugitive dust emissions during the operation and maintenance of overhead transmission facilities are expected to vary depending on the scale of the project and site-specific conditions. In the absence of mitigation, these adverse environmental impacts could range from negligible to low.

Increased Emissions from Fuel-Burning Equipment

During the operation and maintenance stage, routine maintenance and inspections of transmission facilities, including emergency repairs and vegetation management, would take place. These activities would necessitate the use of maintenance vehicles, heavy equipment, and possibly portable generators. The use of equipment would result in temporary emissions and minor odors from fuel-burning equipment, similar to what occurs during new construction activities, though at a reduced frequency and volume.

Impact Determination: Adverse environmental impacts on air quality resulting from increased emissions from fuel-burning equipment during the operation and maintenance of overhead transmission facilities are expected to vary depending on the scale of the project and site-specific conditions. In the absence of mitigation, these adverse environmental impacts could range from negligible to low.

Increased SF_6 Emissions

Fugitive emissions of SF_6 could occur from seals and joints in the equipment, especially if not properly installed or maintained. During maintenance activities, such as opening equipment for repairs or inspections, SF_6 could escape if not properly managed.

Impact Determination: Adverse environmental impacts on air quality resulting from increased SF_6 emissions during the operation and maintenance of overhead transmission facilities are expected to vary depending on the scale of the project and site-specific conditions. In the absence of mitigation, these adverse environmental impacts could range from negligible to low.

GHG Emissions

Overhead transmission facilities require routine inspections and maintenance, which include emergency repairs and vegetation management. These activities could necessitate the use of GHG-releasing emission sources such as maintenance vehicles, heavy equipment, and portable generators. Additionally, SF_6 emissions used as an

insulator in high-voltage circuit breakers, switches, and other pieces of equipment used in transmission and distribution systems could also be released.

Impact Determination: Adverse environmental impacts on air quality resulting from GHG emissions during the operation and maintenance of overhead transmission facilities are expected to vary depending on the scale of the project and site-specific conditions. In the absence of mitigation, these adverse environmental impacts could range from negligible to low.

Odor

Similar to new overhead transmission facility construction, temporary odors from vehicle exhaust, maintenance equipment engines, and architectural coatings may occur, but would become less frequent and have shorter durations. Standard BMPs would minimize odor impacts during maintenance. Maintenance-related odors would be short-term, confined to the immediate vicinity of the maintenance sites, and would cease upon completion of maintenance.

Impact Determination: Adverse environmental impacts on air quality resulting from odor during the operation and maintenance of overhead transmission facilities are expected to vary depending on the scale of the project and site-specific conditions. In the absence of mitigation, these adverse environmental impacts could range from nil to negligible.

Underground Transmission Facilities

Similar to overhead transmission facilities, activities for the operation and maintenance of underground transmission facilities would vary based on the type of facility, scale, and site characteristics. Facilities are not expected to have staff on site daily, but maintenance crews are anticipated to be regularly deployed. Transmission facilities require ongoing maintenance for equipment and ROWs, similar to any other linear industrial facility. Underground transmission facilities could have the following adverse environmental impacts during the operation and maintenance stage:

- Increased Fugitive Dust Emissions
- Increased Emissions from Fuel-Burning Equipment
- GHG Emissions
- Odor

Increased Fugitive Dust Emissions

Maintenance crews would conduct routine maintenance and inspections of transmission facilities, perform emergency repairs, access substations as needed, and manage vegetation along ROWs. These activities would necessitate the use of maintenance vehicles traveling on both paved and unpaved access roads, resulting in temporary emissions of fugitive dust.

Impact Determination: Adverse environmental impacts on air quality resulting from increased fugitive dust emissions during the operation and maintenance of underground transmission facilities are expected to vary depending on the scale of the project and site-specific conditions. In the absence of mitigation, these adverse environmental impacts could range from negligible to low.

Increased Emissions from Fuel-Burning Equipment

Maintenance crews would conduct routine maintenance and inspections of transmission facilities, perform emergency repairs, access substations as needed, and manage vegetation along ROWs. These activities would necessitate the use of maintenance vehicles, heavy equipment, and, possibly, portable generators. The use of equipment would result in temporary emissions and minor odors from fuel-burning equipment, similar to what occurs during new construction activities, though at a reduced frequency and volume.

Impact Determination: Adverse environmental impacts on air quality resulting from increased emissions from fuel-burning equipment during the operation and maintenance of underground transmission facilities are expected to vary depending on the scale of the project and site-specific conditions. In the absence of mitigation, these adverse environmental impacts could range from negligible to low.

GHG Emissions

Underground transmission facilities require routine inspections and maintenance, which include emergency repairs and vegetation management. These activities could necessitate the use of GHG-releasing emission sources such as maintenance vehicles, heavy equipment, and portable generators.

Impact Determination: Adverse environmental impacts on air quality resulting from GHG emissions during the operation and maintenance of underground transmission facilities are expected to vary depending on the scale of the project and site-specific conditions. In the absence of mitigation, these adverse environmental impacts could range from negligible to low.

Odor

Similar to overhead transmission facility operation and maintenance, temporary odors from vehicle exhaust, equipment engines, and architectural coatings may occur. During operation and maintenance, odor impacts are expected to be minimal for underground transmission facilities. However, maintenance of underground lines may occasionally require excavation or the use of specialized equipment, which could result in temporary, localized odors. These events are typically infrequent and short in duration. Standard BMPs would minimize odor impacts from new construction.

Impact Determination: Adverse environmental impacts on air quality resulting from odor during the operation and maintenance of underground transmission facilities are expected to vary depending on the scale of the project and site-specific conditions. In the absence of mitigation, these adverse environmental impacts could range from negligible to low.

Upgrade

Overhead Transmission Facilities

Upgrades to overhead transmission facilities would occur within existing ROWs without expanding the existing facility footprint or causing new ground disturbance. However, these upgrades may result in adverse environmental impacts on air quality, including:

- Increased Fugitive Dust Emissions
- Increased Emissions from Fuel-Burning Equipment
- Increased SF_6 Emissions
- GHG Emissions
- Odor

The adverse environmental impacts from upgrading overhead transmission facilities are often comparable to those of maintaining overhead transmission facilities. These adverse environmental impacts are generally anticipated to be lower than those for modifying or constructing a new transmission facility due to several factors. Table 2.3-1 highlights how upgrading existing transmission facilities would generally result in fewer or less impactful adverse environmental impacts.

Underground Transmission Facilities

Upgrades to underground transmission facilities would occur within existing ROWs without expanding the facility footprint or causing new ground disturbance. However, these upgrades may result in adverse environmental impacts on air quality, including:

- Increased Fugitive Dust Emissions
- Increased Emissions from Fuel-Burning Equipment
- GHG Emissions
- Odor

The adverse environmental impacts from upgrading underground transmission facilities are often comparable to those of maintaining underground transmission facilities. These adverse environmental impacts are generally anticipated to be lower than those for modifying or constructing a new transmission facility due to several factors. Table 2.3-1 highlights how upgrading existing transmission facilities would generally result in fewer or less impactful adverse environmental impacts.

Modification

Overhead Transmission Facilities

Modifying existing overhead transmission facilities typically involves several key steps, each with specific requirements, timelines, and settings, as outlined in Chapter 2, Overview of Transmission Facilities, Development Considerations, and Regulations. The adverse environmental impacts of modifying existing transmission facilities would vary depending on the scale of the project-specific application. Overhead transmission facilities could have the following adverse environmental impacts on air quality during the modification stage:

- Increased Fugitive Dust Emissions
- Increased Emissions from Fuel-Burning Equipment
- Increased SF_6 Emissions
- GHG Emissions
- Odor

Adverse environmental impacts of modifying overhead transmission facilities could be similar to those of new construction but are anticipated to be lower. Table 2.3-2

highlights how modifying existing transmission facilities would generally result in fewer or less impactful adverse environmental impacts.

Underground Transmission Facilities

Modifying underground transmission facilities typically involves several steps, each with specific requirements, timelines, and settings, as outlined in Chapter 2, Overview of Transmission Facilities, Development Considerations, and Regulations. The adverse environmental impacts of modifying existing transmission facilities would vary depending on the scale of the project-specific application. Underground transmission facilities could have the following adverse environmental impacts on air quality during the modification stage:

- Increased Fugitive Dust Emissions
- Increased Emissions from Fuel-Burning Equipment

Adverse environmental impacts of modifying underground transmission facilities could be similar to those of new construction but are generally anticipated to be lower. Table 2.3-2 highlights how modifying existing transmission facilities would generally result in fewer or less impactful adverse environmental impacts.

3.3.3.3 No Action Alternative

Under the No Action Alternative, the Programmatic EIS would not be adopted as a planning or analytical framework. Instead, transmission facility siting and development would continue under existing state and local regulatory processes, with each project evaluated for environmental compliance without the benefit of the environmental review provided in this document. This approach would lack the advanced notice of potential serious environmental concerns for those planning transmission facilities, as well as Mitigation Strategies developed under the Programmatic EIS. As a result, environmental outcomes could be less predictable and consistent, and adverse environmental impacts could be greater.

3.3.4 Mitigation Measures

Under SEPA, there are six recognized forms of mitigation that agencies can apply to reduce or address adverse environmental impacts:

- **Avoiding the adverse environmental impact** altogether by not taking a certain action or parts of an action.

- **Minimizing adverse environmental impacts** by limiting the degree or magnitude of the action and its implementation.
- **Rectifying the adverse environmental impact** by repairing, rehabilitating, or restoring the affected environment.
- **Reducing or eliminating the adverse environmental impact** over time by preservation and maintenance operations during the life of the action.
- **Compensating for the adverse environmental impact** by replacing or providing substitute resources or environments.
- **Monitoring the adverse environmental impact** and taking appropriate corrective measures.

This section describes the Avoidance Criteria and Mitigation Measures that could apply to adverse environmental impacts from new construction, operation and maintenance, upgrade, and modification of transmission facilities.

All General Measures adopted for this Programmatic EIS (see Section 3.1 of Chapter 3, Affected Environment, Significant Impacts, and Mitigation) are relevant to this resource section. Applicants would be responsible for providing information within their application materials documenting their implementation of the General Measures.

Avoidance Criteria[32] that are relevant to this resource section are described below:

AVOID-1 – Hazardous Areas:[33] Avoid having equipment or infrastructure within known hazardous areas, including, but not limited to, contaminated soils, geologically hazardous areas, landfills, and cutbanks.

Rationale: Avoiding hazardous areas provides safety for workers, the public, and infrastructure, as well as environmental protection. Disturbing sites of known contamination or other hazards may require the development of remediation plans.

The Programmatic EIS is intended to support more efficient and effective siting and permitting of transmission facilities, consistent with the legislative direction in RCW 43.21C.408, by streamlining environmental review where projects incorporate the

[32] The complete list of Avoidance Criteria and their rationales can be found in Section 3.1 and Appendix 3.1-1.
[33] Areas susceptible to erosion, sliding, earthquakes, or other geological events or areas that could pose a threat to health and safety when incompatible commercial, residential, or industrial development is sited in areas of significant hazard (e.g., landfills, underground mines, cutbanks, etc.).

recommended planning and Mitigation Strategies. Applicants would be responsible for providing information within their application materials documenting the project's compliance with the above Avoidance Criteria. While total avoidance of all adverse environmental impacts is not required in order to use the Programmatic EIS, applicants are expected to demonstrate how their project aligns with the intent of the Avoidance Criteria to the extent practicable. If specific Avoidance Criteria are not met, the applicant would provide an explanation and supporting information. Additional environmental analyses would be required as part of the documentation for SEPA for the project. Additional mitigation could be required, depending on the nature of the deviation and its potential to result in probable significant adverse environmental impacts.

Mitigation Measures have been identified to minimize adverse environmental impacts from transmission facility projects. These measures are intended to be broad so that they can be applied to most projects that would be covered under this Programmatic EIS. However, project-specific plans would be needed to adapt the measures for project-specific applications. The inclusion of a Mitigation Measure in this Programmatic EIS does not imply that a given adverse environmental impact is presumed to occur. Rather, the measures are provided to support early planning and the avoidance of adverse environmental impacts, streamlining project-specific environmental reviews when impacts are identified. Mitigation Measures are intended to serve as a set of potential strategies that the SEPA Lead Agency and applicants can draw from, depending on the specific environmental context and project footprint. Applicants and the SEPA Lead Agency retain discretion to:

- Propose alternative mitigation strategies that achieve equivalent or better outcomes.
- Demonstrate that certain Mitigation Measures are not applicable due to the absence of relevant adverse environmental impacts.

When impact determinations are identified as medium or high, then either the applicant would adopt applicable Mitigation Measures from this Programmatic EIS or the State Environmental Policy Act (SEPA) Lead Agency may require applicable mitigation to be implemented to reduce project-specific adverse environmental impacts. When impact determinations are low, applicable Mitigation Measures should still be considered by the applicant and the SEPA Lead Agency, as these Mitigation Measures would help to further reduce adverse environmental impacts, including the project's contribution to cumulative impacts. These Mitigation Measures would be

implemented in addition to compliance with laws, regulations, environmental permits, plans, and design considerations required for transmission facilities.

The following Mitigation Measures could be adopted to mitigate adverse environmental impacts:

Air-1 – Traffic Speeds: Limit traffic speeds to 15 miles per hour on unpaved areas that do not have designated speed limits.

Rationale: Limiting traffic speeds on unpaved roads is a key strategy to reduce dust emissions. Access-road-related fugitive dust from vehicle traffic on unpaved roads is a large source of PM_{10} and $PM_{2.5}$ emissions. Road-related fugitive dust emissions increase with increasing vehicle speed on unpaved roads. Limiting the speed on unpaved roads would reduce dust generation, improve air quality, and provide better visibility and safety.

Air-2 – Use Low-Emission Construction Equipment and Vehicles: Use low-emission construction equipment and vehicles, such as those meeting the latest emission standards.

Rationale: This Mitigation Measure aims to reduce exhaust emissions.

Air-3 – SF_6 Emission Reduction Partnership: Participate in the SF_6 Emission Reduction Partnership for Electric Power Systems.

Rationale: This Mitigation Measure aims to reduce emissions of SF_6. Participants in the program benefit from shared best practices, technical guidance, and support from the Environmental Protection Agency to enhance their emission reduction efforts.

Air-4 – Counties with Exceedances: Minimize emissions in counties with air quality exceedances during the new construction, upgrade, or modification of transmission facilities.

Rationale: Minimizing emissions in counties with air quality exceedances during the new construction, upgrade, or modification of transmission facilities is crucial for public health, regulatory compliance, environmental protection, and to minimize contributing factors to climate change.

In addition to the above Mitigation Measures, the following Mitigation Measures[34] developed for other resources may be applicable:

Geo-1 – Minimize Soil Disturbance: Minimize soil disturbance, including footprints related to access roads and permanent structures, to the greatest extent practicable. Minimize the use of construction techniques that would be harmful to topsoil composition, where feasible.

Geo-5 – Minimize Impacts on Sensitive Soils: Design projects to minimize adverse environmental impacts on high erodibility zones and areas sensitive to degradation.

Veg-1 – Site Transmission Facilities in Existing ROW or Disturbed Areas: Site transmission facilities in existing ROW or disturbed areas, to the greatest extent practicable.

Hab-5 – Vehicle and Equipment Use and Maintenance: Prohibit vehicles and other equipment from idling when not in use during new construction. Vehicles and other equipment would be inspected daily for leaks and would be kept in good condition. Vehicles and equipment would only be stored with proper spill protection measures in place and in areas where contaminants would not enter the environment, watercourses, or riparian areas if spills were to occur.

TR-3 – Carpool Program: Create a carpool program that connects workers commuting from similar areas.

3.3.5 Probable Significant Adverse Environmental Impacts

Determining the significance of an adverse environmental impact involves consideration of context and intensity, which, in turn, depend on the magnitude and duration of the impact. “Significant” in SEPA means a reasonable likelihood of more than a moderate adverse environmental impact on environmental quality. An adverse environmental impact may also be significant if its chance of occurrence is not great, but the resulting impact would be severe if it occurred (WAC 197-11-794).

[34] The rationales for the identified Mitigation Measures are provided in their respective resource sections.

Identification of adverse environmental impacts and assignment of discipline-specific ratings are based on a structured evaluation consistent with the criteria outlined in WAC 197-11-330. Significance determinations consider the context and intensity of potential adverse environmental impacts, using both quantitative and qualitative information where appropriate. Professional expertise does not substitute for regulatory compliance. Regulatory requirements establish the baseline for environmental analysis and mitigation. Professional experience is used to supplement this baseline, providing additional insight to identify whether Mitigation Measures beyond those required by regulation may be warranted. In cases where data are incomplete or unavailable, a conservative approach has been applied to ensure that potential adverse environmental impacts are not underestimated.

This Programmatic EIS weighs the potential adverse environmental impacts on air quality resources that would result from transmission facilities after considering the application of laws and regulations; siting and design considerations, including agency guidance and BMPs; Avoidance Criteria; and Mitigation Measures, and makes a resulting determination of significance for each impact. **Table 3.3-5** summarizes the impacts anticipated for the new construction, operation and maintenance, upgrade, and modification of transmission facilities.

Table 3.3-5: Summary of Adverse Environmental Impacts, Mitigation Strategies, and Significance Rating for Air Quality

Adverse Environmental Impact	Project Stage	Description of Impact	Impact Determination Before Applying Mitigation	Mitigation Strategy Applied[(a)]	Significance After Applying Mitigation Strategy	Rationale for Significance Rating
Air Quality – Increased Fugitive Dust Emissions	New Construction	Construction activities that could create fugitive dust include the disruption of soils from vegetation clearing, grading, and debris removal. Fugitive dust could also result from constructing roads, traveling on unpaved surfaces, preparing for tower removal or construction, trenching, and blasting for tower footings.	**Overhead:** low to medium **Underground:** low to medium	▪ **AVOID-1:** Hazardous Areas ▪ **Air-1:** Traffic Speeds ▪ **Air-2:** Use Low-Emission Construction Equipment and Vehicles ▪ **Air-4:** Counties with Exceedances ▪ **Geo-1:** Minimize Soil Disturbance ▪ **Geo-5:** Minimize Impacts on Sensitive Soils ▪ **Veg-1:** Site Transmission Facilities in Existing ROW or Disturbed Areas ▪ **Hab-5:** Vehicle and Equipment Use and Maintenance ▪ **TR-3:** Carpool Program	Less than Significant	Mitigation Measures generally prevent and/or minimize fugitive dust emissions generated from project-related activities.
	Operation and Maintenance	Routine inspection and maintenance of transmission facilities would require vehicles to access the transmission facility via paved and/or unpaved roads. Fugitive dust emissions would be temporary and occur less often than during construction.	**Overhead:** negligible to low **Underground:** negligible to low			
	Upgrade	Upgrades to existing transmission facilities could result in fugitive dust emissions from equipment similar to those used during new construction. However, adverse environmental impacts are generally anticipated to be lower compared to new facility construction or modification, as earth disturbing activity will generally be minimal, but is dependent on upgrade type and scale.	**Overhead:** negligible to low **Underground:** negligible to low			
	Modification	Modification of transmission facilities would result in fugitive dust emissions similar to those for new construction. However, adverse environmental impacts are generally anticipated to be lower than those of new transmission facilities due to utilizing existing infrastructure, and compliance with regulatory and environmental regulations and standards.	**Overhead:** low to medium **Underground:** low to medium			
Air Quality – Increased Emissions from Fuel-Burning Equipment	New Construction	During new construction, mobile sources of fuel-burning equipment, such as portable generators, heavy machinery or equipment, concrete batch plants, and vehicles, could be used. The use of such equipment would emit pollutants such as CO, CO_2, SO_x, $PM_{2.5}$, NO_x, and VOCs.	**Overhead:** low to medium **Underground:** low to medium	▪ **AVOID-1:** Hazardous Areas ▪ **Air-1:** Traffic Speeds ▪ **Air-2:** Use Low-Emission Construction Equipment and Vehicles ▪ **Air-4:** Counties with Exceedances ▪ **Geo-1:** Minimize Soil Disturbance ▪ **Geo-5:** Minimize Impacts on Sensitive Soils ▪ **Veg-1:** Site Transmission Facilities in Existing ROW or Disturbed Areas	Less than Significant	Construction projects must comply with stringent state and federal air quality regulations. These regulations include the use of cleaner, low-emission equipment and fuels, which significantly reduce overall emissions. During new construction, projects may implement various Mitigation Measures to minimize emissions. Also, the emissions from new construction activities are typically temporary and localized.
	Operation and Maintenance	Inspections, maintenance, and repairs of transmission facilities throughout operation would require the use of machinery and vehicles. The use of fuel-burning equipment through operation and maintenance of transmission facilities would result in short-term adverse environmental impacts on air quality.	**Overhead:** negligible to low **Underground:** negligible to low			
	Upgrade	Upgrades to existing transmission facilities would result in emissions from fuel-burning equipment similar to those used during new construction. However, adverse environmental impacts are generally anticipated to be lower compared to new facility construction or modification due to utilization of existing infrastructure but is dependent on upgrade scope and scale.	**Overhead:** negligible to low **Underground:** negligible to low			

Adverse Environmental Impact	Project Stage	Description of Impact	Impact Determination Before Applying Mitigation	Mitigation Strategy Applied[(a)]	Significance After Applying Mitigation Strategy	Rationale for Significance Rating
	Modification	Modification of transmission facilities would result in emissions from fuel-burning equipment similar to those for new construction. However, adverse environmental impacts are generally anticipated to be lower than those for new transmission facilities due to utilizing existing infrastructure, and compliance with regulatory and environmental regulations and standards.	**Overhead:** low to medium **Underground:** low to medium	▪ **Hab-5:** Vehicle and Equipment Use and Maintenance		
Air Quality – Increased SF_6 Emissions	New Construction	During the new construction of overhead transmission facilities, fugitive emissions of SF_6 could result from the installation and handling of gas-insulated switchgear and other electrical equipment that use SF_6 as an insulating and arc-quenching medium. SF_6 could also be released during the initial filling of gas-insulated equipment.	**Overhead:** negligible to medium **Underground:** N/A	▪ **Air-3:** SF_6 Emission Reduction Partnership	Less than Significant	Compliance with evolving industry leak rate minimization standards is expected to reduce SF_6 emissions.
	Operation and Maintenance	Fugitive emissions of SF_6 could occur from seals and joints in the equipment associated with overhead transmission facilities. SF_6 could escape during maintenance activities, such as opening equipment for repairs or inspections.	**Overhead:** negligible to low **Underground:** N/A			
	Upgrade	Upgrades to existing overhead transmission facilities could result in SF_6 releases similar to those during new construction and modification. However, adverse environmental impacts are only expected from upgrades that include the installation and handling of gas-insulated switchgear and other electrical equipment that use SF_6 as an insulating and arc-quenching medium.	**Overhead:** negligible to low **Underground:** N/A			
	Modification	Modification of overhead transmission facilities could result in adverse environmental impacts on air quality as a result of SF_6 emissions similar to those of new construction. However, impacts are anticipated to be lower than those for new transmission facilities due to utilizing existing infrastructure, and compliance with regulatory and environmental regulations and standards.	**Overhead:** negligible to medium **Underground:** N/A			
Air Quality – GHG Emissions	New Construction	During new construction, fuel-burning vehicles and equipment could be used. The use of such equipment would emit GHGs such as CO_2, CH_4, and N_2O. Additional fugitive SF_6 emissions from equipment associated with overhead transmission could contribute to overall GHG emissions. While adverse environmental impacts from GHG release are cumulative in nature, construction impacts are expected to be minimal but dependent on construction scope and scale.	**Overhead:** low to medium **Underground:** low to medium	▪ **Air-2:** Use Low-Emission Construction Equipment and Vehicles ▪ **Air-4:** Counties with Exceedances ▪ **Hab-5:** Vehicle and Equipment Use and Maintenance ▪ **TR-3:** Carpool Program	Less than Significant	While most releases of GHG associated with electricity delivery relate to how it is generated, electricity delivery can also release GHGs. State and federal air quality regulations, which curtail overall emissions, will also reduce GHGs associated with new construction, upgrade, and modification operations. Compliance with leak rate minimization standards for SF_6-containing equipment will also lower emissions.
	Operation and Maintenance	Inspections, maintenance, and repairs of transmission facilities throughout operation would require the use of equipment and vehicles. The use of fuel-burning equipment through operation and maintenance of transmission facilities would result in GHG release. While adverse environmental impacts from GHG release are cumulative in nature, operation and maintenance impacts are expected to be minimal.	**Overhead:** negligible to low **Underground:** negligible to low			

Adverse Environmental Impact	Project Stage	Description of Impact	Impact Determination Before Applying Mitigation	Mitigation Strategy Applied[(a)]	Significance After Applying Mitigation Strategy	Rationale for Significance Rating
	Upgrade	During site upgrades, fuel-burning vehicles and equipment could be used. The use of such equipment would emit GHGs. While adverse environmental impacts from GHG release are cumulative in nature, impacts are generally anticipated to be lower compared to new facility construction or modification due to utilization of existing infrastructure but is dependent on upgrade scope and scale.	**Overhead:** negligible to low **Underground:** negligible to low			
	Modification	During site modification, fuel-burning vehicles and equipment could be used. The use of such equipment would emit GHGs. While adverse environmental impacts from GHG release are cumulative in nature, impacts are generally anticipated to be lower compared to new facility construction but higher than required upgrades. Impacts will be dependent on scope and scale of modification.	**Overhead:** low to medium **Underground:** low to medium			
Air Quality – Odor	New Construction	Potential odors associated with construction include vehicle and construction equipment exhaust, application of asphalt, and architectural coatings. Odors are anticipated to be short-term, minimal, and be confined to the immediate vicinity of the construction site.	**Overhead:** nil to low **Underground:** negligible to low	▪ **AVOID-1:** Hazardous Areas ▪ **Air-1:** Traffic Speeds ▪ **Air-2:** Use Low-Emission Construction Equipment and Vehicles ▪ **Geo-1:** Minimize Soil Disturbance ▪ **Veg-1:** Site Transmission Facilities in Existing ROW or Disturbed Areas ▪ **Hab-5:** Vehicle and Equipment Use and Maintenance ▪ **TR-3:** Carpool Program	Less than Significant	State and federal air quality regulations which curtail overall emissions will also reduce nuisance odors associated with construction, upgrade, and modification operations. Additionally, odors are expected to be minimal, confined to the immediate vicinity of site activities, and would cease upon activity completion.
	Operation and Maintenance	Potential odors associated with operation and maintenance include vehicle and construction equipment exhaust and architectural coatings during maintenance activities. Odors are anticipated to be short-term, minimal, and confined to the immediate vicinity of the upgrade site.	**Overhead:** nil to negligible **Underground:** negligible to low			
	Upgrade	Potential odors associated with upgrades include vehicle and construction equipment exhaust, application of asphalt, and architectural coatings. Odors are anticipated to be short-term, minimal, and confined to the immediate vicinity of the upgrade site.	**Overhead:** nil to negligible **Underground:** negligible to low			
	Modification	Potential odors associated with modifications include vehicle and construction equipment exhaust, application of asphalt, and architectural coatings. Odors are anticipated to be short-term, minimal, and confined to the immediate vicinity of the modification site.	**Overhead:** nil to low **Underground:** negligible to low			

Notes:

[(a)] Appendix 3.1-1 provides a detailed listing of each Mitigation Strategy. This appendix serves as a reference section that can be consulted independently of the main text. This is particularly useful for detailed guidance and technical specifications that may be referred to multiple times. Additionally, including this information in an appendix allows for easier updates and revisions. If Mitigation Strategies or guidance changes, the appendix can be updated without altering the main content.

BMP = best management practice; **CO** = carbon monoxide; **CO_2** = carbon dioxide; **GHG** = greenhouse gases; **N/A** = not applicable; **NO_x** = nitrogen oxide; **$PM_{2.5}$** = particulate matter less than 2.5 microns; **PM_{10}** = particulate matter less than 10 microns; **ROW** = right of way; **SF_6** = sulfur hexafluoride; **SO_x** = sulfur oxide; **VOC** = volatile organic compound

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3.3.6 Environmental Sensitivity Map

No criteria specific to air quality were identified that would impact project siting decisions at a broad, programmatic level. Consequently, no environmental sensitivity map was developed for this resource. Air quality can vary significantly over time and across individual projects. Therefore, a more detailed, site-specific analysis is required to determine the suitability of a project in any area. This variability can make it difficult to create a static environmental sensitivity map that accurately reflects current conditions and accounts for the adverse environmental impacts of transmission facilities on air quality.

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