



State of Oregon Department of Environmental Quality

Draft Fiscal Impact Statement

Cleaner Air Oregon Hazard Index Rulemaking

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Statement of fiscal and economic impact

Fiscal and economic impact

This Hazard Index rulemaking proposes amendments and updates to the existing Cleaner Air Oregon (CAO) program rules, adopted by the Environmental Quality Commission in November of 2018. In the program rules, a noncancer hazard index benchmark (known as the “Risk Action Level”) for existing facility risk assessments of 5 was adopted, as established in Senate Bill 1541 (SB 1541) enacted by the 2018 Oregon legislature. In addition to establishing program requirements for CAO rules, SB 1541 includes a provision that allows the Department to develop regulations to set lower noncancer hazard index benchmarks for certain toxic air contaminants that are expected to cause severe human health impacts. This language is contained in Section 7 of SB 1541. This proposed rulemaking does not change the methods by which the CAO program addresses cancer risk. Facility risk assessments must consider cancer and noncancer risks separately.

The proposed Hazard Index (HI) rules would amend the existing Cleaner Air Oregon program rules by changing the Risk Action Levels for certain noncancer toxic air contaminants and adding implementation requirements to the existing Cleaner Air Oregon program rules. The proposed rules would:

- lower the TBACT Risk Action Levels for 154 contaminants from an HI 5 to an HI 3, out of a total of 182 contaminants with noncancer health effects regulated under the CAO program;
- establish a methodology to calculate a TBACT Risk Action Level for existing facilities that emit a mixture of noncancer toxic air contaminants regulated at both HI 3 and HI 5; and
- Update other Risk Action Levels (Risk Reduction Level, Immediate Curtailment Level)

Adoption of the proposed HI rules is not expected to generate significant fiscal impacts. Fiscal impacts considered can be positive or negative. 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.

There are approximately 2,298 facilities (private businesses and some government and public entities) that hold air contamination discharge permits that would be subject to these rules. Under the CAO program, DEQ expects that approximately 15 to 20 total existing facilities will be called-in each year to demonstrate compliance. The proposed rules apply to existing facilities that emit toxic air contaminants with noncancer health effects, when such facilities are called-in to demonstrate compliance with CAO rules. Under the proposed rules, these facilities may be required to reduce toxic air contaminant emissions to a more health-protective benchmark, or Risk Action Level. The proposed rules are expected to have mostly minimal and in some cases insignificant overall fiscal and economic impacts, but could have more significant impacts on a limited number of existing facilities.

The rules also may result in health benefits to the public.

Relationship to Prior Cleaner Air Oregon Fiscal Impact Statement

In the 2018 FIS provided by the DEQ for the Cleaner Air Oregon program rules, DEQ assumed that 182 chemicals with noncancer effects emitted from existing sources would be assigned a non-cancer hazard index benchmark of 5.

DEQ used the best available information to estimate potential fiscal impacts for the Cleaner Air Oregon program rules. That analysis concluded it was not possible to quantify fiscal impacts due to the lack of detailed facility-specific data and completed risk analyses, and therefore the cost of any controls that may be required. A similar conclusion was reached regarding potential fiscal impacts related to benefits to public health in affected communities. However, DEQ determined that Cleaner Air Oregon rules could cause a significant fiscal impact for small businesses. The Cleaner Air Oregon FIS describes cost mitigation measures included in the proposed rules to reduce the overall potential costs of the CAO regulations to both small and large businesses.

The 2018 FIS information is relevant to and informs this current HI rulemaking FIS, which is limited to potential fiscal impacts associated with the proposed change to current CAO program rules. This HI rulemaking will affect potential risk reduction activities that existing facilities may be required to undertake if they emit toxic air contaminants designated in these rules as HI3 contaminants and if their assessed risk exceeds the revised Risk Action Levels of these rules. The impact would be incremental if the facility would also exceed the existing benchmark of HI 5. New facilities are unaffected by these rules. While exact cost impacts remain unquantifiable (consistent with the conclusions of the CAO program FIS), the overall fiscal impacts of this HI rulemaking are anticipated to be significantly lower due to the limited scope of impact of these proposed rules when compared to the overall CAO program.

Statement of cost of compliance

State and federal agencies

Because the Cleaner Air Oregon program rules regulate emissions sources that are privately owned, state and federal agencies are expected to be minimally or not directly impacted by the proposed HI rules. However, existing state and federal agencies that operate facilities that emit toxic air contaminants may be required to reduce toxic air contaminant emissions if the predicted noncancer risk exceeds the proposed TBACT Risk Action Level based on the proposed lowered benchmarks. The impact would be incremental if the facility would also exceed the existing TBACT Risk Action Level of HI 5.

As of August 20, 2019, state agencies own 24 permitted facilities and federal agencies own seven permitted facilities. Currently there are no tribally owned permitted facilities.

DEQ

There may be direct impacts to DEQ due to assistance and review of deliverables that will be related to the requirements of the proposed Hazard Index rules. Impacts could include increased review time of analyses and reports for facilities emitting a mixture of chemicals with different benchmarks. However, these impacts are likely to be minimal in light of the larger related resources needed by DEQ to oversee facilities regulated by Cleaner Air Oregon.

Local governments

Currently, local governments own or operate 69 facilities requiring an air quality permit, some of which may include toxic air contaminants affected by the proposed HI rules. When called-in to demonstrate compliance with the CAO rules, some agencies may choose to perform a more in-depth risk assessment to demonstrate compliance with lower Risk Action Levels, which would increase assessment costs and permitting fees. These potential impacts to local government agencies would be minimal.

Facilities that exceed the proposed Risk Action Levels, but do not exceed the existing Risk Action Levels may be required to reduce risk to demonstrate compliance with lower Risk Action Levels. The impact would be incremental if the facility would also exceed the existing benchmark of HI 5. Depending on the size and nature of the 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 Appendix A. Appendix A summarizes information developed for the Cleaner Air Oregon program's Fiscal Impact Statement and presented there as Table 8. If the calculated noncancer risk were above the new proposed Risk Action Levels (but not the existing 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. A facility could offset these costs through other reduction options, such as production changes, product substitution, and pollution prevention actions.

DEQ is not able to quantify these impacts until risk assessments have been completed. Based upon a review of completed risk assessment for locally owned facilities in other states, it is likely few of these facilities will incur increased cost as many similar facilities pose little risk.

Public

The existing Cleaner Air Oregon program has the potential to meaningfully impact public health in the state by reducing toxic air contaminant emissions. The toxic air contaminants that are 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, birth defects, premature births, developmental disorders, central nervous system damage, intellectual disability, and premature death.

These proposed HI rules may lower the level of community exposures allowed under Cleaner Air Oregon for a subset of regulated toxic air contaminants that are expected to cause developmental problems in babies and children or cause other severe human health effects. Lowering the level of allowed community exposures to this subset of toxic air contaminants

would mean that communities surrounding existing facilities will have greater public health protection than in the current rules.

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 to quantify the reduced health care costs that may result from the proposed rules. In addition, communities are exposed to risk from other sources of air pollution not associated with nearby industrial emissions, such as from vehicle engines, construction equipment and wood burning. It is difficult to estimate the relative actual contribution of toxic air contaminants to disease to know how reducing emissions will translate to improved public health and the associated reduced health care costs associated with these potential improvements at industrial facilities. Therefore, in this analysis it is not possible to predict the total reduced medical costs that would result from the proposed HI rules.

Large businesses - businesses with more than 50 employees

There are approximately 1,152 existing large businesses holding air quality permits. Under the CAO program, DEQ expects that approximately 15 to 20 total sources (mainly larger businesses) will be called-in each year to demonstrate compliance. When called-in to demonstrate compliance with CAO rules, DEQ anticipates that the proposed HI rules could have fiscal or economic impacts on such businesses. To demonstrate compliance with the CAO rules, some large businesses may choose to perform a more in-depth risk assessment to demonstrate compliance with lower Risk Action Levels, which would increase assessment costs and permitting fees. If the facility's noncancer risk exceeds the lower proposed TBACT Risk Action Level, but would not have exceeded the current HI 5 TBACT Risk Action Level, the facility would be required to take action to reduce toxic air contaminant emissions or show that best available control technologies for air toxics (TBACT) are in place or will be installed. Taking those steps would have a fiscal impact on such a facility. The impact would be incremental if the facility would also exceed the existing benchmark of HI 5. Incremental additional costs may be incurred if the facility also would exceed the revised Risk Reduction Level or Curtailment Levels, but would not have exceeded the existing levels.

Depending on the size and nature of a large 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 Appendix A. Appendix A summarizes information developed for the Cleaner Air Oregon program's Fiscal Impact Statement and presented there as Table 8. If a large business's noncancer risk were above the new proposed Risk Action Levels (but not the existing 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. A facility could offset these costs through other reduction options, such as production changes, product substitution, and pollution prevention actions.

However, determining which permitted facilities would incur this incremental cost requires a completed risk assessment. Because no risk assessments of existing facilities have been

completed, DEQ does not have adequate information to estimate potential total costs to existing facilities being regulated under the proposed HI rules.

Small businesses – businesses with 50 or fewer employees

There are approximately 1,090 small businesses with air permits that are subject to these rules. 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 coat-ers.

Under the CAO program, DEQ expects that approximately 15 to 20 total sources (mainly larger businesses) will be called-in each year to demonstrate compliance. When called-in to demonstrate compliance with CAO rules, DEQ anticipates that the proposed HI rules could have fiscal or economic impacts on such small businesses. If the facility's noncancer risk exceeds the lower proposed TBACT Risk Action Level, but would not have exceeded the current HI 5 TBACT Risk Action Level, the facility would be required to take action to reduce toxic air contaminant emissions or show that TBACT is in place or will be installed. Taking those steps would have a fiscal impact on such a facility. The impact would be incremental if the facility would also exceed the existing benchmark of HI 5. Incremental additional costs may be incurred if the facility also would exceed the revised Risk Reduction Level or Curtailment Levels, but would not have exceeded the existing levels.

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 and would face no additional cost from these proposed rules.

Some small businesses may be required to further reduce toxic air contaminant emissions through either permit limits, pollution prevention or pollution control equipment if risk is above the lower Risk Action Level. The impact would be incremental if the facility would also exceed the existing benchmark of HI 5. However, DEQ does not have adequate data to estimate how many small businesses may be required to comply with a lower Action Level. In addition, many permitted small businesses with General or Basic permits are currently not being called in to complete risk assessments.

Therefore, the exact fiscal impact of the proposed HI rules cannot be calculated, but is expected to have minimal additional fiscal impacts to small businesses.

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

There are approximately 1,046 small businesses in Oregon subject to CAO rules as of August 2019. These businesses include asphalt plants, auto body shops, chromium electroplaters, ethylene oxide sterilizers, grain elevators, lumber mills, metal fabricators, metal foundries, and surface coat-ers. If one of these small businesses is called in to demonstrate compliance with CAO rules, it would be subject to, and could be affected by, these HI rules.

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

Again, this rule may apply to a small business only if they are one of the 15-20 sources that are called in to demonstrate compliance with CAO rules. At that time, if the small business's calculated noncancer risk exceeds the lower proposed Risk Action Levels, but would not have exceeded the current HI 5 Risk Action Levels, the facility would be required to take action to reduce toxic air contaminant emissions or show that TBACT is in place or will be installed. Taking those steps would have a fiscal impact on that small business, including 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 and cancer risk, chronic noncancer risk or acute noncancer risk is above the proposed Risk Action Levels.

DEQ does not have information about how many more small businesses would be required to take action to reduce risks under the proposed rules, and therefore cannot accurately estimate an incremental increase in costs.

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

As described above, the proposed HI rules may require some small businesses to take action to reduce risk that otherwise would not have had to. 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 Appendix A. Appendix A summarizes information developed for the Cleaner Air Oregon program's Fiscal Impact Statement and presented there as Table 8. If a small business's noncancer risk were above the new proposed Risk Action Levels (but not the existing 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. A facility could offset these costs through other reduction options, such as production changes, product substitution, and pollution prevention actions.

DEQ does not have information about how many more small businesses would be required to take action to reduce risks under the proposed rules, and therefore cannot accurately estimate an incremental increase in costs. Considering existing program implementation, it is predicted that this could affected a very small number of businesses.

Describe how DEQ involved small businesses in developing this proposed rule.

DEQ notified small businesses during HI rule development by email through GovDelivery, announcements on the DEQ website, at HI Rules Advisory Committee meetings, and through Twitter and Facebook. Small business representatives were on the HI Rules Advisory Committee during HI rule development and that committee will also review this fiscal impact statement. At the onset of the public comment period, DEQ will notify small businesses by email, and through notices in the Secretary of State Bulletin.

Mitigation measures for small businesses

The extent of the small business fiscal impact is unknown and cannot be accurately quantified for analysis because it depends on future analysis of noncancer risk for existing facilities.

These proposed rules do not establish any new mitigation measures for small businesses. However, consistent with existing CAO rules, the majority of small business facilities with few emission units and on General or Basic Air Contaminant Discharge Permits are not currently required to perform a Cleaner Air Oregon risk assessment or address reductions; DEQ will perform the risk assessments for these businesses. As described on page 49 of the FIS for the CAO program rule, the following mitigation measures were established:

- 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; and
- DEQ and OHA staff positions for technical assistance.

Housing cost

Pursuant to ORS 183.534, DEQ determined that the Cleaner Air Oregon 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. As part of this determination, it is assumed for the purposes of this HI FIS that the proposed HI rules would have little to no impact on housing cost. 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 potential 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

The documents listed below are related to Appendix A in the attached appendix. Appendix A presents Table 8 from the Cleaner Air Oregon program Fiscal Impact Statement, which itself is a source of information for preparing this Fiscal Impact Statement.

Document title	Document location
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 Technical Bulletin Choosing an Adsorption System for VOC: Carbon, Zeolite, or Polymers? May 1999	https://www3.epa.gov/ttn/catc1/cica/files/fadsorb.pdf
EPA Pollution Control Technology Fact Sheet Spray-Chamber/Spray-Tower Wet Scrubber, EPA-452/F-03-016	https://www3.epa.gov/ttn/catc1/cica/files/fsprytwr.pdf
EPA Air Pollution Control Technology Fact Sheet Catalytic Incinerator, EPA-452/F-03-018	https://www3.epa.gov/ttn/catc1/cica/files/fcataly.pdf
EPA Air Pollution Control Technology Fact Sheet Regenerative Incinerator, EPA- 452/F-03-021	https://www3.epa.gov/ttn/catc1/cica/files/fregen.pdf
EPA Air Pollution Control Technology Fact Sheet Thermal Incinerator, EPA-452/F-03-022	https://www3.epa.gov/ttn/catc1/cica/files/ftherma1.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/ttn/catc1/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/ttn/catc1/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/ttn/catc1/cica/files/fdespwpl.pdf

EPA Air Pollution Control Technology Fact
Sheet Permanent Total Enclosures (PTEs),
EPA-452/F-03-033

<https://www3.epa.gov/ttnecat1/cica/files/fpte.pdf>

APPENDIX A

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 ^{[1], [2]}		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	

^[1] 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.

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

Control Device Type	Types of Pollutants it can reduce	Examples of facilities where this could be used	Initial costs[1], [2]	Annual Operating Costs
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 gases that can be absorbed into water and neutralized with the appropriate reagent.	\$25,000 - \$750,000	\$19,000 - \$830,000
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

[1] 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.

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

Control Device Type	Types of Pollutants it can reduce	Examples of facilities where this could be used	Initial costs[1], [2]	Annual Operating Costs
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
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

[1] 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.

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

Control Device Type	Types of Pollutants it can reduce	Examples of facilities where this could be used	Initial costs[1], [2]	Annual Operating Costs
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 ₂ S), mercaptans (organic sulfides)	Wastewater treatment plants, wood products facilities, industrial processes	\$360,000 - \$3,600,000	Not available
Fume suppressants	Chromic acid mist, chromium, cadmium and other plating metals	Chromic acid anodizing and chrome plating operations	Up to \$122,000	Not available

[1] 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.

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