



State of Oregon
Department of
Environmental
Quality

Oregon Department of Environmental Quality
October 20, 2017

Notice of Proposed Rulemaking

Cleaner Air Oregon

Proposes adoption of Cleaner Air Oregon permitting program to limit health risks from air toxics emissions.

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Introduction

DEQ invites public input on the proposed Cleaner Air Oregon program concept and rulemaking, including comment on the proposed permanent rules and rule amendments to chapter 340 of the Oregon Administrative Rules.

Background

On April 6, 2016, Governor Brown directed the Oregon Department of Environmental Quality (DEQ) and the Oregon Health Authority (OHA) to develop a health risk-based air toxics permitting program.

This action was triggered by:

- Regulatory gaps in current rules that allowed for significant localized health risks from industrial and commercial emissions
- The need for a systematic way to understand and reduce the risk that industrial and commercial air toxics pose to people who live, work or learn nearby in a practical, predictable and implementable manner.

Cleaner Air Oregon aims to:

- Collect accurate and timely information about air toxics emissions from industrial and commercial facilities; and,
- Provide predictable and science-based regulations to control industrial and commercial air toxics emissions to protect public health, focusing on areas and facilities that may pose the highest risk to human health
- Provide DEQ and OHA (the agencies) additional resources to fully implement the program, as described in the proposed rules. DEQ intends to propose a fee schedule to cover the costs of implementing the program.

DEQ proposal

In this proposed new program and rulemaking, DEQ proposes to add a new division, division 245, to the existing OAR chapter 340. DEQ is also proposing to make changes to OAR 340 divisions 12, 200, 209, 210, 216, 218, 220, 244, and 246.

The proposed amendment of Oregon Administrative Rule 340-200-0040 would incorporate non-substantive changes to existing rules into the Oregon Clean Air Act State Implementation Plan. The non-substantive rule changes are the result of making sure Cleaner Air Oregon rules mesh with existing rules.

More information

Additional information about this rulemaking is on DEQ's rulemaking web page: <http://www.oregon.gov/deq/Regulations/rulemaking/Pages/Rcleanerair2017.aspx>

Public hearings

DEQ will hold public hearings on this proposed new program and rulemaking. See the Public Notice and Hearings section below for details.

How to comment on this rulemaking proposal

DEQ is asking for public comment on the proposed new program and rules. Anyone can submit comments and questions about this program and rulemaking through an online web page, by regular mail or at the public hearings.

Comment deadline

DEQ will only consider comments on the proposed program and rules that DEQ receives by 4 p.m. on January 22, 2018.

Submit comment online

Cleaner Air Oregon 2017 Comment Page:

<http://www.oregon.gov/deq/Regulations/rulemaking/Pages/Ccleanerair2017.aspx>

Note for public university students:

ORS 192.501(29) allows Oregon public university and OHSU students to protect their university email addresses from disclosure under Oregon's public records law. If you are an Oregon public university or OHSU student you may omit your email address when you complete the online form to submit a comment.

By mail:

Oregon Department of Environmental Quality
Attn: Joe Westersund
700 NE Multnomah St., Suite 600
Portland, OR 97232-4100

At hearing:

See table on page 48 for hearing dates, times, and locations.

Sign up for rulemaking notices

Get email updates about future DEQ rulemaking by signing up through:
GovDelivery at

https://public.govdelivery.com/accounts/ORDEQ/subscriber/new?topic_id=ORDEQ_609 or on
the rulemaking web site:

<http://www.oregon.gov/deq/Regulations/rulemaking/Pages/Rcleanerair2017.aspx> .

What will happen next?

DEQ will read and consider each comment and include a written response to comments in a staff report that DEQ will submit to the Environmental Quality Commission (EQC). DEQ may modify the program and rule proposal based on the comments.

Present proposal to the EQC

Proposed rules only become effective if the EQC adopts them. DEQ plans to present the proposed final rules to the commission for a decision at its meeting in July 2018.

Accessibility information

You may review copies of all documents referenced in this announcement at:

Oregon Department of Environmental Quality
700 NE Multnomah St., Suite 600
Portland, OR 97232-4100

To schedule a review of all websites and documents referenced in this announcement, call Angela Parker at 503-229-5728 (800-452-4011, ext. 5622 toll-free in Oregon).

Please notify DEQ of any special physical or language accommodations or if you need information in large print, Braille or another format. To make these arrangements, contact DEQ, Portland, at 503-229-5696 or call toll-free in Oregon at 1-800-452-4011, ext. 5696; fax to 503-229-6762; or email to deqinfo@deq.state.or.us. Hearing impaired persons may call 711.

Overview

Short summary

DEQ proposes the Cleaner Air Oregon program and rules to add public health-based protection from emissions of air toxics to the state's existing air permitting regulatory framework. The goal of the Cleaner Air Oregon program is to evaluate potential health risks to people near commercial and industrial facilities that emit regulated air toxics, and ultimately reduce those risks below health-based standards. Affected facilities could include some that are not currently permitted for their air contaminant emissions, in addition to those that already have air quality permits.

Facility risk assessments would rely on emissions data specific to, and provided by, each facility. Facilities will be required to calculate and report the risk posed by their emissions where people would be exposed. Regulatory actions would be triggered when the risk posed by a facility's emissions exceed specified "Risk Action Levels." If emissions exceed a Risk Action Level, facilities have flexibility in how they reduce emissions. Options include installing emission controls, incorporating pollution prevention, substituting less-hazardous materials for more-hazardous materials, or altering work practices. If risk from a facility's emissions is already below defined Risk Action Levels, the facility generally will only be required to report periodically on its emissions.

For existing facilities with emissions presenting risk above Risk Action Levels that have demonstrated use of all feasible emission reduction measures, the proposed regulations would allow DEQ to approve continued operation above Risk Action Levels with periodic review for newly available technology or controls. Proposed regulations would prohibit operation of

facilities whose risks are significantly above the Risk Action levels, exceeding a proposed upper risk limit. Over time, facilities in areas significantly impacted by risk from multiple facilities could be prevented from increasing their emissions contributing to further risk, and new facilities that could pose additional risks over de minimis levels could be prohibited from locating in these areas.

DEQ is also proposing several housekeeping changes to existing rules needed for Cleaner Air Oregon. This includes changes to the existing rules for art glass manufacturers to make their requirements consistent with the proposed Cleaner Air Oregon rules. Some of the proposed changes to existing rules would amend the Oregon Clean Air Act State Implementation Plan (see the Rules affected, authorities, supporting documents section of this notice below.)

Regulated parties

The proposed Cleaner Air Oregon program and rules would apply to all commercial and industrial facilities that emit air toxics. These sources, whether they require an air permit under existing rules or not, would be required to submit air toxics facility risk assessments if called in by DEQ. In areas identified by DEQ as having excess risk from air toxics that may be caused by multiple sources, sources that likely emit more than a de minimis level of air toxics may also be evaluated.

DEQ proposes to implement Cleaner Air Oregon rules in two phases by organizing facilities into two tiers. Facilities would be prioritized and ranked in the program based on a formula that considers potential health risk and the potential vulnerability of the surrounding community. DEQ would work on 80 of the highest ranking facilities during the first five years of the program and then address the rest in priority order.

Request for other options

The proposed program and rules are designed to evaluate potential risks to people near facilities that emit regulated air toxics, and ultimately reduce those risks to health protective levels. To achieve this purpose, DEQ considered numerous options that were informed by other states' risk-based air toxics permitting programs. In addition, DEQ convened a Technical Work Group and the Cleaner Air Oregon Rules Advisory Committee and considered comments from committee members. DEQ welcomes input on any part of the program and rules and is specifically requesting input on the following:

- Whether there are there other options for achieving the rules' substantive goals while reducing potential financial and operational impacts on business (see Fiscal and Economic Impact Analysis on page 20 of this document.)
- The health-based Risk Action Levels, including the ranges for noncancer hazard indices (see proposed OAR 340-245-8010 Table 1.)
- The proposed process for case-by-case toxicologist review of noncancer Risk Action Levels (see OAR 340-245-0100.)
- Whether other equipment, beyond the list of Categorically Insignificant Activities, should be considered exempt from Cleaner Air Oregon (see OAR 340-245-0060.)
- Whether natural gas and propane combustion should be treated specially by identifying the risk from combustion separately and not requiring risk reduction since there are no

current emission reductions for natural gas or propane combustion (see OAR 340-245-0080(3)(b).)

- The proposed process through which sources who can prove a financial hardship and an inability to pay can apply for postponement of requirements to reduce their risk (see OAR 340-245-0230(4).)
- The proposed Area Multi-Source Risk Determination process to estimate the combined risk posed by nearby facilities, and prevent that risk from increasing if it's above Risk Action Levels (see OAR 340-245-0090.)
- The proposed director discretion process and criteria for determining whether to approve elevated Conditional Risk Levels (see OAR 340-245-0230(7).)
- The proposed community engagement plan requirements (see OAR 340-245-0250.)
- The proposed implementation plan and ranking formula (see OAR 340-245-0040.)
- How facilities could demonstrate compliance with acute (daily) limits, how DEQ could verify compliance, and what DEQ should do if there is a short-term exceedance (see OAR 340-245-0300(10) and OAR 340-012-0054.)

In addition to the above, DEQ is also requesting input on the following with regard to the proposed Revised Colored Art Glass Manufacturing Facility Rules:

- Can the applicability requirement in the proposed OAR 340-245-9000(2) be clarified or replaced with a better criterion?
- Can the definition of Raw Materials in the proposed OAR 340-245-9010(12) be improved or clarified?

Common terms

- “Air Toxics” are air pollutants that have been determined to cause or reasonably be anticipated to cause adverse effects to human health.
- “Existing source” means a source that already exists or has applied for a permit before the date the rules become effective.
- “New source” means a source that is proposed or constructed on or after the date the rules become effective.
- “Risk Action Level” means cancer and noncancer health risk levels that trigger regulatory requirements.
- “Risk Assessment” refers to the process of calculating the health risk created by the air toxics emissions from a source. The proposed rules include four “levels” of risk assessment in OAR 340-245-0080 that progress from simple to complex. Simpler levels are easier to calculate but rely on assumptions that are likely to overestimate the risk. More complex levels are harder to calculate because they include more site-specific details. Each source may use the simplest risk assessment level that shows compliance with the rules.
- “Risk Based Concentration” means health-protective levels of each chemical in the air. These levels would be set at an excess cancer risk of one in one million for chronic lifetime (70 years) residential exposure, or a noncancer hazard quotient of one for either chronic lifetime (70 years) residential exposure or acute 24-hour exposure.
- “Source” means a facility that emits air pollutants. A source may consist of one or more toxics emissions units. Examples of sources that may only have one toxics emissions unit are dry cleaners and schools or commercial facilities that have a single boiler to provide

heat. Sources that may consist of multiple toxics emissions units include commercial bakeries, paint shops with drying ovens, electric power generating plants and plywood mills.

- “Toxics emissions unit” refers to a piece of equipment or an operation that emits air pollutants. Occasionally, a toxics emissions unit may include multiple pieces of equipment that all do the same thing. Examples include: a boiler, a rock crusher, a pulp mill lime kiln, and a painting line that may comprise one to several paint stations.

Statement of need

Existing rules do not limit air toxics emissions based on health risks for people living near industrial and commercial facilities. As a result there may be regulatory gaps that result in significant localized health risks from facilities. The proposed rules would establish new tools to understand potential health risks for communities and to regulate facilities based on those health risks. To address regulatory gaps, proposed rules include provisions to cover facilities and pollutants that could be posing risk, set health-protective risk levels for communities impacted by one or more facilities (including sensitive and vulnerable populations), accomplish an accurate and streamlined assessment process, and ensure that affected communities have equal and adequate opportunities to participate and weigh in on proposed permitting decisions.

Proposed rule or topic	Discussion
Applicability	
What need does the proposed rule address?	Recent experience with art glass and other facilities shows there are gaps in existing air toxics regulations. Current air toxics rules do not consider health risks to those living near facilities, and may allow facilities to emit air toxics at levels of concern for public health. This is particularly true if their processes and emissions are not currently addressed by a federal air toxics standard (National Emission Standard for Hazardous Air Pollutant or NESHAP), are only partially addressed by a federal standard, or if the emissions are not yet considered a risk to the public.
How does the proposed rule address the need?	The proposed rules would apply to both new and existing facilities that emit air toxics. Facilities would calculate their emissions and the potential health risk the emissions pose to nearby people. If the risk is above Risk Action Levels set in the rules, the facility would need to reduce the risk or take other actions. Implementation would be phased in based on a ranking formula that considers risk and the potential vulnerability of the surrounding community.

How will DEQ know the rule addresses the need?	Permit limits will be attached to facilities' air permits, and will include emissions reporting to allow DEQ to measure risk reduction over time.
Pollutants included	
What need does the proposed rule address?	The current air toxics regulations address 187 regulated air toxics and several other pollutants beyond this list for which DEQ has adopted Ambient Benchmark Concentrations under OAR 340-246-0090. There are many other air toxics of concern emitted by industry in Oregon that are not currently regulated.
How does the proposed rule address the need?	The proposed regulations would require facilities to report emissions from 601 chemicals, of which 260 have health data sufficient for calculating risk to people who are exposed to the emissions.
How will DEQ know the rule addresses the need?	DEQ has received initial reporting from regulated facilities covering the 601 pollutants in the proposed Cleaner Air Oregon regulations. Through ongoing emission inventory refinement and obtaining emission inventories for additional facilities, DEQ will establish a more thorough and accurate database for air toxics emissions from commercial and industrial facilities in Oregon. Ongoing program implementation, risk screening and assessment will give DEQ and OHA a detailed understanding of the potential health impacts of air toxics from facilities.
Levels of health protection	
What need does the proposed rule address?	There are no regulatory health risk levels, or Risk Action Levels, for air toxics emissions from facilities in existing Oregon regulations. In addition, the current air toxics health reference levels, or benchmarks, in OAR 340-246-0090 are expressed as annual averages and are set to evaluate chronic exposure for either carcinogens or non-carcinogens. They are not suitable for consideration of acute or multi-pathway exposures.
How does the proposed rule address the need?	The proposed regulations would establish a more complete set of health reference levels or Risk Based Concentrations for a larger set of chemicals. Risk Based Concentrations would include cancer, chronic non cancer, and acute non cancer concentrations as well as multi-pathway considerations. Risk Based Concentrations would be used in the evaluation of potential risks from facility emissions. Potential risks would then be compared with a series of Risk Action Levels, or regulatory risk levels for facilities subject to the program, that would be set up in the proposed regulations.

<p>How will DEQ know the rule addressed the need?</p>	<p>The proposed new Risk Based Concentrations would be appropriate and useful for facilities going through risk screening and analysis. Risk Action Levels would provide protective and predictable levels for risk assessment and risk management. RBCs are set using nationally accepted cancer, chronic noncancer, and acute noncancer toxicity values.</p>
<p>Effective screening and assessment process</p>	
<p>What need does the proposed rule address?</p>	<p>Current air toxics regulations do not require facilities to evaluate potential risk from their emissions. Due to this, DEQ, OHA, businesses, and the public do not have reliable or consistent data on the health risks posed by facility emissions.</p>
<p>How does the proposed rule address the need?</p>	<p>Proposed regulations would provide an efficient and user-friendly tiered system to verify or “screen out” a facility’s risk to the community posed by air toxics emissions. Proposed regulations would also include more detailed modeling and risk assessment requirements and protocols for facilities that do not screen out.</p>
<p>How will DEQ know the rule addressed the need?</p>	<p>The proposed risk screening and analysis tools will allow facilities to understand their potential risk and any further risk reduction requirements in Cleaner Air Oregon regulations. Upon full implementation, DEQ, OHA, and the public will have statewide data for industrial and commercial air toxics risk.</p>
<p>Addressing environmental justice concerns</p>	
<p>What need does the proposed rule address?</p>	<p>In developing a new risk-based air toxics permitting program, DEQ and OHA are required by state and federal law to consider and incorporate provisions to ensure that the agencies’ actions address the interests of Oregon communities, especially minority, low-income and other traditionally underrepresented communities, including rural communities. In addition, some communities may be disproportionately impacted by the risk from air toxics emissions.</p> <p>DEQ researched federal and other state risk-based permitting programs to understand how Environmental Justice considerations could be addressed, produced an issue paper, and received input from the state Environmental Justice Task Force.</p>
<p>How would the proposed rule address the need?</p>	<p>Many aspects of proposed Cleaner Air Oregon regulations would contribute to addressing Environmental Justice concerns. Protectiveness for sensitive and overburdened populations is included by:</p> <ul style="list-style-type: none"> • Proposing a large (600+) list of regulated chemicals • Setting risk-based concentrations in a health protective way

	<ul style="list-style-type: none"> • Evaluating risk cumulatively for an entire facility to represent what people nearby are breathing • Proposing protective Risk Action Levels • Prioritizing facilities for the first tier (80 in 5 yrs.) based on a formula that factors in potential risk, population size, number of children 5 yrs. old and younger, percent of minority population, and percent of low income population • Taking a cumulative effects approach for impacts from multiple industrial and commercial facilities with a proposed area risk cap • Building in a robust public engagement process that must be tailored to the community and becomes more extensive with increasing risk.
How will DEQ know the rule addressed the need?	The effectiveness of current Environmental Justice provisions in the proposed rules will be evaluated after the first five years of implementation, or Tier 1.
Risk from multiple industrial facilities	
What need does the proposed rule address?	Cumulative risk from multiple sources of air toxics can be a concern for people who live or work near multiple facilities.
How does the proposed rule address the need?	The proposed regulations would set a risk limit for locations impacted by multiple industrial and commercial facilities and restrict increases of industrial and commercial emissions that would affect locations that are above the limit.
How will DEQ know the rule addressed the need?	Over time, DEQ will identify and analyze areas of the state where multiple industrial and commercial facilities could create risk exceeding the Area Multi-Source Risk Action Level. This approach is new and could involve a high level of technical complexity, however, DEQ anticipates that the proposed rule would address the need if areas with multi-source impacts above Risk Action Levels experience no additional increases and facilities and the affected community understand the analysis and any area-wide plan that may be in place.
Public information and engagement	
What need does the proposed rule address?	DEQ has heard from communities that the timing of public input on a draft permit under the existing air permitting program is too late in the process for adequate understanding of and participation in decisions. Because proposed Cleaner Air Oregon risk evaluations and regulatory decisions would be even more specific to facility locations and affected neighborhoods, effective community engagement is vital to ensure that potentially affected citizens, businesses, and governments have ample notice, understanding, and opportunity to provide input.

How does the proposed rule address the need?	Proposed community engagement provisions provide for and encourage direct communication between the owner or operator of a source and the community affected by the source's air toxics emissions. The requirements of the community engagement rules are intended to ensure that Environmental Justice concerns and considerations are appropriately addressed throughout the implementation of Cleaner Air Oregon. The owner or operator of a source whose risk is above any Risk Action Level must develop and follow a Community Engagement Plan to ensure compliance with community engagement requirements.
How will DEQ know the rule addresses the need?	Under proposed regulations, DEQ will evaluate a facility's Community Engagement Plan and promote best practices and tailoring of outreach and communication in individual communities. An evaluation of this practice will be completed after the first five years of the program (Tier 1) is completed.

Rules affected, authorities, supporting documents

Lead division

Operations/Air Quality

Program or activity

Air Quality Permitting and Air Toxics

Chapter 340 action

Adopt OAR: 340-216-0069, 340-216-8030, 340-244-8990, 340-245-0005, 340-245-0010, 340-245-0020, 340-245-0022, 340-245-0030, 340-245-0040, 340-245-0050, 340-245-0060, 340-245-0070, 340-245-0080, 340-245-0090, 340-245-0100, 340-245-0200, 340-245-0210, 340-245-0220, 340-245-0230, 340-245-0240, 340-245-0250, 340-245-0300, 340-245-0310, 340-245-0320, 340-245-0330, 340-245-0340, 340-245-0400, 340-245-0410, 340-245-0420, 340-245-0500, 340-245-8010, 340-245-8020, 340-245-8030, 340-245-8040, 340-245-8050, 340-245-8060, 340-245-9000, 340-245-9010, 340-245-9015, 340-245-9020, 340-245-9030, 340-245-9050, 340-245-9060, 340-245-9070, 340-245-9080
 DEQ Cleaner Air Oregon Monitoring Plan Template July 2018 edition

Amend OAR: 340-012-0030, 340-012-0053, 340-012-0054, 340-012-0135, 340-012-0140, 340-200-0020, 340-200-0035, 340-200-0040, 340-209-0020, 340-209-0040, 340-209-0050, 340-210-0010, 340-216-0020, 340-216-0030, 340-216-0040,

340-216-0090, 340-216-8010, 340-216-8020, 340-218-0010, 340-218-0020,
 340-218-0030, 340-218-0110, 340-218-0190, 340-218-0200,
 340-220-0010, 340-220-0020, 340-220-0050, 340-244-9000, 340-246-0010,
 340-246-0090, 340-246-0190
 DEQ Source Sampling Manual March 2015 edition

Statutory authority - ORS

468.020, 468.065, 468A.025, 468A.040, 468A.050, 468A.070, and 468A.155

Statute implemented - ORS

ORS 468.065, 468A.010, 468A.015, 468A.025, 468A.035, 468A.040, 468A.050, 468A.070,
 and 468A.155

Documents relied on for rulemaking

Document title	Document location
Portland Air Toxics Study	http://www.oregon.gov/deq/air-toxics/Pages/PATS.aspx
EPA National Air Toxics Assessment	https://www.epa.gov/national-air-toxics-assessment/2011-nata-assessment-results#state
State of Oregon Environmental Justice Task Force Environmental Justice: Best Practices for Oregon’s Natural Resource Agencies	http://www.oregon.gov/gov/policy/environment/environmental_justice/Documents/2016%20Oregon%20EJTF%20Handbook%20Final.pdf
EPA EJSCREEN: Environmental Justice Screening and Mapping Tool	https://www.epa.gov/ejscreen
40 CFR Appendix W to Part 51, Guideline on Air Quality Models	https://www3.epa.gov/ttn/scram/appendix_w-2016.htm
EPA, Integrated Risk Information System (IRIS) Reference Concentrations (RfC) and Inhalation Unit Risk (IUR)	www.epa.gov/iris
EPA, Office of Superfund Remediation and Technology Innovation (OSRTI) provisional peer reviewed toxicity value (PPRTV) program (Reference Concentrations (RfCs) and Inhalation Unit Risks (IURs))	www.hhprrtv.ornl.gov

United States Agency for Toxic Substances and Disease Registry (ATSDR), chronic inhalation Minimal Risk Level (MRL)	www.atsdr.cdc.gov
California's Office of Environmental Health Hazard Assessment (OEHHA), chronic Reference Exposure Level (REL) and Inhalation Unit Risk (IUR)	www.oehha.ca.gov

Fee analysis

New fees are required to implement Cleaner Air Oregon. These fees would be paid by all currently permitted air quality sources and some currently unpermitted sources that would be required to get air toxics permits only because of Cleaner Air Oregon.

Affected party involvement in fee-setting process

DEQ and OHA worked with a rules advisory committee that also served as the fiscal advisory committee in the fee-setting process. Representatives of both large and small businesses were on the fiscal advisory committee.

The fees were designed to generate the revenue necessary to support the proposed staffing model (detailed below) for at least five years. These fee-funded positions would supplement existing staff resources, all of which are general fund funded. Cleaner Air Oregon cannot be implemented as proposed in this rulemaking without additional resources.

The proposed staffing model includes the following positions, note that the staffing model includes resources for both DEQ and OHA.

Proposed Cleaner Air Oregon staffing model
<i>Department of Environmental Quality</i>
1.0 FTE Environmental Engineer 3
Lead technical staff for Cleaner Air Oregon: reviews risk assessment applications, coordinates with regional permit writers, develops and reviews permit attachments, leads TBACT reviews, and develops internal training plans.
3.0 FTE Natural Resource Specialist 4 (Permit Writers)
Develops permit attachment in coordination with EE3 and regional permitting staff, reviews community engagement plans in consultation with the Oregon Health Authority, provides

Proposed Cleaner Air Oregon staffing model
technical assistance to facilities regarding permitting requirements and supports internal training activities.
1.0 FTE Natural Resource Specialist 4 (Modeler)
Provides technical assistance to sources on risk assessment modeling protocol development, reviews and approves risk assessment modeling protocols, reviews and approves risk assessment modeling results, conducts area multi-source risk determinations.
1.0 FTE Natural Resource Specialist 4 (Risk Assessor)
Provides technical assistance to sources on health risk assessment protocol development, reviews and approves health risk assessments, supports risk communication activities, and consults with the Oregon Health Authority on updates to Risk Based Concentrations.
0.5 FTE Information Systems Specialist 5
Provide information technology infrastructure to support new permitting program, including creating and managing new databases for emissions and updating TRAACS to incorporate Cleaner Air permit attachments.
0.25 FTE Environmental Law Specialist
Office of Compliance and Enforcement staff time to coordinate/lead Cleaner Air Oregon enforcement activities.
0.2 FTE Principal / Executive Manager E
Regional Air Quality Manager supervision and oversight of Cleaner Air Oregon work occurring in the regions.
1.0 FTE Program Analyst 2 (Technical Assistance/Community Outreach Coordinator)
Provide specialized technical assistance to impacted parties (regulated entities and citizens) on Cleaner Air Oregon regulations, requirements and processes.
<i>Oregon Health Authority</i>
0.75 FTE Natural Resource Specialist 4 (Toxicologist)
Lead toxicologist responsible for facility-specific non-cancer Risk Action Level determination reviews, coordinating updates to Risk Based Concentrations, reviewing public engagement plans, review facility-specific monitoring plans, develop health-based interpretations of modeling/monitoring results and consult on health risk messaging.
0.75 FTE Public Health Toxicologist

Proposed Cleaner Air Oregon staffing model
Assist the lead toxicologist during facility-specific non-cancer Risk Action Level determination reviews, provide research and analytic support to inform updates of Risk Based Concentrations, support the development of health-based data interpretations, and provide technical assistance to OHA and DEQ staff on the development of health risk communication materials. (Budgeted at 0.75 FTE.)
0.50 FTE Public Health Educator
Support community engagement and risk communications activities, prepare for and participate in public meetings, review community engagement plans, and prepare materials to communicate about risks related to facilities for which we have partial or full EI information but full risk assessments have not yet been completed.
0.10 FTE Principal / Executive Manager D
Provide management and oversight to OHA staff involved in Cleaner Air Oregon activities.

Proposed fees:

The agencies propose a fee structure with two elements; base and activity fees. The two elements correspond to input received from fee-paying stakeholders that the fees be predictable on a year-to-year basis *and* that the fees reflect that certain facilities (i.e. those actively working through the requirements) are receiving a higher level of service from the agencies.

Annual Base Fee: The proposed annual base fee would be assessed on all sources who currently hold an air permit (state Air Contaminant Discharge Permit or federal Title V permit). Base fees differ based on a facility’s existing permit class. The proposed base fees are listed in detail below in Tables 1 and 2. While the dollar amount varies based on existing permit type, the Cleaner Air Oregon base fee is *proportionately* equivalent (approximately 24.6% of existing fees in 2017) across permit categories. Note that Title V permit holders would pay a flat fee and an emissions-based (per-ton) fee. This is consistent with the existing approach to Title V permit fees.

Activity Fees: A schedule of one-time fees that correspond to elements of the draft rules that require agency review and/or approval. A “call-in” fee is levied on all sources at the time they are called in to the program and covers the agencies’ costs associated with orienting a source to the program, reviewing risk assessment protocols and providing technical assistance. Additional activity fees are collected at the time a facility is seeking approval of risk assessment work and/or other approvals described in rule (e.g. conditional risk level, Best Available Control Technology review, monitoring protocol review etc.). Because the type of risk assessment method used is at the discretion of the facility and because subsequent approvals needed are based on the results of those risk assessments, activity fee revenue forecasting has more uncertainty than base fee revenue. Assumptions used in forecasting activity fee revenue are described in the next section.

The various risk assessment methods; and other permit approvals each have activity fees that are based on a workload analysis performed by the department. The workload analysis estimates the number of work hours (by position classification) needed for the review and approval of each activity. The complete activity fee schedule can be found below in Table 3.

Assumptions:

- DEQ assumed that the first 80 sources that will be called-in during Tier 1 would be required to submit the most complex Risk Assessments because their risk is estimated to be the highest of all permitted sources. The most complex Risk Assessments have the highest fees associated with their review. DEQ also predicted that not all 80 initial Risk Assessment would be completely reviewed nor that Air Toxics Permit Attachments would be issued for all of these sources within the 5 year Tier 1 period.
- Agency staff, in consultation with staff from states who operate similar programs, have developed estimates of the number and types of activity fees that the first 80 facilities will be required to pay. Those estimates, and the associated activity fee revenue are displayed in the attached “Activity Fee Revenue Projections” document. In summary, it is estimated that:
 - 25 of the 80 facilities will meet their compliance obligation through a level 3 risk assessment.
 - 20 of the 80 facilities will meet their compliance obligation through a level 4 risk assessment.
 - 5 of the 80 facilities will meet their compliance obligation through a risk reduction plan.
 - 20 of the 80 facilities will meet their compliance obligation through a conditional risk level.
 - 5 of the 80 facilities will meet their compliance obligation through a conditional risk level and risk reduction plan.
 - 5 of the 80 facilities will meet their compliance obligation through a director consultation and conditional risk level.

Considerations:

In developing fee structures, DEQ considered and acknowledged the following:

- Risk-based air quality permitting is new in Oregon and as such there are uncertainties in terms regarding its implementation.
- Because DEQ did not receive supplemental funding during the 2017 legislative session to conduct additional emissions inventory analysis, the agency has less understanding of toxics currently being emitted by facilities in Oregon. That understanding could have better informed facility risk forecasting and program implementation.

During the public comment period, DEQ seeks additional feedback on funding proposals to implement Cleaner Air Oregon.

The Oregon Environmental Quality Commission approval of this rule proposal would establish new fees. EQC authority to act on the proposed fees is in ORS 468.020, 468.065, 468A.040, 468A.050, and 468A.315.

Stakeholder engagement during the fee proposal development

The agencies discussed program implementation, staffing models and proposed fee structures with the Rules Advisory Committee in July and August 2017. Stakeholders provided the following verbal input during the meeting, which has been incorporated into the proposal:

- The program should be implemented in a tiered-approach, starting with facilities that have the potential to pose the most risk to the greatest number of people.
- The agencies should include a position in the staffing model responsible for providing technical assistance to individuals or organizations that would be impacted by the program. This includes entities regulated by the program who are in the process of being “called in” and entities who are seeking to better understand their compliance obligations if/when they are called in. This also includes community groups and members of the public interested in learning about community outreach requirements.
- The agencies should develop a fee structure that is predictable to fee-payers.
- The agencies should develop a fee structure acknowledging that the facilities actively working through the requirements will be receiving a higher level of service from the agencies.

In addition to advisory committee meetings, the agencies have had direct conversations with fee paying stakeholders to further describe and discuss the fee proposal.

How long will the proposed fee sustain the program?

The proposed annual base fee, call-in fee, and specific activity fees would sustain the program for five years, until the year 2023.

Table 1 Cleaner Air Oregon Annual Fees for Air Contaminant Discharge Permittees		
a. Basic ACDP		\$106.00
b. General ACDP	(A) Fee Class One*	\$213.00
	(B) Fee Class Two	\$383.00
	(C) Fee Class Three	\$553.00
	(D) Fee Class Four	\$106.00

Table 1 Cleaner Air Oregon Annual Fees for Air Contaminant Discharge Permittees		
	(E) Fee Class Five	\$ 35.00
	(F) Fee Class Six	\$ 71.00
c. Simple ACDP	(A) Low Fee	\$568.00
	(B) High Fee	\$1,136.00
d. Standard ACDP		\$2,271.00

*The fee classes are defined in OAR 340-216-0060 for the different types of General Permits.

Table 2 Cleaner Air Oregon Annual Fees for Title V Permittees
24.6 percent of the following:
(a) The applicable annual base fee under OAR 340-220-0030 (for the period of November 15 of the current year to November 14 of the following year); and
(b) The applicable annual emission fee under OAR 340-220-0040 (for emissions during the previous calendar year).

**Table 3
Cleaner Air Oregon Specific Activity Fees**

#	ACTIVITY	Permit Type			
		Title V	Standard	Simple	General/Basic
1	Existing Source Call-In Fee	\$10,000	\$10,000	\$1,000	\$500
2	New Source Consulting Fee	\$12,000	\$12,000	\$1,900	\$1,000
3	Reevaluation Fee	\$5,000	\$5,000	\$250	\$250
	Risk Below Risk Action Levels				
4	Level 1 Risk Assessment - de minimis (no permit attachment required)	\$1,500	\$1,500	\$1,000	\$800
5	Level 1 Risk Assessment - permit attachment required	\$2,000	\$2,000	\$1,500	\$1,100
6	Level 2 Risk Assessment - de minimis (no permit attachment required)	\$2,700	\$2,700	\$2,000	\$1,600
7	Level 2 Risk Assessment - permit attachment required	\$3,000	\$3,000	\$2,200	\$1,700
8	Level 3 Risk Assessment - de minimis (no permit attachment required)	\$9,000	\$8,400	\$5,500	\$4,700
9	Level 3 Risk Assessment - permit attachment required	\$13,300	\$10,900	\$7,700	\$6,800
10	Level 4 Risk Assessment - de minimis (no permit attachment required)	\$25,100	\$21,500	\$13,100	NA
11	Level 4 Risk Assessment - permit attachment required	\$31,500	\$25,500	\$15,800	NA
12	Risk Reduction Plan Application Fee	\$47,900	\$46,000	\$27,300	\$27,300
	Risk Above Risk Action Levels				
13	Conditional Risk Level Application Fee	\$58,900	\$58,900	\$30,900	\$30,900
14	Cleaner Air Oregon Monitoring Plan Fee	\$59,400	\$59,400	NA	NA
15	Director Consultation Fee	\$10,000	\$10,000	\$7,700	\$7,700
16	Postponement of Risk Reduction Application Fee	\$4,400	\$4,400	\$2,000	\$2,000
	Other Fees				
17	Level 2 Modeling review only	\$1,300	\$1,300	\$700	\$700
18	Level 3 Modeling review only	\$5,300	\$5,300	\$3,100	\$3,100
19	TBACT Analysis (per Toxic Emissions Unit)	\$6,000	\$6,000	\$3,000	\$3,000
20	Expedited Permit Attachment Fee	specific activity fee + 20%			
22	DEQ Attendance at New Source Public Meeting (>5 & < 10 in 1 MM)	\$2,400	\$2,400	\$2,400	\$2,400
22	Source Test Review Fee (plan and data review)	\$5,900	\$5,900	\$5,900	\$5,900

Proposed fees

Table 4 Proposed Fees		
Expected change in revenue (+/-)	\$3,138,395	N/A (new fee/program)
Main GF required by statute/rule to fund program	\$0	0%
Proposed fee allows General Fund replacement	\$0	0%
Expected effective date	Upon rule adoption	

Transactions and revenue

Table 5 Transactions and Revenue				
Biennium	Number of transactions	Number of fee payers	Impact on revenue (+/-)	Total revenue (+/-)
Current biennium	2,493	2,473	\$3,138,395	\$3,138,395
Next biennium	5,026	2,473	\$5,345,789	\$5,345,789

Statement of fiscal and economic impact

The proposed rules would have fiscal and economic impacts on businesses, state and federal agencies, units of local governments and the public. Fiscal impacts can be positive or negative to those affected. As examples, reducing health costs to the public would be a positive impact, and increasing costs of regulatory compliance for businesses would be a negative impact.

Owners and operators of facilities that currently require an air quality permit would incur costs of program permit fees, described above, and be required to analyze whether emissions from their operations are below Risk Action Levels set under the Cleaner Air Oregon rules. This includes public entities who manage facilities or operations requiring an air quality permit. Cost estimates for these analyses are included in Table 6 below, Emissions Analysis and Risk Assessment Costs. The owners and operators of some facilities that are required to go through a more complex permitting process would also incur costs to implement required community

engagement steps. Some facilities with emissions resulting in health risks above Risk Action Levels would incur costs to reduce those emissions.

People who are exposed to air toxics at sufficient concentrations and durations have an increased chance of getting cancer or experiencing other serious health effects. These health effects can include damage to the immune system, as well as neurological, reproductive (e.g., reduced fertility), developmental, respiratory and other health problems. In addition to exposure from breathing air toxics, some air toxics, such as mercury, can deposit onto soils or surface waters, where they are taken up by plants and ingested by animals and are eventually magnified up through the food chain. The proposed rules may result in reduced air toxic emissions and less exposure to air toxics by people who live and work in proximity to facilities that emit air toxics. Less exposure to air toxics will result in fewer premature deaths and illnesses allowing Oregonians to experience longer lives, better quality of life, lower medical expenses, fewer work and school absences, and better worker productivity.

Table 6 Emissions analysis and risk assessment costs		
Task	Simple	Complex
Emissions inventory	\$0*-\$5,000	\$60,000
Level 1 Assessment – Lookup Table Calculation Using Stack Heights and Exposure Location Distance	\$100	\$5,000
Level 2 Assessment – Screening modeling	\$5,000	\$35,000
Level 3 Assessment – Refined modeling	\$5,000	\$100,000
Level 4 Assessment – Health Risk Assessment	\$5,000	\$500,000

*DEQ is doing the emissions inventory for all of the approximately 2,200 sources that have Basic and General Air Contaminant Discharge Permits.

Statement of cost of compliance

State agencies

The majority of state agencies and local governments should be minimally or not directly impacted by the proposed rules because the rules predominantly regulate process emission sources, many of which are related to manufacturing. State agencies and local governments holding permits may be required to reduce air toxic emissions if the predicted risk exceeds Risk Action Levels. These permit holders would also incur public engagement costs. Costs for holding a public meeting could range from \$1,400 to \$6,400. If owners or operators choose to install pollution control equipment, Table 7 below shows what the range of estimated costs could be. As of August 31, 2017, state agencies own 23 permitted facilities, federal agencies own 5 permitted facilities, and local governments own 62 permitted facilities. Currently there are no tribal owned permitted facilities. Cleaner Air Oregon base and activity fees would affect

these permit holders directly. Changes to fees could affect these agencies indirectly if businesses change the price of goods and services to offset any increased costs from paying a permit fee.

In instances where new or existing facility emissions cause potential risk above the applicable Risk Action Levels, local governments may be asked to consult with the DEQ Director and the Oregon Health Authority (OHA) to consider and weigh local factors prior to a DEQ decision whether to issue a permit. Local government may also be consulted in land use issues potentially affected by facilities emitting air toxics.

DEQ and OHA will see an increase in workload as a result of the proposed rules. Implementation of a new permitting program will require additional resources. DEQ has completed a workload analysis to estimate the cost of different levels of risk assessment and the number of additional resources needed. DEQ will permit facilities subject to Cleaner Air Oregon with the aid of OHA staff in areas of health risk assessment and risk communication. DEQ and OHA workloads would initially increase as staff becomes familiar with the proposed rules and a new program and could level off after the first tier of implementation.

Having the Cleaner Air Oregon air toxics program in place may also reduce DEQ and OHA's workload in some instances, by reducing the need for the agencies to respond on a facility by facility basis to public concerns about air toxics emissions that are not currently covered by a regulatory structure.

Table 7
Pollution control equipment for air toxics emissions*

Control Device Type	Types of Pollutants it can reduce	Examples of facilities where this is used	Initial costs		Annual Operating Costs	
			low	high	low	high
Fabric filter (baghouse)	Particulate matter (PM), hazardous air pollutant (HAP) PM	Asphalt batch plants, concrete batch kilns, steel mills, foundries, fertilizer plants, and other industrial processes. Colored art glass manufacturers.	\$360,000 - \$18,500,000		\$180,000 - \$6,200,000	
Electrostatic precipitator (ESP)	PM, HAP PM	Power plants, steel and paper mills, smelters, cement plants, oil refineries	\$320,000 - \$7,100,000		\$100,000 - \$7,600,000	
Enclosure	Fugitive PM or volatile organic compounds (VOCs)	Any process or operation where total emissions capture is required, i.e., printing, coating, laminating	\$14,000 - \$420,000		\$400 - \$10,000	
HEPA filter	Chrome emissions	chrome plating	\$13,000 - \$240,000		Application specific	

Control Device Type	Types of Pollutants it can reduce	Examples of facilities where this is used	Initial costs		Annual Operating Costs	
			low	high	low	high
Wet scrubber (packed towers, spray chambers, Venturi scrubbers)	Gases, vapors, sulfur oxides, corrosive acidic or basic gas streams, solid particles, liquid droplets	Asphalt and concrete batch plants; coal-burning power plants; facilities that emit sulfur oxides, hydrogen sulfide, hydrogen chloride, ammonia, and other gases that can be absorbed into water and neutralized with the appropriate reagent.	\$25,000 - \$170,000		\$19,000 - \$830,000	
Thermal oxidizer	VOCs, gases, fumes, hazardous organics, odors, PM	Landfills, crematories, inks from graphic arts production and printing, can and coil plants, hazardous waste disposal. semiconductor manufacturing	\$17,000 - \$6,200,000		\$3,500 - \$5,200,000	
Regenerative thermal oxidizer	VOCs	Paint booths, printing, paper mills, municipal waste treatment facilities	\$940,000 - \$7,700,000		\$110,000 - \$550,000	
Catalytic reactor	VOCs, gases	Landfills, oil refineries, printing or paint shops	\$21,000 - \$6,200,000		\$3,900 - \$1,700,000	
Carbon adsorber	Vapor-phase VOCs, hazardous air pollutants (HAPs)	Soil remediation facilities, oil refineries, steel mills, printers, wastewater treatment plants	\$360,000 - \$2,500,000		Not available	

Control Device Type	Types of Pollutants it can reduce	Examples of facilities where this is used	Initial costs		Annual Operating Costs	
			low	high	low	high
Biofilter	VOCs, odors, hydrogen sulfide (H ₂ S), mercaptans (organic sulfides)	Wastewater treatment plants, wood products facilities, industrial processes	\$360,0000 - high end not available		Not available	
Fume suppressants	Chromic acid mist, chromium, cadmium and other plating metals	Chromic acid anodizing and chrome plating operations	Up to \$122,000		Not available	

*Costs are from examples in the EPA Air Pollution Control Cost Manual, Report No. 452/B-02-001, EPA Air Pollution Control Technology Fact Sheets, and information provided by permitted facilities

Local governments

As noted above, local governments own or operate 62 facilities currently requiring an air quality permit. Minimally, those local government agencies would be impacted by the proposed fee structure for Cleaner Air Oregon which includes an annual base fee assessed on all current air quality permit holders. In addition, local governments who operate these facilities would be required to assess the risk that the facility’s emissions pose and in some cases may be required to reduce that risk.

Large businesses

DEQ anticipates the proposed rules, when fully implemented, could have fiscal and economic impacts on approximately 1,360 large businesses holding air quality permits and an unknown number of businesses that are not currently required to have air permits. If the cancer or noncancer risk from a facility exceeds the Risk Action Levels, the facility would be required to take action to reduce air toxics emissions or show that the best available control technology for air toxics (TBACT) is already being achieved. The proposed rules would allow facilities flexibility in choosing a method to reduce emissions through the application of pollution prevention or pollution control equipment. If owners or operators choose to install pollution control equipment, Table 7 above shows what the range of estimated costs could be. Small businesses may also incur these costs if required to install pollution control equipment.

Pollution prevention

In EPA’s and DEQ’s hierarchy of pollution management strategies (acceptable ways to reduce pollution), pollution prevention, also known as source reduction, is preferred over the addition of pollution controls and treatment whenever feasible (see Pollution Prevention Act of 1990,

<https://www.epa.gov/p2/pollution-prevention-act-1990>)¹ Pollution prevention has been implemented successfully for cleaning operations (e.g., metal parts), coating and painting (e.g., marine anti-fouling, wood preservation), lubricants and process fluids (e.g., loss lubrication, mold release agents), and dry cleaning of clothes. In evaluating the costs of pollution prevention, DEQ considers not only the cost of replacing one solvent for another, but also capital costs, energy differences, labor costs, waste disposal and quality control considerations. In many instances involving both large and small businesses, DEQ has found that pollution prevention can decrease costs for a facility owner, rather than increase them. Short-term investments in pollution prevention measures can result in savings that can pay for the initial investments over time.

Reporting

All currently permitted sources report to DEQ annually so their reporting requirements for Cleaner Air Oregon will be in addition to existing reporting requirements. Some facilities that aren't required to have air permits under current regulations may be required to have them under Cleaner Air Oregon, and in that case the requirement to report annually would be new. Some facilities already report emissions of Hazardous Air Pollutants (187 pollutants out of approximately 600 air toxics) annually. Under the proposed regulations, all facilities that emit air toxics must report emissions to DEQ a minimum of every three years. Facilities that have permit requirements to limit air toxics emissions must report compliance annually or semi-annually. The initial emissions inventory created the greatest workload for facilities, so updating this inventory should involve minimal costs. DEQ anticipates that the additional reporting requirements for Cleaner Air Oregon cost facilities approximately \$120 to \$1,200 per year.

Source testing

Source testing is currently not required as a part of Cleaner Air Oregon, but some facilities may choose to do source testing to more accurately estimate emissions. Source testing may be required to determine compliance with Cleaner Air Oregon permit conditions but DEQ anticipates that will be the case for very few sources. Cost for source testing for air toxics depends on the air toxic to be tested. Source testing for some air toxics, such as hexavalent chromium, is relatively complex and therefore expensive. Source test costs range from \$7,500 for a single air toxic that is easy to test to \$35,000 for multiple air toxics that are more difficult to test. Businesses already required to perform periodic compliance source testing could save money if the air toxics and criteria pollutant tests could be aligned.

Community engagement

If the risk from a facility is greater than any Risk Action Level, a Community Engagement Plan is required. Under a Community Engagement Plan, the owner or operator of the facility will be required to notify the community within the area of impact, hold two public meetings to describe

¹ Pollution prevention is generally preferred because it results in less pollution to control, treat, or dispose of. Pollution controls can generate wastes or contaminated equipment that require end-of-life management. Reducing pollution at the source means less hazards posed to the public and the environment. In addition, pollution controls can fail and toxic substances can be used in unintended ways. Reducing the use of those toxic substances at the source avoids those potential risks.

the risks and solicit input on ways to reduce the risks, provide translation services if necessary, report back to DEQ the results of the public meetings, and hold ongoing annual meetings to keep the community updated on ongoing activities to reduce risk, if necessary. Costs for holding a public meeting range from \$1,400 to \$6,400. If a new facility seeks a permit to construct and their risk is estimated to be over 5 in 1 million but less than 10 in 1 million, the owner or operator of the facility is required to notify the community within 7 days of permit application submittal and hold one public meeting if requested by ten or more individuals. Costs for holding a public meeting range from \$1,400 to \$6,400.

Small businesses

The proposed rules would require that the facility owner or operator of a small business demonstrate that the risk posed by the facility's air emissions would not exceed the proposed Risk Action Levels. This compliance demonstration can be accomplished using any of the levels of risk assessment, 1 through 4.

In addition to the fiscal and economic impact described under the section above “Large businesses - businesses with more than 50 employees,” the proposed rules could have the following impacts on small business:

Estimated number of small businesses and types of businesses and industries with small businesses subject to proposed rule

The proposed rules could affect approximately 1,090 small businesses. These businesses include asphalt plants, auto body shops, chromium electroplaters, dry cleaners, ethylene oxide sterilizers, grain elevators, gas stations, lumber mills, metal fabricators, metal foundries, and surface coaters. If any of these businesses had Cleaner Air Oregon permit conditions, they would have additional compliance requirements over existing permit requirements. In addition there may be an unknown number of additional facilities that are currently not required to get permits under the existing air quality permitting program but may be subject to Cleaner Air Oregon rules and would have to pay fees.

Many of the small businesses subject to the Cleaner Air Oregon rules would only be required to submit triennial reports of air toxics emissions. Some small businesses may be required to reduce air toxics emissions through either permit limits, pollution prevention or pollution control equipment if cancer risk, chronic non cancer risk or acute non cancer risk is above Risk Action Levels.

Projected reporting, recordkeeping and other administrative activities, including costs of professional services, required for small businesses to comply with the proposed rule

Small businesses that must meet Cleaner Air Oregon permit requirements would have increased recordkeeping and reporting requirements. Administrative activities, including costs of professional services, required for small businesses to comply with the proposed rule may increase in a range from \$100 to \$500,000 above current costs if the small business is required to perform computer modeling or a health risk assessment if cancer risk, chronic non cancer risk or acute non cancer risk is above Risk Action Levels.

Projected equipment, supplies, labor and increased administration required for small businesses to comply with the proposed rule

Depending on the size and nature of a small business's' operation, pollution control costs could be much less than, or in some cases the same as, the cost ranges for different types of control

equipment found in Table 7, above. Summarizing from Table 7, if a small business's' cancer risk, chronic non cancer risk or acute non cancer risk were above Risk Action Levels, the proposed rules could result in additional costs ranging from approximately \$13,000 to \$18,500,000 for initial equipment including purchase and labor, and ranging from approximately \$400 to \$7,600,000 in annual operating costs.

Because of existing regulatory coverage and generally low risk estimates for gas stations and dry cleaners, DEQ proposes to exclude them from risk screening, risk assessment and risk reduction requirements. These facilities would need to pay small fees to be tracked and evaluated by DEQ, but generally would not bear the costs of additional reporting, risk analysis or emission reductions. Gas stations and drycleaners may be evaluated as part of a multi-source area assessment or if DEQ determines that individual facilities pose higher risk.

How DEQ involved small businesses in developing this proposed rule

DEQ notified small businesses during rule development by email, announcements on the DEQ website, advisory committee meetings, and through Twitter and Facebook. Small business representatives were on the rules advisory committee during rule development. At the onset of the public comment period, DEQ notified small businesses by email, and notices in the Secretary of State Bulletin.

Impacts on the public

The proposed Cleaner Air Oregon rules are intended to assess and decrease risk above Risk Action Levels for people living nearby industrial and commercial facilities. The Risk Action Level analysis would be based on many factors, including the best available science regarding toxicity of regulated air toxics, as proposed in the risk-based concentrations. Cleaner Air Oregon air toxics reductions that decrease cancer risk, chronic non cancer risk or acute non cancer risk could create positive economic benefits and improvements in public health and welfare statewide. The rules could also have negative economic effects on the public. In analyzing potential positive and negative effects on the public of the proposed Cleaner Air Oregon rules, DEQ has consulted with OHA and relied upon information provided by them.

Positive impacts on the public

The proposed Cleaner Air Oregon rules have the potential to meaningfully impact public health in the state by reducing air toxics emissions. The air toxics that would be regulated by Cleaner Air Oregon rules are known to increase risk of a wide range of health outcomes including cardiovascular and respiratory illness, lung disease, cancers, birth defects, premature births, developmental disorders, central nervous system damage, intellectual disability, and premature death.

Based on a preliminary analysis of a subset of emissions inventory data using proposed screening tools and Risk Action Levels, DEQ and OHA have determined that a number of air toxics are most likely emitted at concentrations whose risk exceeds the proposed Risk Action Levels. Information from EPA's National Air Toxics Assessment supports this initial analysis. The impact of air toxics on health depends on people's exposure. DEQ and OHA do not currently have enough information about how many people are exposed to specific concentrations of industrial and commercial air toxics emissions or about the relative actual contribution of air toxics to disease to know how reducing emissions will translate to improved public health in quantitative terms. As Cleaner Air Oregon regulations are implemented, the

emissions inventory and the permitting process will improve DEQ and OHA’s understanding of Oregonians air toxics exposures.

In this analysis it is not possible to predict the total reduced medical costs that would result from the proposed rules. However, it is possible to describe the range of health outcomes associated with air toxics currently emitted in Oregon and to describe the economic burden of medical treatment for a subset of those health effects. This section also points to national analyses that estimate the fraction of certain diseases that are due to environmental exposures.

Health effects caused by air toxics commonly emitted by facilities in Oregon

DEQ and OHA summarized the health effects associated with 15 of the air toxics to be regulated under Cleaner Air Oregon. This information is summarized in Table 8 below. This summary illustrates the range of health effects that may be caused by this small subset of 15 air toxics. Many more of the air toxics to be regulated under Cleaner Air Oregon are associated with these and other health effects.

Table 8	
Examples of health effects associated with a subset of 15 air toxics	
Type of Toxicity	Air toxics associated with these health outcomes
Respiratory Effects Includes asthma and asthma symptoms (difficulty breathing, shortness of breath, coughing, wheezing, chest pain), reduced lung function, respiratory irritation, and other respiratory conditions	formaldehyde*, cobalt*, hexavalent chromium*, cadmium*, chlorine*, acrolein*, hydrogen fluoride*, naphthalene*, PAHs, manganese, arsenic
Cancer includes lung, respiratory, leukemia, lymphoma, liver, kidney and gastrointestinal cancers	arsenic*, hexavalent chromium*, cadmium*, formaldehyde*, PAHs*, benzene*, trichloroethylene*, lead*, dioxins*, naphthalene*
Heart Disease includes hypertension, arrhythmia, heart attack	arsenic, PAHs, lead, acrolein, hydrogen fluoride
Kidney Function includes reduced kidney function, kidney stones	cadmium*, lead, trichloroethylene, hydrogen fluoride
Liver Disease includes reduced liver function, fatty liver disease	dioxin*, trichloroethylene, hydrogen fluoride

Type of Toxicity	Air toxics associated with these health outcomes
Neurological Effects includes effects on motor function, balance, vision, hearing, cognition, memory, anxiety, focus or behavior following exposure as an adult or during brain development	lead*, arsenic*, manganese*, cadmium, PAHs, benzene, trichloroethylene, formaldehyde, cobalt
Fetal Development includes low birth weight, pre-term birth, miscarriage, and birth defects following exposure to mothers during pregnancy	arsenic*, PAHs*, trichloroethylene*, formaldehyde, cadmium, benzene, trichloroethylene, lead, dioxins
Impaired Fertility includes damage to male or female reproductive organs, reduced sperm counts, altered sex hormones, and infertility	manganese, PAHs, hexavalent chromium, dioxins, trichloroethylene
Blood Regulation includes impaired bone marrow function, anemia	benzene*, lead, naphthalene, cobalt
Immune Function includes allergic responses, reduced immune function	trichloroethylene*, benzene*, dioxins, PAHs

*For these chemicals, the associated health effect serves as the basis for Risk Action Levels proposed in Cleaner Air Oregon. Inclusion of all other chemicals is based on studies referenced in EPA, ATSDR, or OEHHA documents. The magnitude of and certainty around these associations varies.²

Information needed to quantify economic impact of health improvements

Oregon currently lacks the data necessary to quantify total potential health cost savings from Cleaner Air Oregon because of the lack of information about how many people are exposed to specific concentrations of industrial and commercial air toxics emissions and the relative actual contribution of air toxics to disease. Just as a lack of information about individual facility risk assessment and emission reduction outcomes prevents DEQ from quantifying specific fiscal impacts to businesses, a lack of health information also prevents DEQ from quantifying specific positive fiscal impacts from potential Cleaner Air Oregon

² EPA Integrated Risk Information System. <https://www.epa.gov/iris>
 ATSDR Toxic Substances Portal. <https://www.atsdr.cdc.gov/toxprofiles/index.asp>
 California Office of Environmental Health Hazard Assessment. Air Toxics Hot Spots Program Technical Support Document for the Derivation of Noncancer Reference Exposure Levels. Dec, 2008 <https://oehha.ca.gov/air/crn/notice-adoption-air-toxics-hot-spots-program-technical-support-document-derivationadoption-air-toxics-hot-spots-program-technical-support-document-derivation>

emission reductions. The health impact of reducing emissions depends on the specific chemicals that are being reduced, the health risks those chemicals influence, the relationship between exposure and health, and the extent to which emissions are reduced. Defining the economic impact of improved health further requires knowledge of the portion of cases that are related to air toxics exposures, prevalence of health outcomes in the state, and the cost of medical treatment for each case.

Costs of chronic diseases in Oregon

Air toxics included in Cleaner Air Oregon are associated with increased risk of four of the top five leading causes of death in Oregon (heart disease, stroke, respiratory disease, and cancer).³ DEQ and OHA don't know what portion of these may be attributable to industrial and commercial air toxics, but data clearly show that chronic diseases have a substantial social and economic impact in Oregon. OHA uses Center for Disease Control and Prevention data to estimate the cost of certain chronic diseases in Oregon. If even a small fraction of these chronic health outcomes is attributable to air toxics, reducing emissions could prevent substantial health costs. The total estimated costs of chronic diseases tracked in Oregon are summarized in Table 9.

<p style="text-align: center;">Table 9</p> <p style="text-align: center;">Total Estimated Cost of Chronic Diseases that are Tracked in Oregon</p>				
Health Outcome	Description	Average Annual Cost of Each Case	Estimated Annual Medical Costs in Oregon ^A	Examples of air toxics that may contribute to health risk
Asthma	Estimates include adults and children	\$2,740	\$411 million	formaldehyde, cobalt, hexavalent chromium, cadmium, PAHs, manganese, arsenic

³ OHA. 2016. Leading Causes of Death
<http://public.health.oregon.gov/ProviderPartnerResources/PublicHealthAccreditation/Documents/indicators/leadingcausesofdeath.pdf>

Health Outcome	Description	Average Annual Cost of Each Case	Estimated Annual Medical Costs in Oregon ^A	Examples of air toxics that may contribute to health risk
Cancer	Estimates are based on adult cancer treatment only	\$11,410	\$1.9 billion	arsenic, hexavalent chromium, cadmium, formaldehyde, PAHs, benzene, trichloroethylene, lead, dioxins, naphthalene
Cardiovascular disease	Estimates are for adults only and include hypertension, stroke, coronary heart disease, congestive heart failure, and other heart disease	\$2,220-\$16,760 (disease-specific)	\$3.6 billion ^B	arsenic, PAHs, lead, acrolein, hydrogen fluoride

^A Calculated using the CDC Chronic Disease Cost Calculator ⁴ based on 2008 prevalence and cost statistics and 2010 census data. Estimates are limited to medical expenditures and do not include indirect costs such as missed days of work and school.

^B This cost estimate integrates costs of all cardiovascular disease without double counting costs of treatments for comorbid cardiovascular conditions.

Oregon Health Authority also tracks cases of pre-term birth, low birth weight, miscarriage, and some birth defects. There are no existing estimates of the direct medical costs associated with these adverse birth outcomes in Oregon, but there is potential for substantial economic and social impact. The total incidence of selected adverse birth outcomes in Oregon are summarized in Table 10. While several air toxics are associated with increased risk for these

⁴ OHA, 2010. Estimated medical treatment costs of chronic diseases, Oregon 2010. http://www.oregon.gov/oha/PH/DISEASES/CONDITIONS/CHRONICDISEASE/DATAREPORTS/Documents/datatables/CDCC_2010.pdf

adverse birth outcomes, the portion of cases attributable to exposure to air toxics is unknown.

<p align="center">Table 10 Adverse Birth Outcomes in Oregon</p>			
Health outcome	Total number of pregnancies impacted by each health outcome in OR 2009-2013 ^A	Potential Economic and Social Costs	Examples of air toxics that may contribute to health risk
Low birth weight ^B	14,239	Costs depend on degree of prematurity/weight but can include direct medical costs associated with neonatal ICU treatment, increased risk of neonatal infections, increased risk of developmental disabilities, predisposition to disease later in life, parental stress, and costs of parents' missed days of work.	arsenic, PAHs, formaldehyde, cadmium, benzene, trichloroethylene

Health outcome	Total number of pregnancies impacted by each health outcome in OR 2009-2013 ^A	Potential Economic and Social Costs	Examples of air toxics that may contribute to health risk
Pre-term birth ^C	17,442	Costs depend on degree of prematurity/weight but can include direct medical costs associated with neonatal ICU treatment, increased risk of neonatal infections, increased risk of developmental disabilities, predisposition to disease later in life, parental stress, and costs of parents' missed days of work.	lead, formaldehyde
Miscarriage ^D	978	Costs include direct medical costs, genetic testing/placental virus testing to determine the cause, parents' missed days of work, and emotional trauma to parents.	PAHs, lead, formaldehyde, arsenic, dioxins, trichloroethylene
Birth anomalies ^E	2,831	Costs are highly variable depending on the type and severity of the anomaly, but may include neonatal surgery, follow-up surgeries and medical costs throughout childhood and into adulthood, long-term disability, parents' missed days of work, and stress to families	dioxins, arsenic, trichloroethylene, benzene

^A There were 228,115 total live births in Oregon 2009-2013.

^B <2500 grams birth weight. Source: Vital records

^C <36 weeks' gestation at birth. Source: Vital records

D Fetal deaths at or after 20 weeks of gestation. Any spontaneous pregnancy losses earlier in gestation are not recorded. Source: Oregon Vital Records
<http://www.oregon.gov/oha/PH/BIRTHDEATHCERTIFICATES/VITALSTATISTICS/Pages/index.aspx>

E Birth anomaly numbers are limited to cases of 12 "core" birth anomalies that have been tracked historically in the Oregon Birth Anomalies Surveillance System (anencephalus, cleft lip alone, cleft palate, gastroschisis, hypoplastic left heart syndrome, hypospadias, limb deficiencies, spina bifida, tetralogy of fallot, transposition of the great arteries, and trisomy 21). Oregon has recently started tracking a broader set of birth anomalies but data are not yet available. National Birth Defects Prevention Network, 2016 https://www.nbdpn.org/docs/bdra23587-sup-0001-supinfo01_2016DEC16.pdf

Estimates of the portion of health effects caused by pollution

Several analyses have estimated the portion of a given disease that is attributable to environmental exposures. Because there is often uncertainty around the complex ways that genes, nutrition, social factors, behavior, and chemical exposures interact to influence health, the environmentally attributable fraction is often presented as a range rather than a specific number.

These estimates of the environmentally attributable fraction are not specific to the set of air toxics included in Cleaner Air Oregon. Therefore, these numbers cannot be directly applied to estimate the contribution of air toxics to health risks in Oregon. Rather, they provide an indication of the potential magnitude of the contribution of pollution to disease. The most comprehensive assessment of the contribution of pollution to disease is a 2002 study drawing on 1997 data (dollar figures are 1997 dollars). The findings are summarized below.

- Asthma. Researchers estimate that 10-30% of asthma is attributable to outdoor air pollution (including both industrial and non-industrial sources). The yearly fraction of asthma cases that could be attributed to environmental factors cost the US between \$0.7 and \$2.3 billion. These cost estimates account for direct medical costs and lost productivity due to asthma-related premature deaths.⁵
- Cancer. Researchers estimate that between 2-10% of childhood cancer is attributable to environmental factors, accounting for nationwide costs ranging from \$132-663 million a year. These cost estimates account for direct medical costs, costs associated with secondary cancers, lost productivity associated with treatments and premature death.⁵
- Neurodevelopmental disorders. Researchers estimate that 5-20% of neurodevelopmental disorders such as ADHD, autism, and mental retardation may be attributable to environmental factors (excluding lead which was considered separately), costing the US between \$4.6-18.4 billion a year. Cost estimates in this study were based on direct costs of medical care, long-term care, and lost productivity.⁵ Another study estimated that developmental delays caused by exposure to polycyclic aromatic hydrocarbons in New York City alone cost \$13.7 million.⁶

⁵ Landrigan PJ, Schechter CB, Lipton JM, Fahs MC, Schwartz J. Environmental pollutants and disease in American children: estimates of morbidity, mortality, and costs for lead poisoning, asthma, cancer, and developmental disabilities. *Environ Health Perspect.* 2002 Jul;110(7):721-8

⁶ Weiland K, Neidell M, Rauh V, Perera F. Cost of developmental delay from prenatal exposure to airborne polycyclic aromatic hydrocarbons. *J Health Care Poor Underserved.* 2011 Feb;22(1):320-9. doi: 10.1353/hpu.2011.0012

- Lead Poisoning. Researchers estimated that the total cost of childhood lead poisoning in the US was 43.4 billion yearly. All cases of lead poisoning are attributed to lead exposure, but the relative contribution of different sources of exposure to lead is not well established.

Living near industrial and commercial sites is associated with increased risk of illness

Several national studies, most published in the past five years, have found that living near industrial and commercial sites increases risk for several health conditions that are common in Oregon. The specific health impacts that are observed depend on the kinds of chemicals industries are using. Taken together, these studies suggest that reducing industrial and commercial exposure to air toxics could improve health.

- Mortality. A national study found that counties with higher rates of toxic air and water emissions also had increased rates of adjusted mortality.⁷
- Cardiovascular disease. A national study found that counties with higher emissions of carcinogens, metals, or hazardous air pollutants saw significantly higher rates of mortality from cardiovascular disease.⁸
- Autism. A national study found that children living close to industrial and commercial facilities releasing arsenic, lead or mercury into the air are significantly more likely to be diagnosed with autism spectrum disorder.⁹
- Asthma. A nationwide evaluation of National Air Toxics Assessment data performed by CDC scientists found a correlation between modeled acrolein exposure and prevalence of asthma attacks in census tracts across the US.¹⁰
- Cancer. A national study found that living close to industrial and commercial facilities releasing chemicals known to cause cancer is associated with significantly higher rates of cancer hospitalizations. The authors estimated that in 2009, excess cancer risk associated with these industrial and commercial exposures cost an estimated \$902.8 million in treatment costs.¹¹

Improved air quality can improve public health

There are several examples of clear public health improvements observed in response to improvements in air quality:

⁷ Hendryx M, Fedorko E. The relationship between toxics release inventory discharges and mortality rates in rural and urban areas of the United States. *J Rural Health*. 2011 Winter;27(4):358-66. doi: 10.1111/j.1748-0361.2011.00367.x

⁸ Hendryx M, Luo J, Chen BC. Total and cardiovascular mortality rates in relation to discharges from Toxics Release Inventory sites in the United States. *Environ Res*. 2014 Aug;133:36-41. doi: 10.1016/j.envres.2014.05.010.

⁹ Dickerson AS, Rahbar MH, Han I, Bakian AV, Bilder DA, Harrington RA, Pettygrove S, Durkin M, Kirby RS, Wingate MS, Tian LH, Zahorodny WM, Pearson DA, Moyé LA 3rd, Baio J. Autism spectrum disorder prevalence and proximity to industrial facilities releasing arsenic, lead or mercury. *Sci Total Environ*. 2015 Dec 1;536:245- 51. doi: 10.1016/j.scitotenv.2015.07.024.

¹⁰ deCastro BR. Acrolein and asthma attack prevalence in a representative sample of the United States adult population 2000-2009. *PLoS One*. 2014 May 9;9(5):e96926. doi: 10.1371/journal.pone.0096926. eCollection 2014.

¹¹ Hendryx M, Luo J. Cancer hospitalizations in rural-urban areas in relation to carcinogenic discharges from Toxics Release Inventory facilities. *Int J Environ Health Res*. 2013;23(2):155-69. doi: 10.1080/09603123.2012.708919

- In Southern California, air pollution control efforts were accompanied by meaningful improvements in children’s respiratory health. As air quality improved, the percent of children with decreased lung function was cut in half,¹² and children with asthma were 30% less likely to experience symptoms of bronchitis.¹³
- The temporary closure of a steel mill in Utah Valley was linked to temporary improvements in birth outcomes and respiratory health. One study found that rates of premature birth were significantly lower among women who were pregnant while the mill was closed than among women who were pregnant before or after the closure.¹⁴ Another study found that children’s hospital admissions for pneumonia, bronchitis and asthma were two to three times higher when the mill was opened than when it was closed.¹⁵
- Federal regulations on leaded gasoline resulted in a dramatic decrease in blood lead levels in children across the country.¹⁶ The Center for Disease Control and Prevention has concluded that there is no safe level of lead exposure due to its impacts on brain development. Because lead exposure comes from many sources, scientists were not sure of the extent to which lead from paint and gasoline were responsible for high blood lead levels in children until they were able to observe the effect of these regulations.

Other considerations

In attempting to estimate the economic and health burden of air toxics emissions in Oregon, there are several additional points worth considering:

- A portion of the health costs of air toxics emissions are currently externalized. People who are not employed by a facility, but who live, go to school, or work near a facility emitting pollutants above proposed Risk Action Levels may bear the health burden of pollution exposure without experiencing the economic benefit a facility may have from exceeding Risk Action Levels.
- Many of the broader social costs of disease are particularly difficult to quantify. For example, indirect costs of asthma hospitalization include missed days of work and school; indirect costs of neurodevelopmental delays include lost lifetime earning potential, social isolation, and caregiver time; indirect costs of fetal heart malformation often include increased risk of secondary health effects.

¹² Gauderman WJ, Urman R, Avol E, Berhane K, McConnell R, Rappaport E, Chang R, Lurmann F, Gilliland F. Association of improved air quality with lung development in children. *N Engl J Med*. 2015 Mar 5;372(10):905-13. doi: 10.1056/NEJMoa1414123

¹³ Berhane K, Chang CC, McConnell R, Gauderman WJ, Avol E, Rapaport E, Urman R, Lurmann F, Gilliland F. Association of Changes in Air Quality With Bronchitic Symptoms in Children in California, 1993-2012. *JAMA*. 2016 Apr 12;315(14):1491-501. doi: 10.1001/jama.2016.3444.

¹⁴ Parker JD, Mendola P, Woodruff TJ. Preterm birth after the Utah Valley Steel Mill closure: a natural experiment. *Epidemiology*. 2008 Nov;19(6):820-3. doi: 10.1097/EDE.0b013e3181883d5d.

¹⁵ Pope CA 3rd. Respiratory disease associated with community air pollution and a steel mill, Utah Valley. *Am J Public Health*. 1989 May;79(5):623-8.

¹⁶ [EPA. History of Reducing Air Pollution from Transportation in the United States https://www.epa.gov/air-pollution-transportation/accomplishments-and-success-air-pollution-transportation](https://www.epa.gov/air-pollution-transportation/accomplishments-and-success-air-pollution-transportation)

- Risk-based air toxics permitting regulations could also significantly improve the health of workers, resulting in lower health care costs and more productive workers. Workplace exposure standards are typically not entirely health-based.

Negative impacts on the public

The proposed rules could have negative economic effects on the public if facilities providing jobs and contributing to local economies were to curtail production or close in response to regulatory requirements. Because employment plays a key role in the public health, proposed Cleaner Air Oregon regulations include many provisions to allow flexibility for regulated businesses which would decrease the chances of closures in direct response to regulations. Facilities above Risk Action Levels may request conditional risk levels, have additional time to comply, and may wait for effective control technologies to develop if none are available at the time of permitting. Facilities demonstrating lack of financial ability to install the needed controls at the time required could postpone installation of controls to reduce risk. If facilities are above DEQ Director Consultation Risk Action Levels, there is a provision for consultation between the DEQ Director, the OHA and local governments to consider and weigh local factors, including employment, prior to a DEQ decision whether to issue a permit. In addition, the proposed tiered implementation plan will delay potential impacts to many facilities. However, business decisions are influenced by many factors, and DEQ therefore lacks information to predict specific potential impacts to employment.

The proposed rules could affect the public indirectly if businesses alter the price of goods and services in response to increased base or activity permit fees or the cost to comply with Cleaner Air Oregon rules. DEQ expects any such price increases to be small, but lacks available information to estimate potential increases accurately.

Citizens and local government representatives, such as city or county health or planning staff and elected officials may also be impacted by the need to participate in public meetings, including time to research and understand potential air toxics health concerns and risk assessment and permitting issues, and time spent preparing communications and attending meetings. DEQ is not able to quantify the time and fiscal impact on public process participants, but recognizes that time spent may impact local government budgets and for members of the public may require time away from work, childcare, travel or other expenses.

Impacts on the environmental services sector

The direct cost of complying with regulations can result in increased employment. For example, an environmental regulation could mean more jobs for those engaged in pollution abatement. Further, it is possible that regulations may produce more labor-intensive production processes. Studies of national air quality regulations have shown positive effects on overall economic health. The Clean Air Act's public health safeguards encourage technology investments that can have positive economic effects on the public. Although in the short term new environmental regulations can have some positive and negative impacts on employment in different sectors, studies indicate that those impacts are limited and that the overall effect of environmental regulations on reported job shift events are extremely minor compared to other factors, such as overall economic growth, business cycles, and changes in technology.¹⁷

¹⁷ http://econweb.ucsd.edu/~elib/berman_bui2001

A peer-reviewed study by economists at Resources for the Future, a nonpartisan Washington, D.C. think tank, examined the impact of environmental compliance costs on employment in four regulated industries (pulp and paper, refining, iron and steel, and plastics). They concluded that increased environmental spending generally does not cause a significant change in employment.¹⁸ Another peer-reviewed study published in the Journal of Public Economics found no evidence that stringent local air quality regulation substantially reduced employment in the Los Angeles basin over a 13-year period of “sharply increased” regulation.

Documents relied on for fiscal and economic impact

Document title	Document location
Air Contaminant Discharge Permits – Table 1	http://arcweb.sos.state.or.us/pages/rules/oars_300/oar_340/340_tables/340-216-0020_10-24.pdf
Air & Waste Management Association Fact Sheet: Air Pollution Emission Control Devices for Stationary Sources, April 2007	http://events.awma.org/files_original/ControlDevicesFactSheet07.pdf
EPA Air Pollution Control Cost Manual, Report No. 452/B-02-001, December 1995, Section 5, Chapter 1, SO ₂ and Acid Gas Controls	http://www.epa.gov/ttn/catc/dir1/cost_toc.pdf
EPA Air Pollution Control Cost Manual, Report No. 452/B-02-001, January 2002, Section 6, Chapter 1, Baghouses and Filters	http://www.epa.gov/ttn/catc/dir1/cost_toc.pdf
EPA Air Pollution Control Cost Manual, Report No. 452/B-02-001, September 1999, Section 6, Chapter 3, Electrostatic Precipitators	https://www3.epa.gov/ttn/ecas/docs/cs6ch3.pdf
EPA Health and Environmental Effects of Hazardous Air Pollutants	https://www.epa.gov/haps/health-and-environmental-effects-hazardous-air-pollutants
EPA Technical Bulletin Choosing an Adsorption System for VOC: Carbon, Zeolite, or Polymers? May 1999	https://www3.epa.gov/ttn/catc1/cica/files/fadsorb.pdf
EPA Pollution Control Technology Fact Sheet Spray-Chamber/Spray-Tower Wet Scrubber, EPA-452/F-03-016	https://www3.epa.gov/ttn/catc1/cica/files/fsprytwr.pdf

¹⁸ https://www.epa.gov/clean-air-act-overview/clean-air-act-and-economy#_edn10

EPA Air Pollution Control Technology Fact Sheet Catalytic Incinerator, EPA-452/F-03- 018	https://www3.epa.gov/ttnecat1/cica/files/fcataly.pdf
EPA Air Pollution Control Technology Fact Sheet Regenerative Incinerator, EPA- 452/F-03-021	https://www3.epa.gov/ttnecat1/cica/files/fregen.pdf
EPA Air Pollution Control Technology Fact Sheet Thermal Incinerator, EPA-452/F-03- 022	https://www3.epa.gov/ttnecat1/cica/files/fthermal.pdf
EPA Air Pollution Control Technology Fact Sheet, Paper/Nonwoven Filter – High Efficiency Particle Air (HEPA) Filter, EPA-452/F-03-023	https://www3.epa.gov/ttnecat1/cica/files/ff-hepa.pdf
EPA Pollution Control Technology Fact Sheet Fabric Filter – Mechanical Shaker Cleaned Type, EPA-452/F-03-024	https://www3.epa.gov/ttnecat1/cica/files/ff-shaker.pdf
EPA Air Pollution Control Technology Fact Sheet Dry Electrostatic Precipitator (ESP) – Wire-Plate Type, EPA-452/F-03-028	https://www3.epa.gov/ttnecat1/cica/files/fdespwpl.pdf
EPA Air Pollution Control Technology Fact Sheet Permanent Total Enclosures (PTEs), EPA-452/F-03-033	https://www3.epa.gov/ttnecat1/cica/files/fpte.pdf
EPA The Clean Air Act and the Economy	https://www.epa.gov/clean-air-act-overview/clean-air-act-and-economy#economy
Analytical Components of the Benefits and Costs of the Clean Air Act 1990-2020, the Second Prospective Study	https://www.epa.gov/clean-air-act-overview/analytical-components-benefits-and-costs-clean-air-act-1990-2020-second
Air Toxics Case Study – Health Benefits of Benzene Reduction in Houston, 1990-2020	https://www.epa.gov/sites/production/files/2015-07/documents/812caaa_benzene_houston_final_report_july_2009.pdf
EPA AP-42, Chapter 12.20 Electroplating 07/1996	https://www3.epa.gov/ttnchie1/ap42/ch12/final/c12s20.pdf
EPA Integrated Risk Information System	https://www.epa.gov/iris
ATSDR Toxics Substances Portal	https://www.atsdr.cdc.gov/toxprofiles/index.asp
California Office of Environmental Health Hazard Assessment. Air Toxics Hot Spots Program Technical Support Document for the Derivation of Noncancer Reference Exposure Levels. Dec, 2008	https://oehha.ca.gov/air/crnr/notice-adoption-air-toxics-hot-spots-program-technical-support-document-derivationadoption-air-toxics-hot-spots-program-technical-support-document-derivation

OHA. 2016. Leading Causes of Death	http://public.health.oregon.gov/ProviderPartnerResources/PublicHealthAccreditation/Documents/indicators/leadingcausesofdeath.pdf
OHA, 2010. Estimated medical treatment costs of chronic diseases, Oregon 2010.	http://www.oregon.gov/oha/PH/DISEASES/CONDITIONS/CHRONICDISEASE/DATAREPORTS/Documents/datatables/CDCC_2010.pdf
Oregon Vital Records	http://www.oregon.gov/oha/PH/BIRTHDEATHCERTIFICATES/VITALSTATISTICS/Pages/index.aspx
National Birth Defects Prevention Network, 2016	https://www.nbdpn.org/docs/bdra23587-sup-0001-supinfo01_2016DEC16.pdf
Landrigan PJ, Schechter CB, Lipton JM, Fahs MC, Schwartz J. Environmental pollutants and disease in American children: estimates of morbidity, mortality, and costs for lead poisoning, asthma, cancer, and developmental disabilities.	Environ Health Perspect. 2002 Jul;110(7):721-8
Weiland K, Neidell M, Rauh V, Perera F. Cost of developmental delay from prenatal exposure to airborne polycyclic aromatic hydrocarbons.	J Health Care Poor Underserved. 2011 Feb;22(1):320-9. doi: 10.1353/hpu.2011.0012
Hendryx M, Fedorko E. The relationship between toxics release inventory discharges and mortality rates in rural and urban areas of the United States	J Rural Health. 2011 Winter;27(4):358-66. doi: 10.1111/j.1748-0361.2011.00367.x
Hendryx M, Luo J, Chen BC. Total and cardiovascular mortality rates in relation to discharges from Toxics Release Inventory sites in the United States.	Environ Res. 2014 Aug;133:36-41. doi: 10.1016/j.envres.2014.05.010.
Dickerson AS, Rahbar MH, Han I, Bakian AV, Bilder DA, Harrington RA, Pettygrove S, Durkin M, Kirby RS, Wingate MS, Tian LH, Zahorodny WM, Pearson DA, Moyé LA 3rd, Baio J. Autism spectrum disorder prevalence and proximity to industrial facilities releasing arsenic, lead or mercury.	Sci Total Environ. 2015 Dec 1;536:245- 51. doi: 10.1016/j.scitotenv.2015.07.024.
deCastro BR. Acrolein and asthma attack prevalence in a representative sample of the United States adult population 2000-2009.	PLoS One. 2014 May 9;9(5):e96926. doi: 10.1371/journal.pone.0096926. eCollection 2014.
Hendryx M, Luo J. Cancer hospitalizations in rural-urban areas in	Int J Environ Health Res. 2013;23(2):155-69. doi: 10.1080/09603123.2012.708919

relation to carcinogenic discharges from Toxics Release Inventory facilities.	
Gauderman WJ, Urman R, Avol E, Berhane K, McConnell R, Rappaport E, Chang R, Lurmann F, Gilliland F. Association of improved air quality with lung development in children.	N Engl J Med. 2015 Mar 5;372(10):905-13. doi: 10.1056/NEJMoa1414123
Berhane K, Chang CC, McConnell R, Gauderman WJ, Avol E, Rapapport E, Urman R, Lurmann F, Gilliland F. Association of Changes in Air Quality With Bronchitic Symptoms in Children in California, 1993-2012.	JAMA. 2016 Apr 12;315(14):1491-501. doi: 10.1001/jama.2016.3444.
Parker JD, Mendola P, Woodruff TJ. Preterm birth after the Utah Valley Steel Mill closure: a natural experiment.	Epidemiology. 2008 Nov;19(6):820-3. doi: 10.1097/EDE.0b013e3181883d5d.
Pope CA 3rd. Respiratory disease associated with community air pollution and a steel mill, Utah Valley.	Am J Public Health. 1989 May;79(5):623-8.
EPA, History of Reducing Air Pollution from Transportation in the United States	https://www.epa.gov/air-pollution-transportation/accomplishments-and-success-air-pollution-transportation
Environmental regulation and labor demand: evidence from the South Coast Air Basin' Eli Berman , Linda T.M. Bui	http://econweb.ucsd.edu/~elib/berman_bui2001
The Clean Air Act and the Economy	https://www.epa.gov/clean-air-act-overview/clean-air-act-and-economy#_edn10

Advisory committee

DEQ appointed an advisory committee for help with the development of the Cleaner Air Oregon air toxics permitting program and review of the fiscal impact statement.

As ORS 183.33 requires, DEQ asked for the committee's recommendations on:

- Whether the proposed rules would have a fiscal impact,
- The extent of the impact, and
- Whether the proposed rules would have a significant adverse impact on small businesses; if so, then how DEQ can comply with ORS 183.540 to reduce that impact.

Would the draft rule have a fiscal impact?

The committee reviewed the draft fiscal and economic impact statement and no committee members objected to DEQ's finding that there would be a fiscal impact to businesses. There was concern among several committee members that the fiscal analysis on the impact to health was not quantified. DEQ acknowledged that the data required to calculate these impacts was not available.

What would the extent of the impact be?

Some committee members felt that costs to business could be larger than the ranges included in the draft fiscal impact statement. However, they did not provide additional data or materials for inclusion in this statement of fiscal impact. Other members noted that the draft regulations would have health benefits that were not specifically quantified.

Would the draft rules have a significant adverse impact on small businesses, and if so, what are recommendations for potential mitigation?

Some advisory committee members believed that there would be a significant adverse impact on small businesses and others did not. The proposed rules include several options for the mitigation of costs for small businesses. These include:

- Tiered implementation of the program which would delay regulatory costs for most smaller businesses
- Sources that are de minimis or conditionally exempt would not need to take action under Cleaner Air Oregon
- Sources on General and Basic Air Contaminant Discharge Permits (including gas stations and dry cleaners) would not be required to perform Level 1 risk assessments. DEQ would do that work. If DEQ determines that risk from sources on these permit types may be above de minimis levels, DEQ would call them into the program.
- Conditional Risk Level possible for sources not able to comply with Risk Action Levels (requires DEQ Director approval if above certain levels)
- Conditional Risk Level with delay or postponement of risk reduction based on financial hardship (requires DEQ Director approval)
- Technical assistance staff person.

In addition to proposed small business fiscal mitigation measures, members suggested that DEQ conduct thorough technical assistance for businesses subject to Cleaner Air Oregon regulations.

Advisory committee members' comments are summarized in written meeting minutes, and an audio recording of the meeting when they discussed the program's fiscal impact is also available upon request.

Housing cost

To comply with ORS 183.534, DEQ determined the proposed rules may have an effect on the development cost of a 6,000-square-foot parcel and construction of a 1,200- square-foot detached, single-family dwelling on that parcel.

The costs of additional permits, pollution control or process equipment, and compliance could be passed through by businesses providing products and services for such development and construction. The possible impact of these proposed changes appears to be minimal. DEQ cannot quantify the impact at this time because the available information does not indicate whether the costs would be passed on to consumers and any such estimate would be speculative.

Federal relationship

Relationship to federal requirements

ORS 183.332, 468A.327 and OAR 340-011-0029 require DEQ to attempt to adopt rules that correspond with existing equivalent federal laws and rules unless there are reasons not to do so.

DEQ is proposing rules that are in addition to federal requirements because regulatory gaps exist in the current rules. This allowed for significant localized health risks from exposure to industrial and commercial emissions. There was additional need to both improve the level of scientific knowledge about exposure and develop a systematic way to reduce risk from exposure. The proposed Cleaner Air Oregon rules will allow DEQ to continue to improve its knowledge about air toxics emissions from facilities. The proposed rules would also provide a predictable and science-based framework to better control air toxics with a focus on areas and facilities that may pose the highest risk to human health.

What alternatives did DEQ consider if any?

In designing Cleaner Air Oregon, the agencies considered many alternatives used in other state risk-based air toxics permitting programs. These alternatives were summarized in Technical Issue Papers and numerous presentations and discussions prepared for and provided to the Cleaner Air Oregon Advisory Committee for consideration.

(<http://www.oregon.gov/deq/Regulations/rulemaking/Pages/Rcleanerair2017.aspx>)

Land use

Considerations

In adopting new or amended rules, ORS 197.180 and OAR 340-018-0070 require DEQ to determine whether the proposed rules would significantly affect land use. If so, DEQ must explain how the proposed rules would comply with statewide land use planning goals and local acknowledged comprehensive plans.

Under OAR 660-030-0005 and OAR 340 Division 18, DEQ considers that rules affect land use if:

- The statewide land use planning goals specifically refer to the rule or program, or
- The rule or program is reasonably expected to have significant effects on:
 - Resources, objectives or areas identified in the statewide planning goals, or
 - Present or future land uses identified in acknowledged comprehensive plans

To determine whether the proposed rules involve programs or actions that affect land use, DEQ reviewed its Statewide Agency Coordination plan, which describes the DEQ programs that have been determined to significantly affect land use. DEQ considers that its programs specifically relate to the following statewide goals:

Goal	Title
5	Open Spaces, Scenic and Historic Areas, and Natural Resources
6	Air, Water and Land Resources Quality
9	Ocean Resources
11	Public Facilities and Services
16	Estuarial Resources

Statewide goals also specifically reference the following DEQ programs:

- Nonpoint source discharge water quality program – Goal 16
- Water quality and sewage disposal systems – Goal 16
- Water quality permits and oil spill regulations – Goal 19

Determination

DEQ determined that the following proposed rules, listed under the Rules affected, authorities, supporting documents section above, are existing rules that affect programs or activities that the DEQ State Agency Coordination Program considers a land use program:

- OAR 340-210 – Source Notification Requirements
- OAR 340-216 – Air Contaminant Discharge Permits
- OAR 340-218 – Oregon Title V Operating Permits

This rule proposal does not include any changes to land use procedures in the air quality permitting program. The proposed regulations would be consistent with state land use law because any facility that has received a Cleaner Air Oregon permit attachment will already have demonstrated land use compliance when they obtained or will obtain their underlying Air Quality permit. The air quality permit programs require that a new business provide a Land Use Compatibility Statement from local government when applying for a permit. This assures that the business has an approved use for the property where it is located. Existing permittees have provided Land Use Compatibility Statements, which are on file with DEQ. There may be businesses that would be required to get air quality permits only as a result of Cleaner Air Oregon. These businesses would also be required to submit a Land Use Compatibility Statement from local government when applying for an Air Contaminant Discharge Permit that the business would be required to obtain due to the Cleaner Air Oregon program.

DEQ's statewide goal compliance and local plan compatibility procedures adequately cover the proposed rules.

- OAR 340-018-0040(1) - compliance with statewide planning goals achieved by ensuring compatibility with acknowledged comprehensive plans
- OAR 340-018-0050(2)(a) - ensuring compatibility with acknowledged comprehensive plans may be accomplished through a Land Use Compatibility Statement.

Stakeholder and public involvement

Advisory committee

Background

DEQ convened the Cleaner Air Oregon advisory committee. The committee met seven times. Advisory committee members are listed in table below and additional information is available on the committee's web page, located at:

<http://www.oregon.gov/deq/Regulations/rulemaking/Pages/Rcleanerair2017.aspx>.

Rulemaking Advisory Committee	
Name	Representing
Jackie Dingfelder, Co-chair	Cleaner Air Oregon Rules Advisory Committee
Claudia Powers, Co-chair	Cleaner Air Oregon Rules Advisory Committee/
Akash Singh (alternates: Jo Ann Hardesty, Tony DeFalco)	National Association for the Advancement of Colored People/Neighbors for Clean Air
Al Hooton	Glass Alchemy
Diana Rohlman (alternate: Susan Katz)	Oregon Public Health Association
Gordon Zimmerman (alternate: Tracy Rutten)	City of Cascade Locks
Huy Ong (alternates: Dayna Jones, Shawn Fleek)	Organizing People/Activating Leaders
Jay Bozevich (alternate: Kelly Minty Morris)	Lane County
Jessica Applegate (alternate: Katharine Saltzmann)	Eastside Portland Air Coalition
Joel Fischer (alternate: Larry Burke)	Oregon Business Association
Josh Hall	United Steelworkers
Kathryn VanNatta	Northwest Pulp and Paper Association
Laura Seyler (alternate: Glenn Rives)	International Paper Springfield Mill
Lee Fortier (alternate: Laura Leebrick)	Dry Creek Landfill, Inc.
Linda George (alternate: Dean Atkinson)	Portland State University
Lisa Arkin (alternates: Krystal Abrams, Ana Molina, Joel Iboa)	Beyond Toxics
Mark Riskedahl (alternates: Joel Nigg, Maura Fahey)	Northwest Environmental Defense Center
Mary Peveto (alternate: Tori Cole)	Neighbors for Clean Air
Michael Freese (alternates: Gary Rehnberg, Tom Wood)	Associated Oregon Industries
Patrick Luedtke (alternate: Donna Garner)	Community Health Centers of Lane County
Paul Lewis (alternate: Jae Douglas)	Multnomah County
Ramona Quinn	Klamath County
Steven Anderson (alternates: Courtney Vanbragt, Evan Sorce)	City of Salem Neighborhood Associations
Susan Anderson (alternates: Christine Kendrick, Elizabeth Edwards)	City of Portland Bureau of Planning and Sustainability

Meeting notifications

To notify people about the advisory committee's activities, DEQ:

- Sent GovDelivery bulletins, a free e-mail subscription service, to the following lists:
 - Rulemaking
 - News Releases
 - Toxics Reduction Strategy
 - Air Toxics Statewide
 - Portland Air Toxics Solutions
 - Air Quality 2016 Permanent Rulemaking
 - DEQ Public Notices
 - Cleaner Air Oregon Regulatory Overhaul
 - People who signed up for the advisory committee bulletin.
- Beginning in April, 2016, DEQ sent approximately 36 notices to subscribers informing them of advisory committee meetings and other rule development information.
- Added advisory committee announcements to DEQ's calendar of public meetings at [DEQ Calendar](#).

Committee discussions

In addition to the recommendations described under the Statement of Fiscal and Economic Impact section above, the committee provided input and discussion on a regulatory framework for the proposed Cleaner Air Oregon program and discussion draft rules. Agendas and meeting summaries are available on the committee's webpage at:

<http://www.oregon.gov/deq/Regulations/rulemaking/Pages/Rcleanerair2017.aspx>.

EQC prior involvement

DEQ shares general rulemaking information with EQC through the monthly Director's Report.

DEQ shared information about this rulemaking with the EQC through an informational item on the EQC agenda in June 2016, April 2017, July 2017 and Sept 2017.

Public notice and hearings

Public notice

DEQ provided notice of the proposed rulemaking and rulemaking hearing on Oct.20, 2017 by:

- On Oct. 20, 2017 Filing notice with the Oregon Secretary of State for publication in the November 2017 Oregon Bulletin;
- Notifying the EPA by mail;
- Posting the Notice, Invitation to Comment and Draft Rules on the web page for this rulemaking, located at: [Cleaner Air Oregon Rulemaking Page](#);
- Emailing approximately 11,320 interested parties on the following DEQ lists through GovDelivery:
 - Rulemaking
 - DEQ Public Notices

- Cleaner Air Oregon Regulatory Overhaul
- Air Toxics Statewide
- Air Quality Permits
- Title V Permit Program
- Emailing stakeholders on the DEQ’s and Lane Regional Air Protection Agency’s permitted sources lists
- Emailing the following key legislators required under ORS 183.335:
 - Senator Michael Dembrow, Chair Senate Committee on Environment and Natural Resources
 - Representative Ken Helm, Chair, House Committee on Energy and Environment
 - Representative Tina Kotek, House Speaker
 - Senator Peter Courtney, Senate President
- Emailing advisory committee members,
- Posting on the DEQ event calendar: [DEQ Calendar](#)

Public hearings

DEQ plans to hold six public hearing(s). The details are listed below. Anyone can attend a hearing in person, by webinar or by phone. Participation or comments only in person.

DEQ will consider all written comments received at the hearings listed below before completing the draft rules. DEQ will summarize all comments and respond to comments in the Environmental Quality Commission staff report. Although DEQ welcomes public comments regarding the proposed amendments to the Oregon State Implementation Plan at any public hearing, DEQ provides notice of those proposed amendments in compliance with 40 CFR 51.102 for the public hearing to be held in Portland on November 29, 2017.

	Hearing 1	Hearing 2	Hearing 3	Hearing 4	Hearing 5	Hearing 6
Date	11/15/2017	11/16/2017	11/20/2017	11/28/2017	11/29/2017	12/2/2017
Time	5:30 - 7:30 PM	5:30 - 7:30 PM	5:30 - 8:00 PM	5:30 - 7:30 PM	5:30 - 9:30 PM	10 AM - 3:00 PM
Location Name	Ramada Medford Hotel and Conference Center	Coos Bay Library	Walnut Community Room	Pendleton Library	Portland Community College SE Campus	Oregon Convention Center
Street Address	2250 Biddle Rd Medford, OR 97504	525 Anderson Ave. Coos Bay, OR 97420	4950 NW Fair Oaks Dr. Corvallis, OR 97330	502 SW Dorion Ave Pendleton, OR 97801	2305 SE 82 nd Ave Portland, OR 97216	777 NE Martin Luther King Jr. Blvd. Portland, OR 97232
City	Medford	Coos Bay	Corvallis	Pendleton	Portland	Portland
Call-in Phone Number	Meeting Call-In Number: 888-278-0296 Participant Code: 8040259					
Presiding Officer	DEQ Staff					
Webinar Address	https://connect9.uc.att.com/service32/meet/?ExEventID=88040259 Webinar instructions					

How to comment on the proposed rules:

Submit comment online:

<http://www.oregon.gov/deq/Regulations/rulemaking/Pages/Ccleanerair2017.aspx>

Note for public university students:

ORS 192.501(29) allows Oregon public university and OHSU students to protect their university email addresses from disclosure under Oregon's public records law. If you are an Oregon public university or OHSU student you may omit your email address when you complete the online form to submit a comment.

By mail:

Oregon DEQ
Attn: Joe Westersund
700 NE Multnomah St., Suite 600
Portland, OR 97232

At the hearing:

See table on previous page for hearing dates, times, and locations.

Close of public comment period

The comment period will close 4 p.m. on January 22, 2017

Accessibility information:

You may review copies of all documents referenced in this announcement at:
Oregon Department of Environmental Quality
700 NE Multnomah St., Ste. 600
Portland, OR, 97232

To schedule a review of all websites and documents referenced in this announcement, call Angela Parker, 503-229-5728 (800-452-4011, toll-free in Oregon).

Please notify DEQ of any special physical or language accommodations or if you need information in large print, Braille or another format. To make these arrangements, contact DEQ, Portland, at 503-229-5696 or call toll-free in Oregon at 1-800-452-4011, ext. 5696; fax to 503-229-6762; or email to deqinfo@deq.state.or.us. Hearing impaired persons may call 711.

Draft rules - with edits highlighted

[Division 245](#) [Division 245 rules are new, but are not presented in redline strikeout for ease of reading.]

[Division 245 rule tables](#)

[Changes to other existing rules](#)

Draft rules - with edits incorporated

[Division 245](#)

[Division 245 rule tables](#)

[Changes to other existing rules](#)

Supporting documents

[CAO Monitoring Plan Template](#)

[Recommended Procedures for Air Toxics Risk Assessment](#)

[Recommended Procedures for Pollution Prevention](#)

[Rules guide for Division 245 rules](#)

[Crosswalk for changes to existing rules](#)

[Fee table documentation](#)

[Fee example](#)