Oregon Department of Environmental Quality
June 25, 2018

Notice of Proposed Rulemaking

Cleaner Air Oregon

Proposes adoption of Cleaner Air Oregon program to limit health risks from toxic air contaminants emissions.

Table of Contents

Introduction 2
Overview 4
Statement of Need 7
Rules affected, authorities, supporting documents 11
Fee Analysis 13
Statement of fiscal and economic impact 21
Federal relationship 54
Land use 55
Stakeholder and public involvement 57
Public notice and hearings 58
Draft Rules 62
Supporting documents 63

Introduction

Note: this notice has been updated to reflect the new start time for the Portland public hearing, and new address for the Eugene public hearing. For details, please see page 60.

DEQ invites public input on the proposed Cleaner Air Oregon program 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 toxic air contaminant 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 toxic air contaminants 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 toxic air contaminant emissions from industrial and commercial facilities;
- Provide predictable and science-based regulations to control industrial and commercial toxic air contaminant emissions to protect public health, focusing on facilities that may pose the highest risk to human health; and,
- Provide DEQ and OHA (the agencies) additional resources to fully implement the program, as described in the proposed rules. As part of these rules, DEQ is proposing a fee schedule to cover the costs of implementing the program.

DEQ held a public comment period on an earlier draft of the Cleaner Air Oregon rules between October 2017 and January 2018. In March 2018, the Oregon Legislature passed Senate Bill 1541 (SB 1541; 2018 Oregon Laws ch. 102), a law that provides funding for completing the rulemaking and beginning program implementation through fees on industry. The bill also set certain program requirements that must be reflected in the rules. The proposed rules have been updated as a result of the earlier public comments and SB 1541.

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 ensuring that Cleaner Air Oregon rules mesh with existing rules.

More information

Additional information about this rulemaking is in the 2018 Public Notice Documents section of 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.

DEQ will consider all comments submitted during the previous Cleaner Air Oregon public comment period (or at the previous public hearings) and such comments therefore do not have to be resubmitted. But anyone who commented previously is, of course, welcome and encouraged to comment again during the new comment period.

Comment deadline

DEQ will only consider comments on the proposed program and rules that DEQ receives by 4 p.m. on August 6, 2018.

Submit comment online

Cleaner Air Oregon 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 60 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). Comments submitted during the previous public comment period and this public comment period will be considered together. 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 November 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 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 toxic air contaminants 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 toxic air contaminants, 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." Risk Action Levels are proposed for new, reconstructed, and existing facilities. Different Risk Action Levels would trigger different actions; requirements for community engagement, measures to reduce risk, or a demonstration that the facility has already incorporated all feasible measures to reduce risk. If risk reductions are required, 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. If a facility has demonstrated it uses all the feasible emission reduction measures it can, the proposed regulations would allow DEQ to approve continued operation at higher Risk Action Levels with periodic review for newly available technology or controls. The proposed regulations would prohibit operation of facilities whose risks exceed an upper risk limit.

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 toxic air contaminants. These sources, whether they require an air permit under existing rules or not, would be required to submit toxic air contaminant facility risk assessments if called in by DEQ, but in compliance with SB 1541, only sources that are otherwise required to have an air permit will be required to reduce risk if they are called in and are determined to pose risk above the Source Permit Level.

Request for other options

The proposed program and rules are designed to evaluate potential risks to people near facilities that emit regulated toxic air contaminants, 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 toxic air contaminant permitting programs. In addition, DEQ convened a Technical Work Group and 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 (see proposed OAR 340-245-8010 Table 1.) Note that some of the proposed Action Levels are set in law by SB 1541. To see which ones, please visit the Cleaner Air Oregon website for details and more information.
- 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, propane, liquefied petroleum gas, pretreated landfill gas and pretreated digester gas 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 340-245-0050(5)(b).)
- The proposed community engagement requirements (see OAR 340-245-0120.)
- The proposed process through which sources that can prove a financial hardship and an inability to pay can apply for postponement of requirements to reduce their risk (see OAR 340-245-0160.)
- The proposed process for determining Toxics Best Available Control Technology (TBACT) and Toxics Lowest Achievable Emission Rate (TLAER) (see OAR 340-245-0230.)
- Selection of risk values and other requirements related to risk assessment
- Timelines allowed for completing assessments and any required reductions

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 Material in the proposed OAR 340-245-9010(12) be improved or clarified?

Common terms

- “Toxic Air Contaminants” 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 began construction or submitted complete applications 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.
- “Reconstructed source” means a source where an individual project is constructed that, once constructed, increases the hourly capacity of any changed equipment to emit and where the fixed capital cost of new components exceeds 50 percent of the fixed capital cost that would have been required to construct a comparable entirely new source.
- “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 toxic air contaminant emissions from a source. The proposed rules include four “levels” of risk assessment in OAR 340-245-0050 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” or RBC means the concentration of a toxic air contaminant listed in OAR 340-245-8040 Table 4 that, for the designated exposure scenario, results in an excess

cancer risk of one in one million, or a noncancer hazard quotient of one for either chronic 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" or TEU 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 DEQ air quality rules do not limit toxic air contaminant emissions based on health risks for people 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, the proposed rules include provisions to cover facilities and pollutants that could be posing risk, set health-protective risk levels for communities impacted by facilities (including sensitive and vulnerable populations), create an accurate and streamlined assessment process, and ensure that affected communities have meaningful opportunities to participate in 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 toxic air contaminant regulations. Current toxic air contaminant rules do not consider health risks to those living near facilities, and may allow facilities to emit toxic air contaminants at levels of concern for public health. This is particularly true if their processes and emissions are not fully understood or addressed by a federal toxic air contaminant standard (National Emission Standard for Hazardous Air Pollutant or NESHAP) or other established requirements.
How does the proposed rule address the need?	The proposed rules would apply to new, reconstructed and existing facilities that emit toxic air contaminants. Facilities would calculate their emissions and the

Proposed rule or topic	Discussion
	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 as facilities are “called in” to the program..
How will DEQ know the rule addresses the need?	Permit conditions would be added to facilities’ air permits, and would include emissions reporting to allow DEQ to measure risk reduction over time.
Pollutants included	
What need does the proposed rule address?	The current toxic air contaminant regulations address 187 EPA-regulated toxic air contaminants and several other pollutants beyond this list for which DEQ has adopted Ambient Benchmark Concentrations under OAR 340-246-0090. There are many other toxic air contaminants of concern emitted by industry in Oregon that are not currently regulated or tracked.
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. Much of this information contains data about previously unreported air toxics emissions. Through ongoing emission inventory refinement and obtaining emission inventories for additional facilities, DEQ will establish a more thorough and accurate database of toxic air contaminant 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 toxic air contaminants 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 addressing localized risks from toxic air contaminant emissions from facilities in existing Oregon regulations. In addition, the current toxic air contaminant

Proposed rule or topic	Discussion
	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. Requirements to reduce risk to these levels would be legally enforceable.
How will DEQ know the rule addressed the need?	The proposed new Risk Based Concentrations would be appropriate 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 toxicity values and exposure guidelines.
Effective screening and assessment process	
What need does the proposed rule address?	Current toxic air contaminant regulations do not require facilities to report air toxics emissions and evaluate potential risk from those emissions. As a result, DEQ, OHA, businesses, and the public do not know the health risks posed to local communities by facility emissions.
How does the proposed rule address the need?	The proposed regulations would provide an efficient and user-friendly tiered system to “screen out” facilities whose toxic air contaminant emissions pose a low risk to the public. Proposed regulations would also include more detailed modeling and risk assessment requirements and protocols for facilities that do not screen out.
How will DEQ know the rule addressed the need?	The proposed risk screening and analysis tools provide a consistent process that will allow facilities to understand their potential risk and any further risk reduction requirements in Cleaner Air Oregon regulations. Upon

Proposed rule or topic	Discussion
	full implementation, DEQ, OHA, and the public will have statewide data for industrial and commercial toxic air contaminant risk.
Addressing environmental justice concerns	
What need does the proposed rule address?	In developing a new risk-based toxic air contaminant 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 toxic air contaminant emissions. 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.
How would the proposed rule address the need?	Many aspects of proposed Cleaner Air Oregon regulations would contribute to addressing Environmental Justice concerns. Protectiveness for sensitive and overburdened populations is included by: • Proposing a large (600+) list of regulated chemicals • Setting health based concentrations to evaluate risk • Evaluating risk cumulatively for an entire facility to represent what people nearby are breathing • Proposing protective Risk Action Levels in consideration of health impacts • Building in a robust community engagement process that will 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.
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

Proposed rule or topic	Discussion
	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?	Under proposed regulations, DEQ will notify the community when an application for a Cleaner Air Oregon toxic air contaminant permit addendum is received. If the risk from a source is greater than the Community Engagement Risk Action Level, DEQ will provide written notification and may schedule a public meeting before the permit is drafted to receive input from the community. 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 toxic air contaminant 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 proposed rules also include fees which will allow for the hiring of a full time Community Engagement Coordinator, to work with agency staff, facilities and their communities to create and sustain ongoing dialogue about the risk assessment and permitting process.
How will DEQ know the rule addresses the need?	An evaluation of the Community Engagement requirements will be completed after the first five years of the program.

Rules affected, authorities, supporting documents

Lead division
Operations/Air Quality

Program or activity
Air Quality Permitting and Toxic Air Contaminants

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, 340-245-0100, 340-245-0110, 340-245-0120, 340-245-0130, 340-245-0140, 340-245-0150, 340-245-0160, 340-245-0200, 340-245-0210, 340-245-0220, 340-245-0230, 340-245-0240, 340-245-0300, 340-245-0310, 340-245-0400, 340-245-8010, 340-245-8020, 340-245-8030, 340-245-8040, 340-245-8050, 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

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, 340-209-0030, 340-209-0040, 340-209-0050, 340-216-0020, 340-216-0030, 340-216-0040, 340-216-0090, 340-216-8020, 340-218-0010, 340-218-0020, 340-218-0030, 340-218-0110, 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, 468A.155, 468A.315 and 2018 Or. Laws chapter 102.

Statute implemented - ORS

ORS 468.065, 468A.010, 468A.015, 468A.025, 468A.035, 468A.040, 468A.050, 468A.070, 468A.155, 468A.315 and 2018 Or. Laws chapter 102.

Documents relied on for rulemaking

Document title	Document location
Portland Air Toxics Study	http://www.oregon.gov/deq/aq/air-toxics/Pages/PATS.aspx
EPA National Air Toxics Assessment	https://www.epa.gov/national-air-toxics-assessment/2011-nata-assessment-results#state

Document title	Document location
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))	https://hhpprtv.ornl.gov/
United States Agency for Toxic Substances and Disea 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. Some of these fees would be paid by all currently permitted air quality sources and others only by sources that are called in to demonstrate compliance with Cleaner Air Oregon rules.

Affected party involvement in fee-setting process

DEQ and OHA worked with a rules advisory committee that also served as the fiscal advisory committee for the Cleaner Air Oregon rules, including making recommendations about the proposed fees.. Representatives of both large and small businesses were on the fiscal advisory committee.

The proposed fees are designed to generate the revenue necessary to support staffing resources authorized by the Legislature in SB 1541 (2018) for five years. These fee-funded positions would supplement existing staff resources, all of which are funded by Oregon's general fund. Cleaner Air

Oregon cannot be implemented as proposed in this rulemaking without the revenue generated by the fees proposed in this rulemaking.

The budget report accompanying SB 1541 (2018) authorized eleven new positions, outlined in Table 1 below, within DEQ to implement the Cleaner Air Oregon rules and program. The budget report also authorizes a fee revenue transfer to OHA to support 2.56 FTE.

Table 1
Positions Authorized for Cleaner Air Oregon

Classification	Description of work	Positions	FTE 2017-19	FTE 2019-21
Environmental Engineer 3	Lead technical staff and permit writer. Leads TBACT analyses, coordinates regional permitting activities, reviews and approves permit attachments, develops internal training plan.	1	0.5	1.0
Natural Resource Specialist 4	Develops permit attachments in coordination with EE3 and regional permitting staff and conducts other Cleaner Air Oregon permitting functions as required.	3	1.5	3.0
Natural Resource Specialist 4	Provides technical assistance to sources on health risk assessment protocol development, reviews and approves health risk assessments.	1	0.5	1.0
Natural Resource Specialist 4	Provides technical assistance to sources on risk assessment modeling protocol development, reviews and approves risk assessment modeling protocols, and reviews and approves risk assessment modeling results.	1	0.5	1.0
Natural Resource Specialist 4	Provides technical assistance to sources on air monitoring plan development, and reviews and approves air monitoring results.	1	0.25	0.5
Program Analyst 2	Provide specialized technical assistance to impacted parties (regulated entities and communities) on Cleaner Air Oregon regulations, and coordinates community engagement, outreach and notification activities.	2	1.0	2.0

Table 1 Positions Authorized for Cleaner Air Oregon				
Classification	**Description of work**	**Positions**	**FTE 2017-19**	**FTE 2019-21**
Program Analyst 3	Lead staff on developing and implementing the area risk pilot program.	1	0.5	1.0
Information Systems Specialist 6	IT support (permit database updates integration and maintenance)	1	0.25	0.5
		11	5.0	10.0

Proposed fees:

DEQ, in consultation with OHA, proposes a fee structure with two elements; base and activity fees. The two elements are responsive 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 compliance requirements) are receiving a higher level of service from the agencies.

In addition to proposed fees that are part of this rulemaking, the 2018 Legislature, through SB 1541, authorized DEQ to collect a one-time Supplemental Fee to cover expenses of DEQ and EQC in developing and implementing Cleaner Air Oregon. The one-time Supplemental Fee applies to any source required to obtain an air permit and is set in statute, with the amount varying based on a facility's existing permit type. Permittees will be invoiced for this fee in late summer of 2018. SB 1541 also placed certain parameters on how DEQ may modify the proposed fees detailed below in the future.

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 type. DEQ estimates that in the early years of the Cleaner Air Oregon program, the majority of program funding will come from base rather than activity fees. Table 2 below shows the estimated percentage of annual revenue that would come from base fees during the first five years of program implementation. Funding during the first year of the program will come largely from the one-time supplemental fee authorized by SB 1541, which is not included below.

Table 2 Estimated Base Fee Percentages				
Year 1 Income 7/1/18-6/30/19	Year 2 Income 7/1/19-6/30/20	Year 3 Income 7/1/20-6/30/21	Year 4 Income 7/1/21-6/30/22	Year 5 Income 7/1/22-6/30/23
0%	85%	78%	71%	68%

The proposed base fees are listed in detail below in Tables 3 and 4. While the dollar amount varies based on permit type, the Cleaner Air Oregon base fee would be proportionately equivalent (approximately 35% of existing fees in 2018) 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.

Table 3 **Cleaner Air Oregon Annual Fees for Air Contaminant Discharge Permittees**		
a. Basic ACDP		$151.00
b. General ACDP	(A) Fee Class One*	$302.00
	(B) Fee Class Two	$544.00
	(C) Fee Class Three	$786.00
	(D) Fee Class Four	$151.00
	(E) Fee Class Five	$50.00
	(F) Fee Class Six	$100.00
c. Simple ACDP	(A) Low Fee	$806.00
	(B) High Fee	$1,612.00
d. Standard ACDP		$3,225.00

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

Table 4 **Cleaner Air Oregon Annual Fees for Title V Permittees**
The specific activity fees under OAR 340-220-0050(4):
(a) The annual base fee of $2,859; and
(b) The annual emission fee of $21.61 per ton of each regulated pollutant for emissions during the previous calendar year, up to and including 7,000 tons of such emissions per year. The emission fee will be applied to emissions based on the elections made according to OAR 340-220-0090.

Activity Fees: Activity fees are contained in a schedule of one-time fees that correspond to elements of the proposed 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 demonstrate compliance under the program and covers some of 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 times a facility is seeking approval of risk assessment work and other approvals described in rule (e.g., risk reduction plan review, Toxics Best Available Control Technology review, monitoring protocol review etc.). Compared to draft fee structures previously shared with stakeholders, the current proposed version separates the risk assessment fees from the risk management fees. This separation has made the fees additive. For example, if an owner or operator must prepare a Level 4 risk assessment and must reduce risk, the owner or operator will pay the Level 4 risk assessment fee, the risk reduction plan fee, the community engagement fee and possibly the case-by-case TBACT fee. An owner or operator choosing to undertake air monitoring would be required to pay the Cleaner Air Oregon Monitoring Plan fee also. Community engagement fees have also been updated in response to legislative direction provided by SB 1541 that DEQ must hold any public meetings that are required.

Because the type of risk assessment method used is at the discretion of the facility and subsequent approvals needed are based on the results of those risk assessments, activity fee revenue forecasts have more uncertainty than base fee revenue forecasts. 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 DEQ. 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 5.

Table 5 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	Document Modification Fee	$2,500	$2,500	$500	$250
	Risk Below Risk Action Levels				
4	Level 1 Risk Assessment - de minimis (no permit addendum required)	$1,500	$1,500	$1,000	$800
5	Level 1 Risk Assessment - permit addendum required	$2,000	$2,000	$1,500	$1,100
6	Level 2 Risk Assessment - de minimis (no permit addendum required)	$3,100	$3,100	$2,300	$2,000
7	Level 2 Risk Assessment - permit addendum required	$3,600	$3,600	$2,800	$2,300
8	Level 3 Risk Assessment - de minimis (no permit addendum required)	$8,800	$8,200	$5,300	$4,500
9	Level 3 Risk Assessment - permit addendum required	$19,900	$11,300	$7,700	$6,300
10	Level 4 Risk Assessment - de minimis (no permit addendum required)	$21,400	$18,500	$11,700	NA
11	Level 4 Risk Assessment - permit addendum required	$34,600	$25,800	$15,500	NA
	Risk Above Risk Action Levels				
12	Risk Reduction Plan Application Fee	$6,700	$6,700	$2,600	$2,600
13	Cleaner Air Oregon Monitoring Plan Fee	$25,900	$25,900	NA	NA
14	Postponement of Risk Reduction Application Fee	$4,400	$4,400	$4,400	$2,000
15	TBACT/TLAER Analysis (per Toxic Emissions Unit and type of toxic air contaminant)	$3,000	$3,000	$1,500	$1,500
	Other Fees				
16	TEU Risk Assessment Fee (no permit addendum mod)	$1,000	$1,000	$500	$500
17	TEU Risk Assessment Fee (permit addendum mod)	$4,000	$4,000	$2,000	$1,000

Table 5 Cleaner Air Oregon Specific Activity Fees					
#	ACTIVITY	Permit Type			
		Title V	Standard	Simple	General/Basic
18	Level 2 Modeling review (TEU approval)	$1,900	$1,300	$800	$700
19	Level 3 Modeling review (TEU approval)	$3,800	$3,800	$3,500	$3,500
20	Community Engagement Meeting Fee - high	$8,000	$8,000	$8,000	$8,000
21	Community Engagement Meeting Fee - medium	$4,000	$4,000	$4,000	$4,000
22	Community Engagement Meeting Fee - low	$1,000	$1,000	$1,000	$1,000
23	Source Test Review Fee (plan and data review) - complex	$6,000	$6,000	$6,000	$6,000
24	Source Test Review Fee (plan and data review) - moderate	$4,200	$4,200	$4,200	$4,200
25	Source Test Review Fee (plan and data review) - simple	$1,400	$1,400	$1,400	$1,400

Assumptions:

- DEQ has assumed that the first sources called in would submit complex Risk Assessments because their risk is estimated to be high relative to other sources. The most complex Risk Assessments have the highest fees associated with their review.
- 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 facilities will be required to pay. It is estimated that, in the first five years of the program:
  - 35 facilities will meet their compliance obligation through a level 3 risk assessment.
  - 10 facilities will meet their compliance obligation though a level 4 risk assessment.
  - 15 facilities will meet their compliance obligation through a risk reduction plan.
  - 5 facilities will meet their compliance obligation through a risk reduction plan and a TBACT plan.
  - 1 facility will meet their compliance obligation through air monitoring.

Considerations:

In developing the proposed fee structures, DEQ considered and acknowledged that risk-based air quality permitting is new in Oregon and as such there are uncertainties in implementation.

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

The EQC approval of this rule proposal would establish new fees. EQC authority to adopt the proposed fees is in ORS 468.020, 468.065, 468A.040, 468A.050, 468A.315, and 2018 Or. Laws chapter 102 (SB 1541).

Stakeholder engagement during the fee proposal development

DEQ staff discussed program implementation, staffing models and proposed fee structures with the Rules Advisory Committee in July and August 2017 and May 2018. Stakeholders provided the following verbal input during these meetings, 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.
- DEQ 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 fee structure should be predictable to fee-payers.
- The fee structure should acknowledge 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 6 shows transactions and revenue.

Table 6 Transactions and Revenue				
Biennium	**Number of transactions**	**Number of fee payers**	**Impact on revenue (+/-)**	**Total revenue (+/-)**
Current (2017-19) biennium*	6	6	$60,000	$60,000
Next (2019-21) biennium	5,118	2,535	$5,951,882	$5,951,882

*Annual base fees proposed in this rulemaking would first be collected in the 2019-21 biennium. Facilities may begin being called-in by the program between rule adoption and the end of the 2017-19 biennium.

Statement of fiscal and economic impact

Background

DEQ held a public comment period on an earlier draft of the Cleaner Air Oregon rules between October 2017 and January 2018. In March 2018, the Oregon Legislature passed Senate Bill 1541, a law that provides funding for completing the rulemaking and supporting program implementation through one-time fees on industry and that authorizes the EQC to adopt ongoing fees. The bill also sets certain program requirements that must be reflected in the rules. The proposed rules have been updated as a result of the earlier public comments and SB 1541. This fiscal impact statement describes the fiscal and economic impacts of the May 2018 draft of the Cleaner Air Oregon proposed rules.

Comments submitted during the previous Cleaner Air Oregon public comment period will still be considered and do not have to be resubmitted.

SB 1541 set benchmarks for excess lifetime cancer risk and noncancer risk (defined as Risk Action Levels in the Cleaner Air Oregon proposed rules) in statute at levels higher than what DEQ and OHA originally proposed. Based on those higher risk levels, there will be potentially less fiscal impact on regulated businesses and potentially greater costs related to public health since not as much risk reduction will be realized. As stated below, quantifying the fiscal impact is extremely difficult to do without detailed facility-specific data and risk analyses, (which have not been completed), and data on health effects which is not available.

During the first public comment period, DEQ received a comment on the first fiscal impact statement from a consulting firm representing an industrial interest group. DEQ has updated this fiscal impact statement with the pollution control equipment cost information provided as part of that comment. However, DEQ has not incorporated other information in the comment that we have determined to be overly speculative or based on assumptions that are not fully documented. DEQ will provide a response to comments on the fiscal analysis in the full response to comments document included with the staff report on Cleaner Air Oregon rules that DEQ will submit to the Environmental Quality Commission.

Methodology for this analysis

The following analysis describes the fiscal impacts to business, government and the public. For regulated businesses, the analysis focuses on the fiscal impacts associated with performing risk assessments at different levels, reducing risk, and paying fees for Cleaner Air Oregon permitting. For government, the analysis describes potential impacts on government-owned facilities and fiscal impacts to the agencies administering the new regulations. For the public, the analysis describes potential benefits to the service and consulting sector and, using example pollutants and associated illnesses, potential general fiscal benefits from decreasing health risks. All estimates in this analysis are bounded by important caveats and limitations. Any use or consideration of fiscal impact estimates in this analysis should be accompanied by relevant caveats and limitations to avoid inaccurate conclusions.

In November 2016 DEQ sent a request to all permitted facilities that may be subject to Cleaner Air Oregon rules to report on their air toxics emissions. Facilities have submitted emission data and DEQ is still working with facilities to check for quality, refine and revise their information. DEQ does not have complete emissions or risk information for facilities that could be impacted by Cleaner Air Oregon. Even after DEQ has completed its analysis of the industrial air toxics emission inventory, each affected facility will need to go through the proposed risk screening and assessment process to gain accurate knowledge about risk posed and regulatory requirements. Some businesses will not be called in to demonstrate compliance and will experience little fiscal impact, some will “screen out” at more simple assessment levels and will experience relatively low fiscal impact, while others will be required to implement more complex and costly steps to assess potential health risks from air emissions. Without a facility proceeding through the full steps of risk screening and assessment, it is not possible to predict with accuracy how much a particular business would have to spend to comply with risk reduction requirements, or how much benefit from reduction of associated air toxics risk could occur for people living nearby.

With SB 1541 risk benchmarks set higher than DEQ proposed in the first draft of the rules, more facilities will screen out and avoid fiscal impacts. Historically, some businesses have sought to avoid being subject to regulations ahead of effective dates by voluntarily making changes to reduce their emissions. The rules allow options for each owner or operator to individually decide whether to voluntarily reduce risk if they can potentially screen out at the simplest assessment level.

Because of the high level of uncertainty about who will be affected and how, this fiscal analysis addresses potential ranges of impacts for business, government and the public, rather than develop speculative and likely inaccurate scenarios for hypothetical facilities or for each of the approximately 2,700 facilities that could be affected by Cleaner Air Oregon rules. Generating scenarios for each potentially affected facility would require additional research and modeling work for which resources are not currently available.

Who would experience fiscal and economic impacts?

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 7 below, Emissions Analysis and Risk Assessment Costs. Some facilities with emissions resulting in health risks above Risk Action Levels would incur costs to participate in community engagement and/or to reduce emissions.

People who are exposed to toxic air contaminants 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 toxic air contaminants, some toxic air contaminants, 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 toxic air contaminant emissions and less exposure to toxic air contaminants by people who live and work in proximity to facilities that emit toxic air contaminants. Less exposure to toxic air contaminants 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 7
Cost to Facilities for Emissions Analysis and Risk Assessment

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

Table 7 Cost to Facilities for Emissions Analysis and Risk Assessment		
Task	**Simple**	**Complex**
Level 3 Assessment – Refined modeling	$5,000	$100,000
Level 4 Assessment – Health Risk Assessment	$5,000	$500,000

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

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 production method with 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 may 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 still be required to report, and in that case annual reporting would be new. Some facilities already report emissions of Hazardous Air Pollutants (187 pollutants out of approximately 600 toxic air contaminants) annually. Under the proposed regulations, all permitted facilities that emit toxic air contaminants must report emissions to DEQ a minimum of every three years. Facilities that have permit requirements to limit toxic air contaminant emissions must report compliance annually or semi-annually. All facilities with current air permits were already required to submit their initial emissions inventory, and future updates of their emissions inventory should involve lower costs. DEQ anticipates that the additional reporting requirements for Cleaner Air Oregon would cost facilities approximately $120 to $1,200 per year.

[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 fewer 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.

Source testing

Source testing is currently not required as a part of Cleaner Air Oregon, but some facilities may choose to do 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 not be the case for very many sources. Cost for source testing depends on the toxic air contaminant to be tested. Source testing for some toxic air contaminants, such as hexavalent chromium, is relatively complex and therefore expensive. Source test costs range from $7,500 for a single toxic air contaminant that is easy to test to $35,000 for multiple toxic air contaminants that are more difficult to test. Businesses already required to perform periodic compliance source testing could limit some of these additional costs if toxic air contaminant and criteria pollutant tests could be aligned.

Monitoring

The proposed Cleaner Air Oregon regulations allow facilities to voluntarily choose to conduct air monitoring and to use that data to supplement their risk assessments. DEQ expects that the cost of monitoring would vary based on equipment and analysis needed for different pollutants to be monitored and the number of monitors needed. Depending on the topography, meteorology, land use and exposure locations, a facility may need to run between one and four monitor locations to accurately characterize concentrations resulting from its emissions.

DEQ estimates that the lower end cost for a year of monitoring including equipment, deployment and pollutant analysis could be $50,000 per monitoring location. Assuming a site would require four monitor locations, this total lower end cost could be $200,000. DEQ estimates that the higher end cost for more complex equipment, analysis or multiple pollutants could be $200,000 per monitor. If a facility needed four such locations, the total upper end cost could be $800,000. DEQ deleted an earlier proposal allowing it to require that a facility undertake monitoring and it is now a voluntary action that a facility may employ.

Community engagement

SB 1541 requires that DEQ (rather than facilities, as proposed in an earlier draft of the rules), provide community engagement. This decreases community engagement costs for facilities, but fees assessed to facilities support this activity by DEQ staff. If the risk from a facility is greater than the Community Engagement Risk Action Level, DEQ will provide Community Engagement and other outreach activities near that facility. As part of community engagement, DEQ will notify the community within the area of impact when a permit attachment application is submitted, and may hold one or more public meetings to describe the risks, and solicit input on ways to reduce the risks. If DEQ holds a required public meeting, facilities would be required to attend and to pay a fee to DEQ.

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 that are not government-owned. However, state agencies and local government facilities that emit toxic air contaminants may be required to reduce toxic air contaminant emissions if the predicted risk exceeds Risk Action Levels. If owners or operators choose to install pollution control equipment, Table 8 below shows what the range of estimated costs could be for both government owned and business facilities. 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 tribally 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. Local government may also be consulted in land use issues related to commercial facilities emitting toxic air contaminants.

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

Having the Cleaner Air Oregon toxic air contaminant 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 toxic air contaminant emissions and health effects that are not currently covered by a regulatory structure.

Table 8 Pollution Control Equipment for Toxic Air Contaminant Emissions						
Control Device Type	**Types of Pollutants it can reduce**	**Examples of facilities where this could be used**	**Initial costs[2, 3]**		**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 - $10,000,000		$100,000 - $7,600,000	
Enclosure	Fugitive PM or volatile organic compounds (VOCs)	Any process or operation where 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	
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	$25,000 - $750,000		$19,000 - $830,000	

[2] 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 and regulatory agencies.
[3] Costs are estimated based on best available information, but may be higher or lower than shown, depending on facility-specific conditions and business decisions.

Table 8 Pollution Control Equipment for Toxic Air Contaminant Emissions						
Control Device Type	**Types of Pollutants it can reduce**	**Examples of facilities where this could be used**	**Initial costs[2, 3]**		**Annual Operating Costs**	
			low	**high**	**low**	**high**
		gases that can be absorbed into water and neutralized with the appropriate reagent.				
Wet scrubber with mercury controls (carbon injection or flue gas desulfurization)	Gases, vapors, sulfur oxides, corrosive acidic or basic gas streams, solid particles, liquid droplets, mercury	Coal-fired power generation	Low end cost not available High end cost $516,803,000		Not available	
Semi-dry scrubber with carbon injection mercury controls	Gases, vapors, sulfur oxides, corrosive acidic or basic gas streams, solid particles, liquid droplets, mercury	Coal-fired power generation	Ranges not available, estimated cost: $470,803,000		Ranges not available, estimated cost: $74,807,000	
Flue gas desulfurization with limestone injection	mercury	Coal-fired power generation	$75,000,000-$247,000,000		$3,500,000	
Activated carbon injection	mercury	Coal-fired power generation	$960,000-$5,000,000		$1,800,000	

Table 8 Pollution Control Equipment for Toxic Air Contaminant Emissions						
Control Device Type	**Types of Pollutants it can reduce**	**Examples of facilities where this could be used**	**Initial costs[2, 3]**		**Annual Operating Costs**	
			low	**high**	**low**	**high**
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	
Biofilter	VOCs, odors, hydrogen sulfide (H_2S), mercaptans (organic sulfides)	Wastewater treatment plants, wood products facilities, industrial processes	$360,0000 - $3,600,000		Not available	

Table 8 Pollution Control Equipment for Toxic Air Contaminant Emissions						
Control Device Type	**Types of Pollutants it can reduce**	**Examples of facilities where this could be used**	**Initial costs[2, 3]**		**Annual Operating Costs**	
			low	**high**	**low**	**high**
Fume suppressants	Chromic acid mist, chromium, cadmium and other plating metals	Chromic acid anodizing and chrome plating operations	Up to $122,000		Not available	

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.

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 toxic air contaminant 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 for travel or other expenses.

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 do not 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 toxic air contaminant emissions or show that the best available control technology for toxic air contaminants (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 8 above shows what the range of estimated costs could be. Small businesses may also incur these costs if required to install pollution control equipment. As

required by SB 1541, the draft proposed rules allow that facilities (major sources of hazardous air pollutants that emit 10 tons/year of one hazardous air pollutant or 25 tons/year of combined hazardous air pollutants) complying with federal toxic air contaminant standards known as National Emission Standards for Hazardous Air Pollutants (NESHAPs) will under certain conditions be presumed to meet TBACT requirements. Although specific numbers or situations will not be known until sources proceed through the screening and analysis process, this requirement will likely decrease fiscal and economic impacts for many sources of toxic air contaminants. Many facilities already complying with a NESHAP would not need to reduce their risk unless they exceed a risk level of 200 in a million excess cancer risk or a hazard index of 10. This is higher than the originally proposed levels of 25 in a million and a hazard index of 1, and is expected to result in a lower fiscal impact than the October 2017 proposed rules.

DEQ received input from one commenter during the first comment period that fiscal impacts on businesses may be significantly higher than estimated in Table 8 and other parts of this analysis. While that may be the case, DEQ is not able to substantiate these higher estimates and has determined that certain assumptions in that commenter's analysis are inaccurate or speculative. The commenter acknowledges that their analysis is not based on any specific Oregon facilities, and that they lack the information to know whether specific facilities will incur increased costs or the magnitude of the costs.

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 in the large business section above, 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 required to get permits and pay fees because of the Cleaner Air Oregon rules.

Many of the small businesses subject to the Cleaner Air Oregon rules would only be required to submit triennial reports of toxic air contaminant emissions. Some small businesses may be required to reduce toxic air contaminant emissions through either permit limits, pollution prevention or pollution control equipment if cancer risk, chronic noncancer risk or acute noncancer 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 noncancer risk or acute noncancer 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 8, above. Summarizing from Table 8, if a small business's cancer risk, chronic noncancer risk or acute noncancer 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. The same decrease in costs that apply to large businesses resulting from higher risk action levels required in SB 1541 will apply to smaller businesses. Smaller businesses are even more likely to screen out of more costly Cleaner Air Oregon requirements at risk levels of 50 in a million and a hazard index of 5.

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.

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 first 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 near industrial and commercial facilities. The Risk Action Level analysis would be based on many factors, including the best available science regarding toxicity of regulated toxic air contaminants, as proposed in the Risk-Based Concentrations. Cleaner Air Oregon toxic air contaminant reductions that decrease cancer risk, chronic noncancer risk or acute noncancer 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 toxic air contaminant emissions. The toxic air contaminants 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 toxic air contaminants 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 toxic air contaminants 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 toxic air contaminant emissions or about the relative actual contribution of toxic air contaminants 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 toxic air contaminant exposures. This is especially true for public health risk from toxic air contaminants in neighborhoods close to industrial facilities, where risk may never have been specifically or accurately assessed. National and local air toxics models show that non industrial emissions from vehicle engines, wood burning and atmospheric formation of toxic air contaminants combine to contribute significantly to public health risk. However these models cannot be used to estimate risk for people living nearby industrial facilities because they are on a coarse scale, do not factor in where people are actually exposed, do not include all facilities, do not assess the number of pollutants proposed for Cleaner Air Oregon, and do not include risk from acute 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 toxic air contaminants 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 toxic air contaminants commonly emitted by facilities in Oregon

DEQ and OHA summarized the health effects associated with 15 of the toxic air contaminants to be regulated under Cleaner Air Oregon. This information is summarized in Table 9 below. This summary illustrates the range of health effects that may be caused by this small subset of 15 toxic air contaminants. Many more of the toxic air contaminants to be regulated under Cleaner Air Oregon are associated with these and other health effects.

Table 9 **Examples of health effects associated with a subset of 15 toxic air contaminants**	
Type of Toxicity	Toxic air contaminants 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
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

Table 9 Examples of health effects associated with a subset of 15 toxic air contaminants	
Type of Toxicity	Toxic air contaminants associated with these health outcomes
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.[4]

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 toxic air contaminant emissions and the relative actual contribution of toxic air contaminants 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 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 toxic air contaminant exposures, prevalence of health outcomes in the state, and the cost of medical treatment for each case.

Table 10 summarizes data limitations for the different types of information that would be necessary to assess health effects.

---

[4] 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/crnr/notice-adoption-air-toxics-hot-spots-program-technical-support-document-derivationadoption-air-toxics-hot-spots-program-technical-support-document-derivation

Table 10 Availability of Data Needed to Quantify Economic Impact of Health Improvements	
Information Type	Current availability of data
Health risks associated with each chemical	Some chemicals are well characterized while toxicity data is missing or incomplete for others. There is some information about toxicity for all chemicals with proposed RBCs. The amount of information and level of certainty around the association with health effects varies.
Relationship between exposure and health	Even when health effects are identified, it can be difficult to quantify the amount of risk expected a specific level of exposure; This relationship is well characterized for some chemicals and not available for others. There is little information on how multiple chemicals may interact to impact health. This makes it difficult to evaluate the cumulative health impact of reducing exposure to multiple air toxics.
Level of current exposure	Information from existing DEQ air permits and EPA's National Air Toxics Assessment provide some information on potential exposures, but these do not cover all sources of industrial air toxics. The emissions inventory will provide a clearer picture of current potential exposures once it is complete. As CAO is implemented and facilities go through the new permitting process, we will have a more accurate picture of emissions.
Percent of each health outcome that is attributable to air toxics	This is determined based on what we know about the relationship between exposure and effect, the extent to which exposure to each chemical occurs, and the extent to which other factors are known to contribute to health risk. Previous analyses of the environmental contribution to disease have weighed these factors to identify the percent of each health outcomes that is due to an environmental exposure. This is referred to as the "environmentally attributable fraction". Typically, this is presented as a range rather than a specific percentage to demonstrate the extent of uncertainty around each estimate. Existing estimates for “environmentally attributable fractions” of specific diseases are not directly applicable to the set of chemicals covered in Cleaner Air Oregon
Prevalence of each health outcome in Oregon	OHA tracks incidence of several health outcomes that may be impacted by air toxics, including cancer, adverse birth outcomes, asthma, and heart disease. Baseline data is not as readily available for conditions related to brain development, neurological outcomes, infertility, allergy, immunity, and other health outcomes that may be impacted by air toxics.

Table 10 Availability of Data Needed to Quantify Economic Impact of Health Improvements	
Information Type	Current availability of data
Economic burden of each case	Economic costs can be measured in different ways. Some estimates focus on direct medical costs of disease. Others account for indirect costs such as missed days of work and school. For some health outcomes these metrics have been established by the CDC or in published literature, while for other health outcomes data on economic burden is less easily accessible. Social costs such as social isolation, time spent by unpaid caretakers, and emotional burden of premature death are important to consider but difficult to quantify.
Predicted reduction in exposure	This will depend on which facilities are included in the first tier of implementation and which air toxics they emit. Without complete information on current emissions, it is difficult to know how much emissions of each air toxic will be reduced in order to bring facilities into compliance

Costs of chronic diseases in Oregon

Toxic air contaminants 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).[5] DEQ and OHA don't know what portion of these may be attributable to industrial and commercial toxic air contaminants, 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 toxic air contaminants, reducing emissions could prevent substantial health costs. The total estimated costs of chronic diseases tracked in Oregon are summarized in Table 11.

[5] OHA. 2016. Leading Causes of Death http://public.health.oregon.gov/ProviderPartnerResources/PublicHealthAccreditation/Documents/indicators/leadingcausesofdeath.pdf)

Table 11 Total Estimated Cost of Chronic Diseases that are Tracked in Oregon				
Health Outcome	Description	Average Annual Cost of Each Case	Estimated Annual Medical Costs in Oregon[A]	Examples of toxic air contaminants that may contribute to health risk
Asthma	Estimates include adults and children	$2,740	$411 million	formaldehyde, cobalt, hexavalent chromium, cadmium, PAHs, manganese, arsenic
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 [6] 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.

[6] OHA, 2010. Estimated medical treatment costs of chronic diseases, Oregon 2010. http://www.oregon.gov/oha/PH/DISEASESCONDITIONS/CHRONICDISEASE/DATAREPORTS/Documents/datatables/_CDCC_2010.pdf

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 12. While several toxic air contaminants are associated with increased risk for these adverse birth outcomes, the portion of cases attributable to exposure to toxic air contaminants is unknown.

Table 12

Adverse Birth Outcomes in Oregon

Health outcome	Total number of pregnancies impacted by each health outcome in OR 2009-2013[A]	Potential Economic and Social Costs	Examples of toxic air contaminants 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
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-_suppinfo01_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 toxic air contaminants included in Cleaner Air Oregon. Therefore, these numbers cannot be directly applied to estimate the contribution of toxic air contaminants 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.[7]

[7] 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

● 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.[8]

● 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 toxic air contaminants 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.[9]

● 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.[10]

● 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.[11]

---

[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

[9] 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

[10] 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.

[11] 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.

● 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.[12]

● 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.[13]

Improved air quality can improve public health

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

● 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,[14] and children with asthma were 30% less likely to experience symptoms of bronchitis.[15]

●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.[16] 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.[17]

● Federal regulations on leaded gasoline resulted in a dramatic decrease in blood lead levels in children across the country.[18] 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

---

[12] 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.

[13] 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

[14] 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

[15] 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.

[16] 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.

[17] 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.

[18] 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

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 toxic air contaminant emissions in Oregon, there are several additional points worth considering:

● A portion of the health costs of toxic air contaminant 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.

● Risk-based toxic air contaminant 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. DEQ recognizes that employment plays a key role in public health, and that negative economic impacts through job loss could occur despite proposed provisions to allow business flexibility and decrease the chances of business closures or employee layoffs in direct response to regulations.

Some of the same provisions that mitigate impacts on small businesses can potentially mitigate public impacts from lower employment. Under the draft rules, facilities above Risk Action Levels may wait for effective control technologies to develop if none are available at the time of permitting, unless their risk is above the Risk Reduction Level. Facilities demonstrating a lack of financial ability to install the needed controls at the time required could postpone installation of controls to reduce risk. The proposed tiered implementation 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 may also be impacted by the need to participate in public meetings, including time to research and understand potential toxic air contaminant 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 members of the public and 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.[19]

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. [20] 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.

Advisory committee

DEQ appointed an advisory committee for help with the development of the Cleaner Air Oregon air toxics permitting program and review of this fiscal impact statement, which describes the fiscal and economic impacts of the May 2018 second draft of the Cleaner Air Oregon proposed rules. DEQ convened the advisory committee on May 9, 2018 to ask for the committee's input and recommendations on fiscal impact issues stated in ORS 183.333:

- 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.

DEQ sought comments and discussion on the entire fiscal impact analysis, not just the changes made since the first fiscal impact analysis was reviewed in August 2017. However, much of the May 9, 2018 discussion focused on changes, since most members had familiarity with and a previous opportunity to

[19] http://econweb.ucsd.edu/~elib/berman_bui2001
[20] https://www.epa.gov/clean-air-act-overview/clean-air-act-and-economy#_edn10

comment on the first fiscal analysis. Advisory committee members had the opportunity to submit additional written comments on the draft fiscal statement until May 30, 2018.

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. One member stated that there would be significant costs to large businesses and businesses of any size.

What would the extent of the impact be?

Pollution Control Costs

Some committee members noted that DEQ had improved the detail in the pollution control equipment cost table but indicated that costs to business could be larger than the ranges included in the draft fiscal impact statement. One member recommended inclusion of costs that DEQ estimated between 2006 and 2009 for mercury and regional haze control at a coal-fired power plant in Boardman, Oregon. A description of pollution control equipment costs for wet and semi dry scrubbers with mercury controls for that facility is now included in Table 8.

Fees

Committee members discussed proposed Cleaner Air Oregon base and activity fees. Fees would be a significant part of the cost of the program from an industry perspective.

Members asked whether, if a facility submitted TBACT determinations for multiple identical units, DEQ would charge multiple TBACT determination activity fees. In response, DEQ has added language to the proposed rules to allow one TBACT/TLAER activity fee to be charged if there were multiple similar emission units with the same pollution control device. The draft rules also state that if one emission unit required two different pollution control devices because it emitted different types of toxic air contaminants, then two TBACT/TLAER fees could be charged.

Members also asked whether DEQ had analyzed the differences between fees proposed for the first public comment period and those in the currently proposed rules. DEQ has added and removed several fees. Table 13 below illustrates the currently proposed fees, compared to those proposed during the first public comment period, for several hypothetical facility scenarios. The committee was also interested in what percentages of program costs are covered by base vs. activity fees. DEQ has added this information to the fee analysis section of the public notice.

Members discussed the proposed source test review fee of $5,900, asking if it would be the same for Title V facilities and smaller facilities, and whether it would be a one-time charge for one test or multiple charges for multiple tests. In written comments, one member requested that if a source is conducting multiple source tests that it only be charged one fee. Some felt that this fee level would be a very large burden for a small facility. DEQ explained that in the current permitting program there is no source test fee and there is a backlog of source tests to review for the 1.5 FTE assigned to this task. To ensure adequate resources for source test review in Cleaner Air Oregon, DEQ has proposed a separate fee.

To mitigate business impacts, DEQ proposes to create separate tiers for the source test fee, for complex ($6,000) reviews of multiple emission units and toxic air contaminants, moderate ($4,200) reviews for a single emission unit with multiple toxic air contaminant test methods, and simple ($1,400) source tests for single emission units with a single toxic air contaminant test method. Smaller facilities may have less complex source testing, and if so, this change would reduce the economic burden from this fee.

A member also stated that it would be clearer to call this fee a stack test fee rather than a source test fee. DEQ has opted to maintain the language “source test fee” because while many facilities would be source testing emission stacks, some would be source testing other emission points within their processes.

Members asked about the potential extent of community engagement, especially in areas with fewer public participants where costs could be lower. Some stated that the community engagement fee should be lower because it should only cover the cost of notifying people of a meeting and holding the meeting. Others commented that the $10,800 community engagement fee is appropriate for all levels of permit, as it will serve as an incentive for pollution reduction. In setting public meeting fees DEQ sought to arrive at an average amount estimated to run public meetings. Some will likely require more resources and others will likely require less. Another member commented that the proposed 1.5 kilometer distance for public notification is unnecessarily large and a less costly process would be to limit notification to areas impacted by a facility’s emissions.

Table 13
Cleaner Air Oregon Specific Activity Fee Examples

Example	Call-In Fee	Risk Assess-ment Fee	Risk Reduction or Ambient Monitoring Fee	TBACT Fee	Community Engagement Fee	Incomplete Application or Postponement of Risk Reduction Fee	Total
Examples for Facilities Applying for CAO Toxic Air Contaminant Permit Addendums							
An existing facility with a General ACDP permit performs a Level 2 Risk Assessment using AERSCREEN and can screen out below Risk Action Levels as de minimis	$500	$2,000	NA	NA	NA	NA	$2,250
An existing facility with a Title V permit performs a Level 3 Risk Assessment using AERMOD and can screen out below Source Permit Levels as de minimis	$10,000	$8,800	NA	NA	NA	NA	$18,800
An existing facility with a Title V permit performs a Level 3 Risk Assessment using AERMOD, is above de minimis and is permitted to stay below the TBACT Level	$10,000	$19,900	NA	NA	$8,000	NA	$37,900
An existing facility with a Standard ACDP permit performs a Level 4 Risk Assessment and applies for a Risk Reduction Plan that requires 1 TBACT determination, but submits an incomplete application and DEQ must modify application	$10,000	$25,800	$6,700	$3,000	$8,000	$2,500	$56,000
An existing facility with a Title V permit performs a Level 4 Risk Assessment and has TBACT on 3 TEUs but requests postponement of risk reduction on 1 TEU	$10,000	$34,600	NA	$12,000	$8,000	$4,400	$69,000

An existing facility with a Standard ACDP permit requests ambient monitoring plan option at Level 4	$10,000	$25,800	$25,900	NA	$8,000	NA	$69,700
Examples for Facilities with Existing CAO Toxic Air Contaminant Permit Addendums							
An existing facility with a Simple ACDP requests approval of one new de minimis TEU. Potential risk stays below Risk Action Level. Already has Air Toxics Permit Addendum (no modeling required).	NA	$500	NA	NA	NA	NA	$500
An existing facility with a Standard ACDP requests approval of two new TEUs that require a permit modification but potential risk stays below Risk Action Level. Already has Air Toxics Permit Addendum (no modeling required).	NA	$8,000	NA	NA	NA	NA	$8,000

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

After discussing potential economic impacts to small businesses and the process of reviewing DEQ's fiscal impact statement, the facilitator polled the committee to determine how many members thought that Cleaner Air Oregon could cause a significant adverse economic impact on small businesses. Out of the 17 members and 2 co-chairs present, eleven indicated that the draft rules could cause a significant impact on small business, seven abstained, and one did not indicate a significant impact. Several members commented on the difficulty of answering fiscal impact questions.

The committee proceeded to discuss the types of economic impacts and potential mitigation measures. One member stated in their written comments that economic mitigation measures and off ramps should not be available to small businesses posing significant health risk. Others noted that innovative ideas for mitigation of small business impacts could help more facilities move past the need for the financial hardship or postponement of risk reduction process. DEQ noted the challenges of determining economic impacts because levels of risk and response actions are not yet known.

DEQ summarized proposed rule options for the mitigation of economic impact on small businesses. These include:

- Higher risk action levels that would cause more facilities to screen out or have less stringent requirements to reduce emissions
- Tiered implementation of the program which would delay regulatory costs for most smaller businesses
- Additional time for compliance with risk levels through extensions and postponement proposals
- DEQ doing level 1 risk assessments for sources on General and Basic Air Contaminant Discharge Permits
- Process to allow postponement of risk reduction requirements based on financial hardship
- DEQ and OHA staff positions for technical assistance

A member commented that since there is no indication that fees can be waived or reduced for small businesses, there would be a logical assumption that fees would impact smaller businesses more greatly than they would impact larger businesses. Several members agreed that there could be a significant economic impact on small businesses operating on low profit margins. Another member said that the state is now proposing to require that people who put toxics in the environment assume some of the externalized costs for those actions.

A member with experience managing a colored art glass manufacturer noted that compliance with the colored art glass rules caused very significant impacts on those small businesses. They wanted to do everything right and it almost put them out of business. The cost of engineering and consultants was less than what it took to operate the pollution control equipment. Capital cost recovery will take over ten years with an aggressive payback schedule for the loan necessary to buy and install the equipment. Normally the business would budget between 5 and 8 percent for maintenance of equipment, but for pollution control

equipment, that should be increased to 20 to 22 percent annually of the cost of the original equipment.

The committee generated options for small business mitigation as follows:

- Lower base fees for small business.
- Include options for fee payment flexibility or installment payments.
- Allowing small businesses of equal risk with large businesses to come later in the call in schedule.
- Stage fees for small businesses to come at the most convenient times, earlier in the fiscal year is better (avoid the last fiscal quarter, line up with tax year.)
- Develop a mitigation program to directly assist small businesses. Set up small business assistance centers at universities. They could form a consortium and small businesses could pay a reduced fee and have their situation evaluated by students and professors.
- DEQ could help coordinate engineering and risk assessment support. Similar industries may be able to reuse each other's work. This would reduce time and cost for subsequent sources. Similar types of businesses will use similar types of designs. There could be leveraging of expertise and information by process components or source categories. To handle concerns about proprietary information and competition use non-disclosure agreements.
- Look into how loan programs or consolidation of loan opportunities could work for small businesses in Cleaner Air Oregon.
- Use a model like the small business association to coordinate financing and funding. This could get some facilities off of the inability to pay list.
- Call in businesses at least 6 months in advance so they can work on their budgets and chart out their resources to get ready.
- Consider mitigation measures for new small businesses that will have the more stringent CAO new business risk action levels.

DEQ has determined that there is existing authority and guidance available for sources who want to request a fee installment payment plan. DEQ is exploring options for considering business size in developing the call-in schedule, and involving universities and forming a consortium to assist small businesses with technical analysis and emission reduction actions. Overall, DEQ believes that these options may be further explored and implemented, if appropriate, without the need for any rules changes. Otherwise, implementing these changes could result in an inability of the program to achieve the intended public health purpose of these rules.

Impacts on the Public

A member commented that proposed Cleaner Air Oregon regulations would have a positive economic impact on the public, providing more information, more certainty of conditions that could affect health, and a better assurance of health. It is important to measure health outcomes to make a real assessment of health impacts. Another member commented that the section on negative impacts on public health including potential effects on jobs appeared defensive because the description of impacts was followed directly by a description of factors that would mitigate economic impacts on business. A member asked whether employment is

the only indicator of public health and DEQ clarified that it was not, the fiscal analysis contains a section discussing the potential relationships between reducing toxic air contaminants and disease. DEQ also noted that uncertainty exists in both impacts to businesses and impacts on the public.

Advisory committee members' comments are further 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.

Documents relied on for fiscal and economic impact

Document title	Document location
Air Contaminant Discharge Permits – OAR 340-216-8010 Table 1	https://secure.sos.state.or.us/oard/view.action?ruleNumber=340-216-8010
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/ttncatc1/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/ttncatc1/cica/files/fsprytwr.pdf
EPA Air Pollution Control Technology Fact Sheet Catalytic Incinerator, EPA-452/F-03- 018	https://www3.epa.gov/ttncatc1/cica/files/fcataly.pdf
EPA Air Pollution Control Technology Fact Sheet Regenerative Incinerator, EPA- 452/F-03-021	https://www3.epa.gov/ttncatc1/cica/files/fregen.pdf
EPA Air Pollution Control Technology Fact Sheet Thermal Incinerator, EPA-452/F-03- 022	https://www3.epa.gov/ttncatc1/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/ttncatc1/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/ttncatc1/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/ttncatc1/cica/files/fdespwpl.pdf
EPA Air Pollution Control Technology Fact Sheet Permanent Total Enclosures (PTEs), EPA-452/F-03-033	https://www3.epa.gov/ttncatc1/cica/files/fpte.pdf

Document title	Document location
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-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/DISEASESCONDITIONS/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/ar.php
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	Sci Total Environ. 2015 Dec 1;536:245- 51. doi: 10.1016/j.scitotenv.2015.07.024.

Federal relationship

Document title	Document location
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.	
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 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
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/transportation-air-pollution-and-climate-change/accomplishments-and-success-air-pollution-transportation
Berman E, T.M. Bui L, Environmental regulation and labor demand: evidence from the South Coast Air Basin	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

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 has allowed for significant localized health risks from exposure to industrial and commercial emissions, and made clear the 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 toxic air contaminant emissions from facilities. The proposed rules would also provide a predictable and science-based framework to better control toxic air contaminants 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 toxic air contaminant 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

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 rules to 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 its programs to 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 addendum 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.

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 Rules Advisory Committee. The committee met eight times. Advisory committee members are listed in the 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, Ellen Porter)	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, Licia Sahagun)	Northwest Environmental Defense Center
Mary Peveto (alternate: Tori Cole)	Neighbors for Clean Air
Michael Freese (alternates: Gary Rehnberg, Abbie Laugtug)	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
Thomas Wood	Oregon Business and Industry

Meeting notifications

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

- Sent email notification via GovDelivery, 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 email list.
- Beginning in April, 2016, DEQ sent approximately 49 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 https://www.oregon.gov/deq/Get-Involved/Pages/Calendar.aspx.

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, September 2017, November 2017, January 2018, March 2018, and May 2018.

Public notice and hearings

Public notice

DEQ provided notice of the proposed rulemaking and rulemaking hearing on June 25, 2018 by:

- On June 25, 2018, filing notice with the Oregon Secretary of State for publication in the July 2018 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: http://www.oregon.gov/deq/Regulations/rulemaking/Pages/Rcleanerair2017.aspx;
- 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 Rules Advisory Committee Members
- Posting on the DEQ event calendar at https://www.oregon.gov/deq/Get-Involved/Pages/Calendar.aspx

Public hearings

DEQ plans to hold two public hearings, in addition to the nine that were held during the previous comment period in October 2017 to January 2018. The details are listed below. Anyone can attend a hearing in person, by webinar or by phone. Phone or webinar participants will not be able to submit a comment as part of the public hearing, but can do so via the online system.

Comments submitted during the previous Cleaner Air Oregon public comment period (or at the previous public hearings) will still be considered and do not have to be resubmitted.

DEQ will consider all written comments received at the hearings listed below before completing its final recommendation to the EQC for the adoption of the proposed 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 Eugene on August 1, 2018.

	Hearing 1	Hearing 2
Date	July 12, 2018	August 1, 2018
City	Portland	Eugene
Time	**Note new time** **5 – 7 p.m.**	5:30 - 7:30 p.m.
Location Name	Taborspace	Lane Community College Center for Meeting and Learning
Street Address	5441 SE Belmont St Portland, OR 97215	**Note new address** **Mary Spilde Downtown Center** **Rooms 112 through 114** **101 W. 10th Avenue** **Eugene, Oregon 97401**
Presiding Officer	Environmental Quality Commission	Lane Regional Air Protection Agency Staff
Call-in Phone Number	Meeting Call-In Number: 888-278-0296 Participant Code: 8040259	
Webinar Address	https://connect9.uc.att.com/service32/meet/?ExEventID=88040259 Webinar instructions	

How to comment on the proposed rules:

Submit comment online:

https://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 at 4 p.m. on August 6, 2018.

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

Division 245

Division 245 rule tables

Changes to other existing rules

Note: Division 245 rules and tables are new, but are not presented in redline strikeout for ease of reading.

Supporting documents

Source Sampling Manual Volume 1

Draft Recommended Procedures for Conducting Toxic Air Contaminant Health Risk Assessments

Recommended Procedures for Pollution Prevention

DEQ Air Monitoring Plan Protocol

Detailed Toxicity Values Development Spreadsheet

Fact sheets