



DEPARTMENT OF  
**ECOLOGY**  
State of Washington

## **Washington State Implementation Plan**

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### *National Ambient Air Quality Standards: Infrastructure State Implementation Plan for 2015 Ozone and 2010 Sulfur Dioxide*

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Air Quality Program

Washington State Department of Ecology

Olympia, Washington

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## Acronyms and Abbreviations

AQCR .....	Air Quality Control Regions
AQP .....	Air Quality Program
CFR .....	Code of Federal Regulations
Ecology .....	Washington State Department of Ecology
EFSEC.....	Energy Facilities Site Evaluation Council
CAA .....	Federal Clean Air Act
FR.....	Federal Register
ISIP .....	Infrastructure State Implementation Plan
LCAA.....	Local Clean Air Agency
NAAQS.....	National Ambient Air Quality Standards
O <sub>3</sub> .....	Ozone
ppm .....	Parts per million
ppb.....	Parts per billion
PSD .....	Prevention of Significant Deterioration
RCW .....	Revised Code of Washington
SIP.....	State Implementation Plan
SO <sub>2</sub> .....	Sulfur Dioxide
EPA.....	United States Environmental Protection Agency
WAC .....	Washington Administrative Code
WAQA .....	Washington Air Quality Advisory
WAAQS.....	Washington Ambient Air Quality Standards
WCAA .....	Washington State Clean Air Act



# Overview

Washington State Department of Ecology (Ecology) proposes revisions to the air quality State Implementation Plan (SIP). These revisions contain additional or revised emission control programs and are solely to assure that Washington State has the basic framework, including legal authority and resources, to be able to achieve compliance with National Ambient Air Quality Standards (NAAQS). This document demonstrates Washington State's ability to attain, maintain, enforce, and implement federal NAAQS for 2015 Ozone (O<sub>3</sub>), and 2010 Sulfur Dioxide (SO<sub>2</sub>). This Washington State Infrastructure Implementation Plan (ISIP) update shows our infrastructure requirements for O<sub>3</sub> and SO<sub>2</sub> reduction, including:

- Permitting programs
- Fees
- Personnel
- Funding
- Monitoring

This ISIP provides the framework for Washington State's Air Quality Program mission: "The Air Quality Program's mission is to protect, preserve, and enhance the air quality of Washington to safeguard public health and the environment, and support high quality of life for current and future citizens."

We recently submitted SIP revisions to the federal Environmental Protection Agency (EPA) updating our statewide ambient air standards and general air quality regulations. This document may reiterate and reinforce some previously submitted and approved elements from the 2008 O<sub>3</sub> ISIP ([80 FR 1849](#)) and the 2015 O<sub>3</sub> Interstate Transport Plan ([83 FR 4768](#)).

## **About the Plan**

Under the authority of the Clean Air Act (CAA), EPA sets National Ambient Air Quality Standards (NAAQS) to protect public health and welfare, and to prevent adverse effects from air pollutants. When EPA adopts or revises NAAQS, the CAA requires states to submit updated infrastructure State Implementation Plans (ISIP). This requirement stems from Section 110(a)(1) and (2) of the CAA which directs states to show they have the authority and means to enforce, implement and maintain the new or revised standards. States submit SIP revisions often referred to as “infrastructure state implementation plans” or ISIPs. ISIPs account for state resources and authorities regarding air pollution.

This ISIP accounts for current air quality laws, rules, resources, and programs in Washington State. It explains how we implement, attain, maintain, and enforce the federal air quality standards.

Ecology submits this ISIP for 2010 Sulfur Dioxide (SO<sub>2</sub>) and 2015 8-hour Ozone (O<sub>3</sub>) NAAQS based on CAA requirements 110(a)(1) and 110(a)(2).

## **Washington State**

Washington State currently has no areas in nonattainment status and has a well-established Air Quality Program (AQP). AQP and our statewide partners provide the basis for compliance with the 2010 SO<sub>2</sub> and 2015 O<sub>3</sub> NAAQS. Ecology has already addressed some elements of Section 110(a)(2) in the recently submitted Interstate Transport Plan ([83 FR 47568](#)).

Our statewide infrastructure includes:

- Permitting and enforcement programs
- Fees
- Personnel
- Funding
- Monitoring

These apply to all NAAQS.

This ISIP repeats some previously submitted and approved elements.

## **Washington State Air Quality Laws**

The federal Clean Air Act (CAA) requires states to demonstrate their authority and means to enforce, implement, attain, and maintain the new or revised National Ambient Air Quality Standards (NAAQS).

The Washington Clean Air Act (WCAA) establishes the authority to implement, attain, maintain, and enforce the 2015 O<sub>3</sub> and 2010 SO<sub>2</sub> NAAQS.

Washington's legislature enacted the WCAA in 1967, as chapter 70.94 of the Revised Code of Washington (RCW).

Chapter 70.94 RCW establishes:

- Regulatory agencies in Washington state.
- Local air pollution control authorities.
- Requirements for:
  - Controlling open, agricultural, and silvicultural burning.
  - Regulating emissions from wood burning stoves and heaters.
  - Administering enforcement programs.
  - Establishing emission control requirements.

WCAA gives two state agencies, and seven local clean air agencies, authority to adopt emission standards, limitations, and other measures to comply with NAAQS. The two state agencies are:

- Washington State Department of Ecology (Ecology)
- Energy Facilities Site Evaluation Council (EFSEC)

Seven Local Clean Air Agencies (LCAAs) cover 21 of 39 Washington counties, or about 90 percent of the state's population. They are:

- Benton Clean Air Agency (BCAA)
- Northwest Clean Air Agency (NWCAA)
- Olympic Region Clean Air Agency (ORCAA)
- Puget Sound Clean Air Agency (PSCAA)
- Spokane Region Clean Air Agency (SRCAA)
- Southwest Clean Air Agency (SWCAA)
- Yakima Region Clean Air Agency (YRCAA)

These RCWs provide Ecology, EFSEC and the LCAAs with rule-making authority:

- Section 70.94.331 RCW “Powers and duties of department.” Authorizes Ecology to adopt rules, air quality and emission standards to meet CAA requirements. On March 20, 1980, the Governor delegated responsibility and authority for all submitted SIP amendments to the Director of Ecology.
- Section 70.94.141 RCW “Air pollution control authority – Powers and duties of activated authority.” Authorizes the LCAAs, to adopt their own rules and regulations, and issue orders implementing Washington’s Clean Air Act.

Chapter 80.50 RCW governs EFSEC’s activities. EFSEC’s powers are listed in section 80.50.040 RCW, “Energy facility site evaluation council – Powers enumerated.” This section authorizes EFSEC to adopt rules and regulations and issue permits for new construction, reconstruction, enlargement, or operation of energy facilities.

- Section 80.50.040 RCW “Energy facility site evaluation council – Powers enumerated” authorizes EFSEC to adopt rules and regulations for energy facilities. EFSEC issues permits for construction, alteration and operation of energy facilities.

When permitting stationary sources of air pollution, the WCAA’s intent is that Ecology, EFSEC and the LCAAs are primarily responsible for implementing programs and rules to control air pollution.

The Air Quality Programs also rely on a number of other state laws including:

- Chapter 34.05 RCW “Administrative procedure act.”
- Chapter 42.17A RCW “Public disclosure act.”
- Chapter 42.30 RCW “Open public meetings act.”
- Chapter 43.21A RCW “Department of ecology.”

The laws listed above are the same versions of laws provided to EPA for reference as a part of the ISIP Certification for the 1997 8-hour O<sub>3</sub> NAAQS in January 2012. None of the changes, since the last ISIP submittal to the listed laws, are relevant to Washington’s authority to control SO<sub>2</sub> and O<sub>3</sub>. Ecology references these laws in the ISIP Certification for 2008 8-hour O<sub>3</sub> NAAQS from February 2015.<sup>1</sup>

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<sup>1</sup> “Washington 110(a)(2) Ozone (2008) Infrastructure Requirements”; approved on February 13, 2015 ([80 FR 1849](#)).

## NAAQS for 2015 Ozone and 2010 Sulfur Dioxide

National Ambient Air Quality Standards (NAAQS) fall under Section 109 of the Clean Air Act (CAA). Regulatory information about NAAQS is contained in the Code of Federal Regulations (40 CFR Part 50).

EPA establishes two types of NAAQS:

- **Primary standards** create limits for the protection of public health, including the health of sensitive populations like children, the elderly, and people with asthma.
- **Secondary standards** set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.

Ecology monitors ambient air throughout the state to determine required NAAQS concentrations. We use these measures to define pollutant concentrations in one of three ways:

- Parts per million (ppm) by volume.
- Parts per billion (ppb) by volume.
- Micrograms per cubic meter of air ( $\mu\text{g}/\text{m}^3$ ).

For  $\text{O}_3$  we express the concentrations in ppm,  $\text{SO}_2$  is measured in ppb.

Table 1 shows the standards addressed in this ISIP submittal. For a description of each pollutant, see Appendix C.

**Table 1: 2015 Ozone and 2010 Sulfur Dioxide NAAQS**

Pollutant	Primary / Secondary	Averaging time	Level	Form of the standard
2010 $\text{SO}_2$	Primary	1-hour	75 ppb	3-year average of the 99 <sup>th</sup> percentile of the annual distribution of daily maximum 1-hour average concentrations
2015 $\text{O}_3$	Primary & Secondary	8-hour	0.070 ppm	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years

## Clean Air Act Section 110(a)(2) Elements

ISIPs address sections 110(a)(1) and 110(a)(2) of the CAA. Section 110(a)(1) requires updated ISIPs to be submitted to EPA after a reasonable public notice and comment period. This happens within three years of NAAQs creation or revision. Section 110(a)(2) lists specific infrastructure elements for ISIPs:

- §110(a)(2)(A) Emission limits and other control measures
- §110(a)(2)(B) Ambient air quality monitoring and data analysis system
- §110(a)(2)(C) Program to enforce control measures, regulate modification and construction of stationary sources, and a permit program
- §110(a)(2)(D) Interstate pollution transport
- §110(a)(2)(E) Adequate personnel, funding and authority to carry out our plan; comply with state boards; oversee local and regional governmental agencies
- §110(a)(2)(F) Stationary source emissions monitoring and reporting system
- §110(a)(2)(G) Authority to declare air pollution emergency and notify public
- §110(a)(2)(H) Future SIP revisions
- §110(a)(2)(I) Nonattainment areas\*
- §110(a)(2)(J) §121 consultation; §127 public notification; and PSD and visibility protection
- §110(a)(2)(K) Air quality modeling / data
- §110(a)(2)(L) Major stationary source permitting fees
- §110(a)(2)(M) Consultation / participation by affected local entities

\*This ISIP does not address some elements listed under section 110(a)(2), including:

- Section 110(a)(2)(I), the nonattainment planning requirements of the Title I, Part D of the Clean Air Act. As noted on EPA's ISIP guidance page, EPA does not expect ISIP submissions to address subsection 110(a)(2)(I).<sup>2</sup> The specific SIP submissions for designated nonattainment areas, as required under CAA title I part D, are subject to a different submission schedule than those for section 110 infrastructure elements and we will review and act upon them through a separate process. Air agencies do not need to address Element I in an ISIP submission.
- Washington State's Good Neighbor provisions are separate from this submittal; see 83 FR 30380. Ecology previously submitted a SIP revision on February 7, 2018, addressing CAA section 110(a)(2)(D)(i)(I) (interstate transport prongs 1 and 2) for the 2010 SO<sub>2</sub>

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<sup>2</sup> EPA webpage for ISIP requirements and guidance: <https://www.epa.gov/ozone-pollution/infrastructure-state-implementation-plan-sip-requirements-and-guidance#requirements>

and 2015 ozone NAAQS. EPA approved our submittal as meeting the CAA section 110(a)(2)(D)(i)(I) requirements for the 2015 ozone NAAQS on September 20, 2018 ([83 FR 47568](#)).

- Washington is currently updating requirements related to air quality modeling under CAA section 110(a)(2)(K). We will address the CAA section 110(a)(2)(K) ISIP requirements for the 2010 SO<sub>2</sub> and 2015 ozone NAAQS in a separate action.

As discussed in previous ISIPs and EPA approvals, portions of Elements (C), (D)(i)(II), (D)(ii), and (J), as they relate to the Prevention of Significant Deterioration (PSD) and regional haze programs are met with a combination of state control measures and Federal Implementation Plan (FIP) provisions. Ecology is not submitting replacements for these FIP-related elements at this time.<sup>3</sup>

## **§110(a)(2)(A) Emission limits and other control measures**

*Summary: Include enforceable emission limitations (permits and other control measures, means, or techniques (including economic incentives such as fees, marketable permits, and auctions of emissions rights)), as well as schedules and timetables for compliance as may be necessary or appropriate to meet the applicable requirements of this Act.*

Washington State primarily imposes SO<sub>2</sub> and O<sub>3</sub> limits through permitting programs. In Washington's previously approved 1997 O<sub>3</sub> and 2008 O<sub>3</sub> NAAQS ISIPs, Washington relied on the existing SIP, codified in 40 CFR part 52, subpart WW, to show that Washington had adequate regulatory and statutory authority for its minor source-permitting program to ensure protection of those NAAQS. For major sources, Washington relied on the Federal Implementation Plan (FIP) in place to implement the PSD program (40 CFR 52.2497).

EPA approved the 1997 O<sub>3</sub> NAAQS ISIP on May 24, 2012 ([77 FR 30902](#)) and approved the 2008 O<sub>3</sub> NAAQS ISIP on January 14, 2015 ([80 FR 1849](#)). Other recent ISIP approvals include the 2008 lead (Pb) NAAQS ([79 FR 42685](#)), 2010 NO<sub>2</sub> NAAQS ([80 FR 1849](#)), the 1997, 2006, and 2012 PM<sub>2.5</sub> NAAQS ([80 FR 27102](#)).

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<sup>3</sup> See 80 FR 27102 (May 12, 2015) "On September 22, 2014, Washington made a SIP submission to establish that the Washington SIP meets the infrastructure requirements of the CAA for the PM<sub>2.5</sub> NAAQS, except for certain elements related to the Prevention of Significant Deterioration (PSD) permitting program currently addressed under a Federal Implementation Plan (FIP), certain elements of the regional haze program currently addressed under a FIP, and specific requirements related to interstate transport which the State will address in a separate submittal. The EPA has determined that Washington's SIP is adequate for purposes of the infrastructure SIP requirements of the CAA for the PM<sub>2.5</sub> NAAQS, with the exceptions noted above. The SIP deficiencies related to PSD permitting and regional haze, however, have already been adequately addressed by the existing EPA FIPs and, therefore, no further action is required by Washington or the EPA for those elements."

In order to ensure that the current SIP covers all relevant NAAQS, including the 2010 NO<sub>2</sub>, 2010 SO<sub>2</sub>, 2008 O<sub>3</sub>, and 1997, 2006, and 2012 PM<sub>2.5</sub> standards, Washington submitted chapter 173-476 WAC “Ambient Air Quality Standards,” adopted on November 21, 2013, for approval in the SIP. EPA approved chapter 173-476 WAC in the SIP on March 3, 2014 ([79 FR 12077](#)). Effective July 1, 2016, Washington revised chapter 173-476 WAC to include the 2015 O<sub>3</sub> NAAQS which EPA approved on October 6, 2016 ([81 FR 69386](#)).

This revision to chapter 173-476 WAC ensures that the existing minor source, PSD, and nonattainment new source review permitting programs codified in the SIP under 40 CFR part 52, subpart WW continue to meet the emission limitation and control measure requirements of CAA 110(a)(2)(A). EPA last approved updates to these permitting programs on October 6, 2016 ([81 FR 69386](#)). In a separate SIP revision, Washington submitted updates to the permitting programs under chapter 173-400 WAC effective September 16, 2018.

WCAA creates the state’s requirements for emission control measures and permitting programs, applicable to all NAAQS. The following sections in the WCAA support SIP-approved rules:

- Chapter 70.94.152 RCW “Notice may be required of construction of proposed new contaminant source — Submission of plans — Approval, disapproval — Emission control — "De minimis new sources" defined.”
- Chapter 70.94.153 RCW “Existing stationary source — Replacement or substantial alteration of emission control technology.”
- Chapter 70.94.153 RCW “RACT requirements.”
- Chapter 70.94.155 RCW “Control of emissions – Bubble concept – Schedule of compliance.”
- Chapter 70.94.161 RCW “Operating permits for air contaminant sources — Generally — Fees, report to legislature.”
- Chapter 70.94.162 RCW “Annual Fees from Operating Permit Program.”
- Chapter 70.94.163 RCW “Source categories not required to have a permit – Recommendations.”
- Chapter 70.94.380 RCW “Emission control requirements.”
- Chapter 70.94.395 RCW “Air contaminant sources — Regulation by department; authorities may be more stringent — Hearing — Standards.”
- Chapter 70.94.422(2) RCW “Energy facility site evaluation council authority over permit program sources.”

In addition to the previously discussed permitting programs, Washington has additional SIP-approved ozone and source-specific SIP-approved regulations.

O<sub>3</sub> requirements:



- Chapter 173-490 WAC “Emission Standards and Controls for Sources Emitting Volatile Organic Compounds” (State adopted date 3/22/91; EPA effective date 7/12/93; 58 FR 37426\*).
- Chapter 173-492 WAC “Motor Fuel Specifications for Oxygenated Gasoline” (State adopted date 10/19/96; EPA effective date 4/30/97; [62 FR 23363](#)).

SO<sub>2</sub> requirements:

- Section 173-400-040 WAC “General standards for maximum emissions” (State Adopted 7/1/2016; EPA effective 10/6/16; [81 FR 69386](#)).
- Section 173-415-030 WAC “Primary Aluminum Plants” (State adopted date 3/22/1991; EPA effective date 3/22/91; 58 FR 4578\*).

Source-specific regulations that apply to all NAAQS:

- Chapter 173-405 WAC “Kraft Pulp Mills” (State adopted date 3/22/91; EPA effective date 1/15/93; 58 FR 4578\*).
- Chapter 173-410 WAC “Sulfite Pulping Mills” (State adopted date 3/22/91; EPA effective date 1/15/93; 58 FR 4578\*).
- Chapter 173-415 WAC “Primary Aluminum Plants” (State adopted date 9/23/05; EPA effective date 1/15/93; 58 FR 4578\*).
- Chapter 173-434 WAC “Solid Waste Incinerator Facilities” (State adopted date 1/22/04; EPA effective date 8/4/05; [70 FR 44855](#)).

On December 27, 2018, Ecology adopted new rules in chapter 173-423 WAC “Low Emissions Vehicles”. This, <https://app.leg.wa.gov/WAC/default.aspx?cite=173-423>, matches California emissions standards, approved in [78 FR 2111](#). This update corresponds with the California motor vehicle emission standards adopted by the Washington State Legislature and codified in chapters 70.210A and 46.16A RCW. Ecology requests Chapter 173-423 WAC replace chapter 173-422 WAC in the SIP to meet or exceed the emissions requirements of current NAAQS as specified by the Clean Air Act. It helps the state maintain attainment status by reducing ozone precursors.

## **§110(a)(2)(B) Ambient air quality monitoring and data system**

*Summary: Provide for establishment and operation of appropriate devices, methods, systems, and procedures necessary to monitor, compile,*

*and analyze data on ambient air quality; and, upon request, make such data available to the Administrator.*

40 CFR Part 52 defines SIP approved monitoring systems in subpart WW. Section 173-400-105 WAC, “Records, Monitoring and reporting” is the State version. (Ecology 7/1/16, EPA 10/6/16, [81 FR 69386](#))

Chapter 70.94.331(5) RCW requires Ecology to have air quality surveillance programs for:

- Monitoring ambient atmosphere quality.
- Measuring concentrations and movements of air contaminants.
- Determining the quantity of atmospheric emissions over time.

Our statewide monitoring network has State and Local Air Monitoring Stations, a number of Special Purpose Monitors, and two National Core (NCore) sites<sup>4</sup>. Ecology and the LCAAs maintain the monitoring stations. Washington state’s air quality surveillance network meets the NAAQS requirements under 40 CFR Part 58.

The network helps to determine air quality trends over time. This data illustrates the compliance status with NAAQS. We use the Air Quality System database to verify compliance with the EPA Administrator and other interested parties in accordance with 40 CFR Part 58.16.

Ecology’s annual audits of the air quality network make sure it is collecting adequate, representative, and useful data for making policy decisions. We also submit to EPA an “Annual Network Report”<sup>5</sup> and an annual “Ambient Air Monitoring Network Plan”<sup>6</sup> proposing any changes to the network. Proposed changes to the network are based on 40 CFR Part 58.

The public can access air quality information through our [website](#).

### *Ozone Monitoring Network in Washington State*

Ozone monitoring started in 1972 at a single station in Spokane in Eastern Washington. The O<sub>3</sub> network rapidly expanded to over 10 stations statewide. Stations in the Puget Sound and the Portland, OR/Vancouver, WA area violated the old one-hour average NAAQS of 120 ppb. As a result, EPA designated the Portland, Oregon – Vancouver, Washington area nonattainment. After the 1990 Amendments to the CAA, EPA also designated the Puget Sound area

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<sup>4</sup> Ecology maintains an on-line map of the Washington air monitoring sites:

<https://fortress.wa.gov/ecy/enviwa/Default.ltr.aspx>

<sup>5</sup> 2017 Ambient Air Monitoring Network Report: <https://fortress.wa.gov/ecy/publications/documents/1802011.pdf>

<sup>6</sup> 2018 Ambient Air Monitoring Network Plan: <https://fortress.wa.gov/ecy/publications/documents/1802019.pdf>

nonattainment. Following successful control strategies and accompanying reductions in O<sub>3</sub> concentrations, EPA designated the Puget Sound area attainment in 1996 and the Portland–Vancouver area achieved attainment in 1997.

Though O<sub>3</sub> has been monitored at over 50 different stations throughout the state, many of these were exploratory and only operated for a year or two. On average there have been about 10 to 12 monitoring stations operating during the O<sub>3</sub> season (May through September). Currently, there are 12 monitoring sites approved for determining compliance with the O<sub>3</sub> NAAQS.

The O<sub>3</sub> network consists of these stations:

- Anacortes
- Cheney
- Custer
- Enumclaw
- Issaquah
- Kennewick
- Mt Rainier
- Seattle
- Spokane
- Vancouver
- Yelm

#### *Sulfur Dioxide Monitoring In Washington State*

In the United States, fossil fuel combustion by electrical utilities and industry is responsible for about 84 percent of anthropogenic SO<sub>2</sub> emissions.<sup>7</sup> Although the largest source category in the state, Washington’s point source electrical and industrial combustion emissions made up only about 48 percent of statewide anthropogenic emissions in 2014.<sup>8</sup> The major difference between Washington and the general U.S. is largely due to our robust hydropower supply and expansive port and shipping activities. In 28 Washington counties, including the most populous: King, Pierce, Snohomish, Spokane, and Clark Counties, combined marine and on-road mobile SO<sub>2</sub> emissions are greater than point source emissions.

Natural sources of SO<sub>2</sub> include wildfires, volcanos, and geothermal activities. In 2014, wildfires were responsible for about 22 percent of SO<sub>2</sub> emissions in Washington.<sup>9</sup> Photochemical reactions in the atmosphere also produce SO<sub>2</sub> from sulfur-containing compounds like dimethyl sulfide (C<sub>2</sub>H<sub>6</sub>S), emitted by marine organisms.

EPA and state agencies have regulated SO<sub>2</sub> as a criteria pollutant since they established the first SO<sub>2</sub> NAAQS in 1971. The original 24-hour standard was 0.14 parts per million (ppm), not to be exceeded more than one time per year, and the annual standard was 0.03 ppm.

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<sup>7</sup> EPA’s 2014 “National Summary of Sulfur Dioxide Emissions,” updated 2/10/2017

<sup>8</sup> Washington State Department of Ecology, preliminary 2014 statewide sulfur dioxide emissions data

In 2010, EPA revised the primary SO<sub>2</sub> NAAQS concluding that the existing 24-hour and annual standards were inadequate to protect public health from short-term SO<sub>2</sub> exposures. At that time, EPA established a new 1-hour standard at a level of 75 ppb, based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. In the same ruling, EPA established a secondary 3-hour standard not to exceed 0.5 SO<sub>2</sub> ppm more than once per year.<sup>9</sup> This SIP, however, only addresses EPA's 2010 primary 1-hour SO<sub>2</sub> NAAQS. In 2013, Washington adopted federal SO<sub>2</sub> standards, which sunset previous state SO<sub>2</sub> standards.<sup>10</sup>

Sulfur Dioxide monitoring currently occurs at these locations:

- One location in Seattle representing urban and near road conditions.
- One location in Anacortes.
- Two locations near Intalco Aluminum Corporation in Whatcom County.
- One location near Alcoa Wenatchee LLC near Malaga.
- One location on the Olympic Peninsula representing rural background (or natural) conditions.

## **§110(a)(2)(C) Program to enforce control measures, regulate modification and construction of stationary sources and a permit program**

*Summary: Include a program to provide for the enforcement of the measures described in subparagraph (A) and regulation of the modification and construction of any stationary source within the areas covered by the plan as necessary to assure that national ambient air quality standards are achieved, including a permit program as required in parts C and D.*

The WCAA gives Ecology and LCAAs enforcement powers in the following sections:

- Section 70.94.141 RCW “Air pollution control authority — Powers and duties of activated authority.”
- Section 70.94.200 RCW “Investigation of conditions by control officer or department -- entering private, public property.”
- Section 70.94.211 RCW “Enforcement actions by air authority -- Notice to violators.”

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<sup>9</sup> According to EPA, primary NAAQS focus on protecting public health, while secondary NAAQS protect public welfare, including protecting against decreased visibility and damage to animals, crops, vegetation, and buildings.

<sup>10</sup> Chapter 173-476-130 WAC

- Section 70.94.332 RCW “Enforcement actions by department -- Notice to violators.”
- Section 70.94.425 RCW “Restraining orders – Injunctions.”
- Section 70.94.430 RCW “Penalties.”
- Section 70.94.431 RCW “Civil penalties — Excusable excess emissions.”
- Section 70.94.435 RCW “Additional means for enforcement of chapter.”

RCW 80.50 “Energy Facilities – Site Locations” provides EFSEC enforcement powers:

- Section 80.50.040 RCW “Energy facility site evaluation council--Powers enumerated.”
- Section 80.50.150 RCW “Enforcement of compliance—Penalties.”

WAC 173-400 also has other SIP-approved state regulations providing Washington State with civil and criminal enforcement authority for violations:

- Section 173-400-230 WAC “Regulatory Actions” (State adopted date 3/20/93; EPA effective date 6/2/95; [60 FR 28726](#)).
- Section 173-400-240 WAC “Criminal Penalties” (State adopted date 3/22/91; EPA effective date 6/2/95; [60 FR 28726](#)).

Washington’s major and minor new source review permitting program is contained in chapter 173-400 WAC, which Ecology updated in a SIP revision submitted on January 27, 2014.<sup>11</sup> As previously discussed, Washington operates the major source PSD program under a partial FIP.<sup>12</sup> All other elements of Washington’s SIP submittal in January 27, 2014, and subsequent updates,<sup>13</sup> were approved, comprehensively updating chapter 173-400 WAC.

Recent updates:

- Section 173-400-110 “New Source Review (NSR)” (State adopted date 12/29/12; EPA approval date 9/29/16; [81 FR 66825](#)).
- Section 173-400-112 WAC “Requirements for New Sources in Nonattainment Areas” (State adopted date 12/29/12; EPA approval date 9/29/2016; [81 FR 66825](#)).

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<sup>11</sup> See [79 FR 59653](#) (October 3, 2014), [79 FR 66291](#) (November 7, 2014), and [80 FR 23721](#) (April 29, 2015).

<sup>12</sup> See [80 FR 23721](#) (April 29, 2015).

<sup>13</sup> See [81 FR 69386](#) (October 6, 2016) for the most recent update to Chapter 173-400 WAC. Additionally, under the revised applicability provisions of WAC 173-400-020, approved into the SIP on October 3, 2014, Chapter 173-400 WAC applies statewide to LCAA jurisdictions unless replaced by equally stringent or more stringent provisions. Recent LCAA SIP updates include Benton Clean Air Agency ([80 FR 71695](#), November 17, 2015) and Southwest Clean Air Agency ([82 FR 17139](#), April 10, 2017). Similarly, EFSEC regulates facilities subject to its permitting jurisdiction through adoption by reference of the relevant portions of Chapter 173-400 WAC, most recently approved by EPA on May 30, 2017 ([82 FR 24533](#)). For more information on applicability as it relates to LCAA and EFSEC jurisdictions please see 40 CFR part 52.2470(c).

- Section 173-400-113 WAC “Requirements for New Sources in Attainment or Unclassifiable Areas” (State adopted date 12/29/12; EPA approval date 4/29/15; [80 FR 23721](#)).
- Section 173-400-700 WAC “Review of Major Stationary Sources of Air Pollution” (State adopted date 4/1/11; EPA approval date 4/29/15; [80 FR 23721](#)).
- Section 173-400-710 WAC “Definitions” (State adopted date 7/1/16, EPA approval date 10/6/16; [81 FR 69386](#)).
- Section 173-400-720 WAC “Prevention of Significant deterioration (PSD)” (State adopted 7/1/16, EPA approval date 10/6/16; [81 FR 69386](#)).
- Section 173-400-730 WAC “Prevention of significant deterioration application processing procedures” (State adopted 7/1/16, EPA approval 10/6/16; [81 FR 69386](#)).
- Section 173-400-740 WAC “PSD Permitting Public Involvement Inquiries” (State effective 9/16/18; [81 FR 69386](#)).
- Section 173-400-750 WAC “Revisions to PSD permits” (State adopted 12/29/12, EPA approval 4/29/15; [80 FR 23721](#)).

## **§110(a)(2)(D) Pollution transport**

### **§110(a)(2)(D)(i) Interstate pollution transport**

*Summary: Each such plan shall –*

*(D) contain adequate provisions –*

*(i) prohibiting, consistent with the provisions of this title, any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will –*

*(I) contribute significantly to nonattainment in, or interfere with maintenance by, any other State with respect to any such national primary or secondary ambient air quality standard, or*

*(II) interfere with measures required to be included in the applicable implementation plan for any other State under part C to prevent significant deterioration of air quality or to protect visibility.*

Ecology addresses section 110(a)(2)(D)(i)(I) in the Interstate Transport Plan (83 FR 30380). For CAA section 110(a)(2)(D)(i)(II) related to PSD and the regional haze program, Washington operates both programs under partial FIPs and is making no change to this aspect of the SIP, as previously discussed.

### **§110(a)(2)(D)(ii) Interstate and international pollution abatement**

*Summary: Contain adequate provisions insuring compliance with the applicable requirements of sections 126 and 115 (relating to interstate and international pollution abatement).*

Washington does not have any outstanding obligations under sections 126(b) or 115. CAA section 126(a) obligations are met through the PSD program, which Washington operates under a partial FIP.

### **§110(a)(2)(E) Adequate personnel, funding and authority to carry out plan; comply with state boards; oversee local and regional governmental agencies.**

*Summary: Provide (i) necessary assurances that the state (or, except where the Administrator deems inappropriate, the general purpose local government or governments, or a regional agency designated by the state or general purpose local governments for such purpose) will have adequate personnel, funding, and authority under state (and, as appropriate, local) law to carry out such implementation plan (and is not prohibited by any provision of federal or state law from carrying out such implementation plan or portion thereof);*

*(ii) requires that the state comply with the requirements respecting state boards under section 128, and*

*(iii) necessary assurances that, where the state has relied on a local or regional government, agency, or instrumentality for the implementation of any plan provision, the state has responsibility for ensuring adequate implementation of such plan provision.*

Ecology, the LCAAs, and EFSEC support the State's air quality plan. Chapter 70.94 RCW and chapter 80.50 RCW requires each agency to employ personnel for implementation of CAA requirements including NAAQS. Air pollution control programs in Washington are a cooperative effort between state agencies: Ecology, EFSEC, and the seven local clean air agencies. Under chapter 70.94 RCW, the state's Clean Air Act, and chapter 80.50 RCW "Energy Facilities – Site Location," all agencies have authority to employ personnel to implement requirements of the CAA. These agencies develop permitting programs, SIP regulations, and SIP revisions. They also support the monitoring program as required by the CAA.

Chapter 43.21A RCW and chapter 70.94 RCW provide for Ecology and LCAA's rule making authority. Section 80.50.040 RCW provides for EFSEC's rulemaking authority. Ecology and EFSEC's funding is appropriated biennially by the state's Legislature. Under section 70.94.092 RCW, LCAAs adopt annual budgets that contain adequate funding for staff to enforce regulations related to the reduction, prevention, and control of air pollution.

Washington uses its authorities and funding to develop regulations for inclusion in the SIP, various SIP revisions, the EPA approved monitoring program, and other documents and actions as specified throughout this submittal.

Other related laws:

- Section 34.05.425 RCW "Administrative Procedure Act."
- Chapter 42.17A RCW "Public Disclosure Act."
- Section 70.94.100 RCW "Air Pollution Control Authority – Board of Directors – Composition – Term."
- Section 70.94.370 RCW "Powers and rights of governmental units and persons are not limited by act or recommendations."

Ecology, EFSEC, and LCAAs work with other organizations and agencies and may enter into agreements allowing for implementation of air pollution controls by another agency. Section 70.94.370 RCW states that no provision of the chapter or any recommendation of the state board or of any local or regional air pollution program is a limitation on the power of a state agency in the enforcement or administration of any provision of law that it is specifically permitted or required to enforce or administer.

The SIP approved provisions of section 173-400-220 WAC "Requirements for Board Members" (State adopted date 3/22/91; EPA effective date 6/2/95; [60 FR 28726](#)) and section 173-400-260 WAC "Conflict of Interest" (State adopted date 7/1/16) provide that no state board or body which approves operating permits or enforcement orders, either in the first instance or upon appeal, shall be constituted of less than a majority of members who represent the public interest and who do not derive a significant portion of their income from persons subject to operating permits.

State law also requires disclosure of any potential conflicts of interest by members of a board or body, or the head of any executive agency with similar powers. SIP approved section 173-400-240 WAC "Criminal Penalties" (State adopted date 3/22/91; EPA effective date 6/2/95; [60 FR 28726](#)) specifies that any person who knowingly fails to disclose a potential conflict of interest under section 70.94.100 RCW is guilty of a gross misdemeanor, and upon conviction thereof shall be punished by a fine of not more than five thousand dollars.



Rules for compliance:

- Section 173-400-220 WAC “Requirements for Board Members” requires boards to represent public interest, disclose conflicts of interest, and restricts income earned from the regulated community.
- Section 173-400-240 WAC “Criminal Penalties” refers to section 70.94.430 RCW which outlines penalty schedules and fines.
- Section 173-400-260 WAC “Conflict of Interest”, updated July 1, 2016, refers directly to the CAA.

## **§110(a)(2)(F) Stationary source emissions monitoring and reporting system**

*Summary: Require, as may be prescribed by the Administrator*

*(i) the installation, maintenance, and replacement of equipment, and the implementation of other necessary steps by owners or operators of stationary sources to monitor emissions from such sources,*

*(ii) periodic reports on the nature and amounts of emissions and emissions-related data from such sources, and*

*(iii) correlation of such reports by the state agency with any emission limitations or standards established pursuant to this Act, which reports shall be available at reasonable times for public inspection.*

Washington requires sources to:

- Install, maintain and replace equipment.
- Monitor emissions.
- Submit reports for review by the agency.

Under the federally approved SIP, Washington requires sources to (i) install, maintain and replace equipment, (ii) monitor emissions, and (iii) submit reports for review by the agency. The requirements are implemented through permits and compliance orders issued under chapter 70.94 RCW. Chapter 70.94 RCW requires permits and compliance orders for stationary source emissions, monitoring, and reporting. Chapter 173-400 WAC “General regulations for air pollution sources,” are for permitting and other aspects of pollution control as listed below.

Recent updates:

- Section 173-400-105 WAC “Records, Monitoring, and Reporting” (State adopted date 7/1/16; EPA effective date 10/6/16; 81 FR [69386](#)).
- Section 173-400-110 WAC “New Source Review (NSR)” (State adopted date 12/29/12; EPA effective date 9/29/16; [81 FR 66825](#)).
- Section 173-400-112 WAC “Requirements for New Sources in Nonattainment Areas” (State adopted date 12/29/12; EPA effective date 9/29/2016; [81 FR 66825](#)).
- Section 173-400-113 WAC “Requirements for New Sources in Attainment or Unclassifiable Areas” (State adopted date 12/29/12; EPA effective date 4/29/15; [80 FR 23721](#)).

## **§110(a)(2)(G) Authority to declare air pollution emergency and notify public**

*Summary: Provide for authority comparable to that in section 303 and adequate contingency plans to implement such authority.*

State statutes providing for air pollution emergency response authority are located in section 70.94.710 RCW through section 70.94.730 RCW. The Governor has the power to declare an air pollution emergency and to issue emergency orders for the reduction or discontinuance of emissions when such emissions and weather combine to create conditions imminently dangerous to public health and safety. Ecology is authorized to develop an episode avoidance plan providing for the phased reduction of emissions whenever and wherever an air pollution episode is forecast. Ecology may delegate authority to adopt source emission reduction plans (SERPs) and authority to implement all stages of occurrence up to and including the warning stage, and all intermediate stages up to the warning stage, in any area of the state to the local air pollution control authority.

40 CFR Part 81 divides Washington State into six Air Quality Control Regions (AQCRs):

- §81.32 Puget Sound Intrastate AQCR.
- §81.51 Portland (Oregon) – Southwest Washington Interstate AQCR (Washington portion).
- §81.010 Eastern Washington-Northern Idaho Interstate AQCR (Washington portion).
- §81.185 Northern Washington Intrastate AQCR.
- §81.187 Olympic-Northwest Washington Intrastate AQCR.
- §81.189 South Central Washington Intrastate AQCR.

Puget Sound and Portland AQCRs, classified as Priority I region, are covered by the Washington’s Emergency Episode Plan contained in WAC 173-435 (State effective date 1/3/89;

EPA effective date 1/15/1993; 58 FR 4578). Ecology's existing Emergency Episode Plan provisions are consistent with EPA's regulatory requirements contained in 40 CFR 51, subpart H (40 CFR 51.150 through 51.153) ("Prevention of Air Pollution Emergency Episodes"). These provisions are in place to constrain sources of precursors to O<sub>3</sub> emissions, as necessary, in case of an air pollution emergency.

To satisfy a Priority I region's emergency episode plan requirements regarding forecasts of atmospheric stagnation conditions, Washington relies on existing ambient O<sub>3</sub> monitoring and forecasting networks, including AIRNow. EPA, in partnership with National Oceanic and Atmospheric Administration (NOAA), National Park Service (NPS), and tribal, state, and local agencies to provide easy public access to national air quality information developed the AIRNow website. The website offers daily Air Quality Index (AQI) forecasts as well as real-time AQI conditions for over 300 cities across the U.S. and provides links to more detailed state and local air quality websites.

40 CFR Part 51 has classifications for emergency plans. 40 CFR Part 51.153 requires states to routinely evaluate priority classifications for all Regions within their borders. These evaluations consider the three most recent years of air quality data. In 2014 Washington evaluated the most recent three years of monitoring data for SO<sub>2</sub> and O<sub>3</sub> against the priority area classification thresholds identified in 40 CFR Part 51.150.

#### Emergency Episode Plan Rules:

- Section 173-435-010 WAC "Purpose" (State adopted 1/3/89, EPA approved 1/15/93; 58 FR 4578\*).
- Section 173-435-015 WAC "Significant harm levels" (State adopted 1/3/89, EPA approved 1/15/93; 58 FR 4578\*).
- Section 173-435-020 WAC "Definitions" (State adopted 1/3/89, EPA approved 1/15/93; 58 FR 4578\*).
- Section 173-435-030 WAC "Episode stage criteria" (State adopted 1/3/89, EPA approved 1/15/93; 58 FR 4578\*).
- Section 173-435-040 WAC "Source emissions reductions plans" (State adopted 1/3/89, EPA approved 1/15/93; 58 FR 4578\*).
- Section 173-435-050 WAC "Action procedures" (State adopted 1/3/89, EPA approved 1/15/93; 58 FR 4578\*).
- Section 173-435-060 WAC "Enforcement" (State adopted 1/3/89, EPA approved 1/15/93; 58 FR 4578\*).
- Section 173-435-070 WAC "Sampling sites, equipment and methods" (State adopted 1/3/89, EPA approved 1/15/93; 58 FR 4578\*).

We also utilize a non-regulatory tool, WA Smoke Blog<sup>14</sup>, to provide the public with up-to-date information on smoke events caused by wildfires. By visiting this blog, Washington residents can track fires and smoke, and get forecasts about smoke movement from area wildfires. The state Departments of Ecology and Health, U.S. Forest Service, and multiple other state, federal and county governments post up-to-date wildfire information on the blog. Volunteers built and maintain the page and activate it when there is a need to share coordinated information related to wildfires.

Residents can also follow real-time air quality information from air quality monitors across the state. Ecology maintains the Washington Air Quality Advisory (WAQA) webpage.<sup>15</sup> This page provides residents with up to date information about air conditions and links to LCAA websites. The air quality-monitoring map, discussed earlier, is also linked to this page.

## **§110(a)(2)(H) Future SIP revisions**

*Element summary: Provide for revision of such plan*

*(i) from time to time as may be necessary to take account of revisions of such national primary or secondary ambient air quality standard or the availability of improved or more expeditious methods of attaining such standard, and*

*(ii) except as provided in paragraph (3)(C), whenever the Administrator finds on the basis of information available to the Administrator that the plan is substantially inadequate to attain the national ambient air quality standard which it implements, or to otherwise comply with any additional requirements established under this Act.*

Under chapter 70.94 RCW, Washington's air quality agencies have the authority to promulgate rules and regulations to maintain and protect Washington's air quality, and comply with the federal requirements, including revisions of NAAQS and SIPs.

Section 70.94.510 RCW specifies Washington's policy to cooperate with the federal government in order to coordinate and take necessary actions to secure the benefits of the federal clean air act.

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<sup>14</sup> Washington Smoke Information blog: <http://wasmoke.blogspot.com>

\* Indicates the source is not available in the Standard digital format

<sup>15</sup> Washington Air Quality Advisory (WAQA) webpage: <https://ecology.wa.gov/Research-Data/Monitoring-assessment/Washington-Air-Quality-Advisory>

Washington utilized the above authority in developing SIP approved rules and regulations specified throughout this submittal as specified in CAA.

Washington's Laws:

- Chapter 70.94 RCW "Washington Clean Air Act" LCAAs can create rules and regulations to attain, maintain, enhance, and protect air quality. This includes revisions to NAAQS and SIPs.
- Section 70.94.510 RCW "Policy to cooperate with the federal government" defines our relationship with the federal government.

Washington uses chapter 70.94 RCW when developing SIP rules and regulations.

## **§110(a)(2)(J) §121 consultation; §127 public notification; PSD and visibility protection**

*Element summary: Meet the applicable requirements of section 121 (relating to consultation), meet the applicable requirements of section 127 (relating to public notification), meet the applicable requirements of part C (relating to prevention of significant deterioration of air quality and visibility protection).*

The public involvement process is codified in section 173-400-171 WAC "Public involvement" (State effective date 9/16/18).

Section 70.94.141(10) RCW authorizes Ecology to advise, consult, cooperate, and contract with agencies, departments, and educational institutions of the state, other political subdivisions, industries, other states, interstate or inter-local agencies, the United States government, and with interested persons or groups. After drafting revisions to state implementation plans, Ecology or the local air authority must issue a public notice informing the public and affected parties of proposed changes. The public and all interested parties have an opportunity to review and comment on the proposal and participate in public hearings. In addition to the formal public involvement procedures, Ecology often hosts workshops or creates advisory committees to collect information from affected stakeholders.

Additional statutory authorities and requirements for consultation and public involvement are found in chapter 34.05 RCW "Administrative Procedure Act", chapter 42.30 RCW "Open public meetings act," and section 70.94.240 RCW "Air pollution control advisory council."

Our laws for public involvement:

- Section [70.94.141 RCW](#) “Air pollution control authority—Powers and duties of activated authority.” Ecology can advise, consult, cooperate, and contract with agencies and groups. After drafting a SIP update, Ecology or the LCAA issues a public notice so people can know about proposed changes. Anyone who is interested can review and comment on the changes. We also host workshops and create advisory committees for feedback.
- Chapter [34.05 RCW](#) “Administrative Procedure Act.”
- Chapter [42.30 RCW](#) “Open public meetings act.”
- Section [70.94.240 RCW](#) “Air pollution control advisory council.”

Rules for public feedback:

- Section 173-400-171 WAC “Public Notice and Opportunity for Feedback” (State effective date 7/1/16; EPA effective date 5/10/17; [81 FR 69386](#) ).

The Action Procedures under section 173-435-050 WAC (State effective date 1/3/89; EPA effective date 1/15/93; 58 FR 4578\*) provides public warnings during periods of adverse air quality. In addition to section 173-435-050 WAC, Ecology uses the WAQA tool for informing people about the health effects of air pollution.

As previously discussed, the major source PSD program in Washington operates under a partial FIP. Ongoing review of new major sources under the Washington PSD permitting program, the SIP approved provisions of sections 173-400-700 WAC through section 173-400-750, and SIP approved EFSEC corollaries; work in conjunction with the partial PSD FIP to meet PSD requirements. The most current visibility protection requirements are included in Washington’s Regional Haze SIP submitted to EPA in 2010. On June 11, 2014, EPA approved parts of the plan and issued a FIP for the remaining elements (83 FR [24954](#) ).

Rules for visibility:

- Section 173-400-151 WAC (State effective date 2/10/05; EPA effective Date 10/3/14; [79 FR 59653](#)). The permitting program reviews new sources and the long-term Regional Haze program addresses visibility protection requirements. Washington’s Regional Haze SIP, submitted to EPA in 2010, includes Washington’s current visibility requirements. On May 30, 2017, EPA approved parts of the plan and issued a FIP for the remaining elements (40 CFR 52.2498).

## **§110(a)(2)(L) Major stationary source permitting fees**

*Summary: Require the owner or operator of each major stationary source to pay to the permitting authority, as a condition of any permit required under this Act, a fee sufficient to cover:*

*(i) the reasonable costs of reviewing and acting upon any application for such a permit, and*

*(ii) if the owner or operator receives a permit for such source, the reasonable costs of implementing and enforcing the terms and conditions of any such permit (not including any court costs or other costs associated with any enforcement action), until such fee requirement is superseded with respect to such sources by the Administrator's approval of a fee program under title V.*

Ecology, EFSEC, and the LCAAs require new sources to pay application review fees. Fees fund costs of new major and minor air pollution source permitting programs. Each agency has a separate fee schedule, updated periodically to match permitting costs.

EPA granted Ecology, EFSEC, and the LCAAs interim approval of its Title V program effective December 9, 1994, with full approval on September 12, 2001 (66 FR 42439, August 13, 2001). EPA audits Washington's Title V program to make sure fees are covering the costs of the permitting program. Part X of chapter 173 WAC "Fee Determination and Regulation, sections 173-401-900 through 940 WAC, outlines Ecology's Title V requirements, fees and certification regulations.

EFSEC permits new energy facilities and processes PSD applications for site certification. They administer chapter 80.50 RCW "Energy Facilities-Site Locations," which requires new energy facilities to pay a fee for site certification. The fee covers the cost of studying the potential site. The facility makes an initial deposit and EFSEC uses the funds to process the application.

When EFSEC issues a Site Certification Agreement, the facility becomes an EFSEC facility for its entire life cycle. Facilities contribute quarterly to EFSEC's account. The law requires facilities to maintain a balance in their account to cover EFSEC's administrative costs. This is for administrative work including Air Operating Permits for the facility.

Laws:

- Section 70.94.162 RCW "Annual fees from operating permit program source to cover cost of program" Ecology collects permit fees from major stationary sources under Title V of the Clean Air Act.
- Chapter 80.50 RCW "Energy Facilities – Site Locations" described above.

Rules:

- Section 173-400-111 WAC “Processing notice of construction applications for sources, stationary sources, and portable sources,” describes requirements for Notice of Construction permits, section (1)(e) states, “An application is not complete until any permit application fee required by the permitting authority has been paid.” Section (3)(i) includes, “All fees required under chapter 173-455 WAC (or the applicable new source review fee table of the local air pollution control authority) have been paid” asserting the permitting authorities’ fee requirements.
- Section 173-400-560(4)(c) WAC, describes the general order of approval requirement for construction, section (4)(c), “An application shall be incomplete until a permitting authority has received any required fees.”

## **§110(a)(2)(M) Consultation and participation**

*Element summary: Provide for consultation and participation by local political subdivisions affected by the plan.*

Ecology drafts SIP revisions and other plans, and provides support to the LCAAs in drafting such documents. Once drafted, we issue a public notice of proposed changes. Anyone can review and comment on the proposal, in writing or at a public hearing. Washington State allows anyone to request a hearing (section 173-400-171(8) WAC). We also host workshops and create advisory committees if necessary.

Laws:

- Chapter 34.05 RCW “Administrative Procedure Act.”
- Chapter 42.30 RCW “Open public meetings act.”
- Section 70.94.240 RCW “Air pollution control advisory council.”

Rules:

- Section 173-400-171 WAC “Public involvement” (State effective date 7/1/2016; EPA effective date 10/6/16; [81 FR 69386](#)).



## Appendices

### Appendix A: EFSEC Rule Updates

As of the date of this submission, EFSEC is updating Chapter 463-78 WAC “General and operating permit regulations for air pollution sources,” The updates to the rule bring EFSEC current with the most recent updates Ecology has made to Chapter 173-400-025 WAC “Adoption of federal rules”, which adopts, by reference, the federal rules as they existed on January 24, 2018.

### Appendix B: Chapter 173-423 WAC Low Emission Vehicles

Sections for this SIP submittal:

173-423-010

173-423-020

173-423-025

173-423-030

173-423-040

173-423-050

173-423-060

173-423-070

173-423-080

173-423-100

173-423-110

173-423-120

173-423-130

173-423-140

173-423-150

Sections not included:

173-423-040(3)

173-423-050(2)(g)

173-423-070(1) – reference to California code 1961.1, 1961.3

173-423-090

## Appendix C: The Pollutants

### What is sulfur dioxide?

Sulfur dioxide is one of the gaseous forms of sulfur oxide (SO<sub>x</sub>) compounds emitted into the atmosphere from both human and natural activities. It is a precursor for particulate matter air pollution and acid rain.

When sulfur dioxide oxidizes in the atmosphere, it forms sulfuric acid (H<sub>2</sub>SO<sub>4</sub>). This can condense onto existing particles or form new particles, specifically fine particulate matter with smaller than 2.5 micrometers (PM<sub>2.5</sub>) in diameter. This is known as “dry deposition” and occurs more often in dry conditions. When sulfur dioxide reacts with water in the atmosphere, the resulting H<sub>2</sub>SO<sub>4</sub> contributes to the formation of acid rain. This process is known as “wet deposition” and occurs more often in moist conditions.

Oxidation and deposition in the atmosphere depend largely on local environmental conditions. The overall lifetime of SO<sub>2</sub> in the atmosphere ranges from one to four days.<sup>16</sup> Immediately near the source, SO<sub>2</sub> oxidation is extremely low because higher concentrations of other pollutants deplete available oxidizing agents. However, downwind from the source, the plume dilutes quickly and oxidation increases. Farther downwind, SO<sub>2</sub> converts to particles (PM<sub>2.5</sub>). SO<sub>2</sub> concentrations and impacts peak near the source.

In the U.S., fossil fuel combustion by electrical utilities and industry is responsible for about 84 percent of anthropogenic SO<sub>2</sub> emissions.<sup>17</sup> Although the largest source category in the state, Washington’s point source electrical and industrial combustion emissions made up only about 48 percent of statewide anthropogenic emissions in 2014<sup>18</sup>. The significant difference between Washington and the U.S. is largely due to the state’s robust hydropower supply and expansive in port and shipping activities. In 29 Washington counties, marine and on-road mobile SO<sub>2</sub> emissions are greater than point source emissions.

Natural sources of SO<sub>2</sub> include wildfires, volcanos, and geothermal activities. In 2014, wildfires were responsible for about 22 percent of SO<sub>2</sub> emissions in Washington<sup>19</sup>. Photochemical reactions in the atmosphere also produce SO<sub>2</sub> from sulfur-containing compounds like dimethyl sulfide (C<sub>2</sub>H<sub>6</sub>S), emitted by marine organisms.

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<sup>16</sup> EPA’s “Integrated Science-Assessment for Sulfur Oxides – Health Criteria,” September 2008, Section 2.2

<sup>17</sup> EPA’s 2014 “National Summary of Sulfur Dioxide Emissions,” updated 2/10/2017

<sup>18</sup> Washington State Department of Ecology, preliminary 2014 statewide sulfur dioxide emissions data

<sup>19</sup> Washington State Department of Ecology, preliminary 2014 statewide sulfur dioxide emissions data

Public health studies link both short- and long-term exposure to SO<sub>2</sub> to an array of adverse respiratory effects. Short-term exposure is generally associated with asthmatics, including bronchoconstriction and increased asthma symptoms.<sup>20</sup> Health impacts from long-term exposure to SO<sub>2</sub> pollution are more closely associated with those seen from Particulate Matter (PM), as dry deposition occurs. Consequently, EPA and state agencies have regulated SO<sub>2</sub> as a criteria pollutant since they established the first SO<sub>2</sub> NAAQS in 1971. The original 24-hour standard was 0.14 parts per million (ppm), not to be exceeded more than one time per year, and the annual standard was 0.03 ppm.

During the 1980s and 90s, EPA published several addendum documents and requested comments on the addition of a new 1-hour primary (health-based) standard. In 1994, EPA's proposal included new findings on short-term SO<sub>2</sub> exposure in asthmatics. EPA proposed to retain the 24-hour and annual standard, but requested comments on alternatives that reduced health risks posed by exposure to high 5-minute peaks of SO<sub>2</sub>. EPA concluded that exposure of asthmatics to those levels was rare and, as result, the 24-hour and annual standards remained unchanged in 1996.

In 1998, the American Lung Association sued EPA because the agency had not established a 5-minute SO<sub>2</sub> standard. The D.C. Circuit Court found that EPA did not adequately explain its decision and remanded the matter back to EPA for further explanation. Finally, after negotiations between EPA and the American Lung Association, EPA requested that states voluntarily submit 5-minute peak SO<sub>2</sub> concentrations. This data helped inform the 2008 review of the SO<sub>2</sub> NAAQS.

In 2010, EPA revised the primary SO<sub>2</sub> NAAQS concluding that the existing 24-hour and annual standards were inadequate to protect public health from short-term SO<sub>2</sub> exposures. At that time, EPA established a new 1-hour standard at a level of 75 ppb, based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. In the same ruling, EPA established a secondary 3-hour standard not to exceed 0.5 SO<sub>2</sub> ppm more than once per year.<sup>21</sup> This SIP, however, only addresses EPA's 2010 primary 1-hour SO<sub>2</sub> NAAQS. In 2013, Washington adopted federal SO<sub>2</sub> standards, which sunset previous state SO<sub>2</sub> standards.<sup>22</sup>

SO<sub>2</sub> is a primary pollutant.

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<sup>20</sup> EPA's "Integrated Science-Assessment for Sulfur Oxides – Health Criteria," September 2008, Section 3.1

<sup>21</sup> According to EPA, primary NAAQS focus on protecting public health, while secondary NAAQS protect public welfare, including protecting against decreased visibility and damage to animals, crops, vegetation, and buildings.

<sup>22</sup> Section 173-476-130 WAC

## What is ozone?

Ground level ozone is the primary component of smog. Ozone that occurs naturally in the upper portions of the earth's atmosphere, often referred to as "good ozone," forms a layer that protects life on earth from intense ultraviolet radiation. Ozone that forms at ground level is harmful to breathe, and damages sensitive vegetation and ecosystems.

Ground level ozone forms when emissions of nitrogen oxides (NO<sub>x</sub>) and volatile organic compounds (VOCs) "cook" in the sun making it mainly a summertime pollutant. The major sources of human-made NO<sub>x</sub> and VOCs are:

- Motor vehicle exhaust.
- Emissions from industrial facilities.
- Electric utilities.
- Gasoline vapors.
- Chemical solvents.

Wind can transport ozone pollution over hundreds of miles, affecting both urban and rural areas.

Breathing air containing high levels of ozone can reduce lung function and increase respiratory symptoms, thereby aggravating asthma or other respiratory conditions. Ozone exposure also has been associated with increases in:

- Respiratory infections.
- Asthma attacks.
- Doctor visits.
- Emergency department visits.
- Increased hospital admissions for individuals with respiratory diseases.

Ozone exposure may also contribute to premature death, especially in people with heart and lung disease.

Scientific evidence shows that repeated exposure to ozone damages sensitive vegetation and trees, including those in forests and parks. This leads to reduced growth and productivity, increased susceptibility to disease and pests, and damaged foliage.

On December 28, 2015, EPA revised the primary (health-based) and secondary (ecosystem and welfare-based) ozone standards to 0.070 parts per million (ppm). EPA determined that the previous 2008 standard of 0.075 ppm was not adequate to protect public health, based on an

extensive body of scientific evidence on the health effects of ozone and the recommendation of EPA's independent Clean Air Scientific Advisory Committee.<sup>23</sup>

O<sub>3</sub> is a secondary pollutant. EPA and states have historically focused efforts to address ozone transport on reductions of NO<sub>x</sub>. Between 1990 and 2016, concentrations of ground-level ozone (8-hour) declined 17 percent nationwide and 8 percent in the Northwest.<sup>24</sup> In the Eastern U.S., EPA continues to implement measures to reduce ozone interstate transport through implementation of the 2016 Cross-State Air Pollution Rule (CSAPR), which effectively replaced the 2003 NO<sub>x</sub> Budget Trading Program<sup>25</sup> and 2005 Clean Air Interstate Rule (CAIR).<sup>26</sup> There is no comparable program for western states.

## Appendix D. Response to Public Comments and Involvement

Public comment period was open July 16, 2019, through August 30, 2019. No one commented and no one requested a Public Hearing.

The only changes between this version of the document and the Public Comment version is inclusion of the publication number, minor editing for punctuation, and inclusion of the Air Quality Program Mission Statement in the 'Overview' section.

## Appendix E. Public Notices

See attached.

Affidavit of Publication:

<http://partnerweb/sites/AQ/sipshome/2015%20Ozone%20and%202010%20Sulfur%20Dioxide%20Infrastructure/Affidavit%20of%20Publication.pdf>

Newspaper Article:

<http://partnerweb/sites/AQ/sipshome/2015%20Ozone%20and%202010%20Sulfur%20Dioxide%20Infrastructure/375899.pdf>

Public Comment Webpage:

[http://partnerweb/sites/AQ/sipshome/2015%20Ozone%20and%202010%20Sulfur%20Dioxide%20Infrastructure/Ozone%20SO2%20SIP%20comment%20ends%208\\_30\\_19.pdf](http://partnerweb/sites/AQ/sipshome/2015%20Ozone%20and%202010%20Sulfur%20Dioxide%20Infrastructure/Ozone%20SO2%20SIP%20comment%20ends%208_30_19.pdf)

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<sup>23</sup> Clean Air Scientific Advisory Committee Recommendations Concerning the Final Rule for the National Ambient Air Quality Standards for Ozone, 2008

<sup>24</sup> <https://www.epa.gov/air-trends/ozone-trends>

<sup>25</sup> <https://www.epa.gov/airmarkets/nox-budget-trading-program>

<sup>26</sup> <https://archive.epa.gov/airmarkets/programs/cair/web/html/index.html>

## Appendix F. Citation List

Ecology. (2018) *2017 Ambient Air Monitoring Network Report*.

<https://fortress.wa.gov/ecy/publications/documents/1802011.pdf> Accessed on September 27, 2018.

Ecology. (2018) *2018 Ambient Air Monitoring Network Plan*.

<https://fortress.wa.gov/ecy/publications/documents/1802019.pdf> Accessed on September 27, 2018.

EPA. (2013) *Infrastructure State Implementation Plan (SIP) Requirements and Guidance*.

(<https://www.epa.gov/ozone-pollution/infrastructure-state-implementation-plan-sip-requirements-and-guidance#requirements>) Accessed on September 27, 2018.

EPA. (2013). *Guidance on Infrastructure State Implementation Plan (SIP) Elements under Clean Air Act Sections 110(a)(1) and 110(a)(2)*. (<https://www.epa.gov/ozone-pollution/infrastructure-state-implementation-plan-sip-requirements-and-guidance#guidance%20docs>) Accessed on September 24, 2018.

EPA. (2015) *Approval and Promulgation of Implementation Plans; Washington: Infrastructure Requirements for the 2008 Ozone and 2010 Nitrogen Dioxide National Ambient Air Quality Standards*. In [80 F.R. \(pp. 1849-1851\)](#).

## **Appendix G. Signed SIP Adoption Order**

## **Appendix H. Signed Cover Letter for Submission**