Art Glass Permanent Rules 2016

Fiscal Impact Statement (Draft)

Oregon Department of Environmental Quality
Headquarters Office
811 SW 6th Avenue
Portland OR 97204

Joe Westersund
503 229-6240
westersund.joe@deq.state.or.us

The following analysis looks at the impact of making the current temporary colored art glass manufacturer (CAGM) rules permanent, compared with the alternate scenario in which the temporary CAGM rules are allowed to expire.

Fiscal and economic impacts ORS 183.335(2)(b)(E)

The proposed change to make the CAGM rules permanent would have fiscal and economic impacts on businesses, DEQ, and the public. It is not anticipated to have fiscal and economic impacts on federal government, other state agencies, or local governments.

Statement of Cost of Compliance

Large businesses- businesses with more than 50 employees

Currently there are five CAGM that would be subject to the proposed rules. One of those, Bullseye Glass Company, has more than 50 employees and is therefore considered a large business for the purposes of rulemaking fiscal impact analysis.

Compliance cost may vary depending on facility-specific circumstances. In particular, Bullseye is making changes to comply with a federal air toxics regulation called NESHAP 6S[1] at the same time as this proposed rule. Even if this proposed rule is not adopted, Bullseye would need to install one or more baghouses to meet NESHAP 6S requirements. Because the number of baghouses that would be installed for NESHAP 6S alone is uncertain, the number of additional baghouses needed for compliance with the proposed rule is also uncertain. (Bullseye is planning for installation of a total of 4 baghouses.) DEQ has incorporated that uncertainty into this fiscal impact analysis by estimating that Bullseye would install between zero and two additional baghouses to comply with the proposed rule, over and above what they would install for NESHAP 6S compliance alone.

If no additional baghouse costs were attributable to the proposed rule, compliance with the proposed rule would cost Bullseye about $70,000 to $100,000 in initial costs for permitting, source testing, and modeling, with no ongoing costs.

If all costs for two additional baghouses were attributable to the proposed rule, compliance with the proposed rule would cost Bullseye about $578,000 to $930,000 for permitting, baghouse installation, source testing, and modeling, and ongoing costs of $54,000 to $174,000 per year to operate and monitor the baghouses.

[1] National Emission Standards for Hazardous Air Pollutants for Glass Manufacturing Area Sources, 40 CFR Part 63 Subpart SSSSSS.

It is possible that Bullseye may be able to offset the cost of compliance through increased prices. However, this potential may be limited if prices are set in a market that includes competitors located outside the jurisdiction of the proposed rules. To the extent CAGMs did raise their prices in response to the proposed rules, the increased prices represent an indirect fiscal impact on their customers, some of whom may be large businesses. DEQ does not have sufficient information to estimate this effect.

Further details on these cost estimates can be found in the attached tables.

Small businesses - businesses with 50 or fewer employees (ORS 183.336)

Four of the five businesses subject to the proposed rules have 50 or fewer employees and are therefore considered small businesses for the purposes of rulemaking fiscal analysis.

Of these, one (Uroboros Glass Studios, Inc.) is in Tier 2 of the proposed rules. The other three (Glass Alchemy, Northstar Glassworks, and Trautman Art Glass) are in Tier 1.

Like Bullseye, Uroboros is making changes to comply with NESHAP 6S at the same time as the proposed rule. Uroboros stated that in 2015 all of their furnaces were below the throughput thresholds for NESHAP 6S applicability. But, they intend to comply with NESHAP 6S because future throughput may be higher. Uroboros plans to install one baghouse at their facility. Because that baghouse is partially attributable to this proposed rule, DEQ calculated Uroboros' costs with between zero and one additional baghouse to comply with the proposed rule.

If no additional baghouse costs were attributable to the proposed rule, compliance with the proposed rule would cost Uroboros about $66,000 to $89,000 in initial costs for permitting, source testing, and modeling, with no ongoing costs.

If all costs for the baghouse were attributable to the proposed rule, compliance with the proposed rule would cost Uroboros $421,000 to $699,000 for permitting, baghouse installation, source testing, and modeling, and ongoing costs of $27,000 to $87,000 per year to operate and monitor the baghouse.

Facility-specific data for the Tier 1 CAGMs was not available, so their costs were estimated as a class. The proposed rule gives Tier 1 CAGMs multiple compliance options.

One option is to install an emissions control device such as a baghouse. DEQ estimates that the cost of compliance through this method is approximately $261,000 to $422,000 per facility in one-time costs and between $32,000 and $92,000 per facility in ongoing annual costs. The Tier 1 facilities are not subject to NESHAP 6S and would likely install only one baghouse per facility. All three Tier 1 CAGMs indicated that they planned to pursue this compliance option.

Alternately, Tier 1 CAGMs can operate without an emissions control device if they show through source testing and dispersion modeling that the impact of their emissions on the nearest sensitive receptor is within acceptable source impact levels. DEQ estimates that the cost of compliance via this pathway would be approximately $32,000 to $127,000 in one-time costs and $5,000 in ongoing annual costs for permitting. However, this estimate does not include the cost of reductions or changes in the type or amount of products produced, which could potentially be required in order to maintain emission impacts below limits. The

proposed rules also prohibit chrome VI from being used in furnaces that are using this compliance pathway. DEQ does not have sufficient information to estimate whether reduction or changes in production would be necessary.

Tier 1 CAGMs also have the option to stop using some or all of the metal hazardous air pollutants (HAPs)[2] regulated by this rule completely. While this option is available, this would limit the range of glass colors that can be produced, and the lost revenue would likely make this an expensive compliance option.

Trautman Art Glass, one of the Tier 1 CAGMs, said that the proposed rules may prompt them to move their facility to a new location. That decision would depend on whether the current property owner agrees to allow installation of a baghouse, as well as other factors internal to their business. The company estimated that moving their factory and complying with the rules at the new location would cost approximately $2 million, plus lost revenue of $1 million during the moving process. DEQ does not have data to verify the necessity to move or the facility's cost estimates for doing so.

As for large business CAGMs, it is possible that small business CAGMs may be able to offset the cost of compliance through increased prices. However, this potential may be limited if their prices are set in a market that includes competitors located outside the jurisdiction of the proposed rules. To the extent CAGMs did raise their prices in response to the proposed rules, it would represent an indirect fiscal impact on their customers, some of whom may be small businesses. DEQ does not have sufficient information to estimate this effect.

Further details on these cost estimates can be found in the attached tables. The impact on small business is summarized below.

[2] The metal HAPs regulated by the proposed rule include arsenic, cadmium, chromium, lead, manganese and nickel.

Summary of impact on small business (ORS 183.336)

a) Estimated number of small businesses and types of businesses and industries with small businesses subject to proposed rule.	• Four CAGMs directly impacted by the rule. • Some other small businesses may be indirectly impacted if they are customers of CAGMs.
b) Projected reporting, recordkeeping and other administrative activities, including costs of professional services, required for small businesses to comply with the proposed rule.	• Tier 1 CAGMs would be required to obtain an Air Contaminant Discharge Permit (ACDP) that they wouldn't otherwise be required to have. Tier 2 CAGMs would be required to obtain an ACDP, if an ACDP or Title V is not already required by other regulations. • CAGMs complying using an emissions control device are required to do an initial source test, and ongoing monitoring and reporting to show proper operation of the emissions control device. • CAGM complying using source testing and modeling would be required to perform source testing and modeling, and may also need to do recordkeeping and reporting to show that production levels remain below limits established through that process.
c) Projected equipment, supplies, labor and increased administration required for small businesses to comply with the proposed rule.	CAGM complying using an emissions control device would be required to install the control device, which may require replacement parts and supplies.
d) Describe how DEQ involved small businesses in developing this proposed rule.	DEQ allowed for a two week public comment period on the temporary rule, which is not required by law. DEQ received comments on the temporary rule from three of the four small businesses affected by the rule. DEQ proposed changes in the rules for Tier 1 CAGMs as a result of these comments.

DEQ

The proposed rules would require Tier 1 CAGMs to apply for and maintain Air Contaminant Discharge Permits (ACDPs), which these businesses would not otherwise be required to have. The permit application fees (currently $7,200 per facility) and annual fees (currently $4,608 per facility) would be additional revenue to DEQ. However, those fee amounts would roughly be offset by DEQ's additional costs for permit writing, compliance monitoring and inspections.

Tier 2 CAGMs that must comply with the substantive requirements of NESHAP 6S will be required to have Title V operating permits whether or not the proposed rules are adopted. In this case, adoption of the proposed rules would not impact DEQ revenue or costs for these facilities. If a Tier 2 CAGM is not required by NESHAP 6S to have a Title V permit, the proposed rules would require them to get an ACDP similar to Tier 1 CAGMs. Bullseye Glass currently has an ACDP.

Public

The proposed rules are intended to measure and reduce emissions of metal HAPs from the CAGMs subject to the rule. Decreased emissions of metal HAPs and other particulate matter may have significant health benefits for the public, particularly those who live, work or otherwise spend significant time near a CAGM.

Cadmium, arsenic, and lead, three of the metal HAPs regulated by the rule, have been found to exceed human health-based benchmark concentrations near CAGMs. Exposure to metal HAPs through inhalation or other means is connected with serious health effects like cancer, respiratory problems and organ damage. DEQ's air toxics benchmarks are designed to be very protective air concentrations that people could breathe for a lifetime without increasing their cancer risk beyond a chance of one in a million.

The compliance route chosen by many CAGMs will likely be installation of one or more particulate matter control devices such as baghouses. In addition to reducing metal HAP emissions, installation of these devices would reduce emissions of other particulate matter, including fine particulate matter (less than 2.5 microns in diameter). Fine particulate matter causes serious health problems ranging from increased respiratory and pulmonary symptoms, hospital admissions and emergency room visits to premature death for people with heart and lung disease.

Health problems have negative economic impacts to the people experiencing them. The proposed rules would create positive economic benefits and improvements in public health and welfare by reducing these emissions. DEQ currently does not have an estimate of avoided health impacts, but the Oregon Health Authority (OHA) is working on Public Health Assessments to estimate the health impacts of emissions from Bullseye and Uroboros. OHA plans to release those reports in late fall of 2016.

The US Environmental Protection Agency (EPA) estimated the costs and benefits of the 1990 Clean Air Act Amendments[3], which among other things expanded regulation of air toxics and led to regulations such as NESHAP 6S. EPA's estimate was that the health benefits of that set of regulations were 30 times the costs of compliance, with a range between 3 and 90. However, it is unknown whether numbers would be similar for these proposed rules.

The source testing, modeling, and reporting components of the rule provide the public information about the amount and composition of emissions. This information appears to have value to members of the public, though DEQ is unable to quantify that value in monetary terms.

The public would not incur direct compliance costs because they are not subject to the rule. Members of the public that are customers of CAGMs may pay higher prices, if CAGMs raise their prices to recoup their compliance costs. DEQ lacks information to estimate the impact of price increases but expects this impact on the public to be small relative to the health benefits.

Housing cost

To comply with ORS 183.534, DEQ determined that 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.

If a house is constructed using colored art glass as a material, and if CAGM increase their prices in response to the proposed rule, the cost of compliance with the rule could cause an increase in the cost to construct a home. However, the possible housing cost impact of these proposed changes appears to be infinitesimal because colored art glass represents an exceedingly small proportion of the development cost of a home.

3 "Benefits and Costs of the Clean Air Act, 1990 to 2020", https://www.epa.gov/clean-air-act-overview/benefits-and-costs- clean-air-act

DEQ Art Glass Permanent Rule
Fiscal Impact Estimate for proposed rule- Bullseye Glass Company

Bullseye - Tier 2			
Requirements summary	Install control device on all furnaces using metal HAPs If using chrome: source test & modeling to develop daily & annual max usage Then follow the max usage limits		
	Cost Estimate		
	low	**high**	
Permitting costs			
NESHAP 6S applies?	Y		
Needs Title V permit because of 6S	Y		
Cost of Title V application (including DEQ fees + consultant to prepare)	$25,000	$100,000	If a facility needs a Title V due to NESHAP 6S, that is independent of this art glass rule, so this cost isn't included in the totals.
Annual DEQ Title V permit costs	$10,310	$11,510	If a facility needs a Title V due to NESHAP 6S, that is independent of this art glass rule, so this cost isn't included in the totals.
Incremental extra cost of Title V application due to art glass rule	$0	$5,000	Assume preparing the permit application would cost 0% to 5% more because of the incremental addition of the proposed rules.
Incremental extra cost of Title V annual permit fees due to art glass rule	$0	$0	The proposed rules would not increase the annual permit fees if the facility would have a Title V anyway.
Number of Control Devices			
# of additional baghouses installed, over and above what would have been installed due to NESHAP 6S alone	0	2	This is uncertain because changes to comply with NESHAP 6S are happening at the same time as efforts to comply with this rule.
Cost Per Control Device			
Install baghouse	$250,000	$400,000	
One-time source test to demonstrate 99% PM control efficiency	$4,000	$15,000	Assume length of run depends on detection limits, does not have to be entire production run to show capture efficiency.
Annual operation	$15,000	$70,000	Electricity, bag replacement etc
Annual cost to monitor and report on baghouse to DEQ	$12,000	$17,000	
Total one-time costs per baghouse	$254,000	$415,000	
Total annual costs per baghouse	$27,000	$87,000	
Source Testing Costs			
One-time source test to measure Cr6 emissions when making products containing Cr3 or Cr6	$60,000	$65,000	Assume 16 hr test runs. May be able to run concurrently with 99% control efficiency test, reducing cost.
Modeling Costs			
One-time modeling to find max production rate that results in acceptable source impact level			
AERSCREEN model only	$10,000	-	
AERSCREEN followed by AERMOD model	-	$30,000	

Bullseye - Tier 2		
Requirements summary	Install control device on all furnaces using metal HAPs If using chrome: source test & modeling to develop daily & annual max usage Then follow the max usage limits	
	Cost Estimate	
	low	**high**

Total Costs

If 0 additional baghouse installed

One-time costs	$70,000	$100,000
Annual costs	$0	$0

If 2 additional baghouses installed

One-time costs	$578,000	$930,000
Annual costs	$54,000	$174,000

DEQ Art Glass Permanent Rule
Fiscal Impact Estimate for proposed rule- Uroboros Glass Studios, Inc.

Uroboros - Tier 2			
Requirements summary	Install control device on all furnaces using metal HAPs If using chrome: source test & modeling to develop daily & annual max usage Then follow the max usage limits		
	Cost Estimate		
	low	**high**	
Permitting costs			
NESHAP 6S applies?	Y		
Needs Title V permit because of 6S	Y		
Cost of Title V application (including DEQ fees + consultant to prepare)	$15,000	$55,000	If a facility needs a Title V due to NESHAP 6S, that is independent of this art glass rule, so this cost isn't included in the totals.
Annual DEQ Title V permit costs	$8,500	$8,500	If a facility needs a Title V due to NESHAP 6S, that is independent of this art glass rule, so this cost isn't included in the totals.
Incremental extra cost of Title V application due to art glass rule	$0	$3,000	Assume preparing the permit application would cost 0% to 5% more because of the incremental addition of the proposed rules. (Rounded to the nearest thousand.)
Incremental extra cost of Title V annual permit fees due to art glass rule	$0	$0	The proposed rules would not increase the annual permit fees if the facility would have a Title V anyway.
Number of Control Devices			
# of additional baghouses installed, over and above what would have been installed due to NESHAP 6S alone	0	1	This is uncertain because changes to comply with NESHAP 6S are happening at the same time as efforts to comply with this rule.
Cost Per Control Device			
Install baghouse	$355,000	$610,000	
One-time source test to demonstrate 99% PM control efficiency	Included in source testing cost below		Assume length of run depends on detection limits, does not have to be entire production run to show capture efficiency.
Annual operation	$15,000	$70,000	Electricity, bag replacement etc
Annual cost to monitor and report on baghouse to DEQ	$12,000	$17,000	
Total one-time costs per baghouse	$355,000	$610,000	
Total annual costs per baghouse	$27,000	$87,000	
Source Testing Costs			
One-time source test to measure Cr6 emissions when making products containing Cr3 or Cr6	$56,000	$56,000	
Modeling Costs			
One-time modeling to find max production rate that results in acceptable source impact level			
AERSCREEN model only	$10,000	-	
AERSCREEN followed by AERMOD model	-	$30,000	

Uroboros - Tier 2		
Requirements summary	Install control device on all furnaces using metal HAPs If using chrome: source test & modeling to develop daily & annual max usage Then follow the max usage limits	
	Cost Estimate	
	low	**high**

Total Costs

If 0 additional baghouse installed

One-time costs	$66,000	$89,000
Annual costs	$0	$0

If 2 additional baghouses installed

One-time costs	$421,000	$699,000
Annual costs	$27,000	$87,000

DEQ Art Glass Permanent Rule
Fiscal Impact Estimate for proposed rule- Tier 1 CAGM

Tier 1 (Northstar, Trautman and Glass Alchemy)						
Requirements summary	Do 1 of these at all furnaces: Install control device, OR source test & modeling to show impact below limits, OR request permit condition to not use metal HAPs					
	Cost Estimate					
	If installing control device		**If doing source test and modeling only**		**If taking permit condition to stop using metal HAPs**	
	low	high	low	high	low	high
Permitting costs						
NESHAP 6S applies?	N		N		N	
Rule would require facility to get new permit	Yes, ACDP		Yes, ACDP		Yes, ACDP	
Application Fee	$7,200	$7,200	$7,200	$7,200	$7,200	$7,200
Consultant to prepare application	-	-	-	-	-	-
Annual Permit Fee (applies at time of application and each year after)	$4,608	$4,608	$4,608	$4,608	$4,608	$4,608
Control Device Costs						
Install baghouse	$250,000	$400,000	-	-	-	-
Annual operation (electricity, bag replacement, etc)	$15,000	$70,000	-	-	-	-
Reporting Costs						
Annual cost to monitor and report on baghouse to DEQ	$12,000	$17,000	-	-	-	-
Source Testing Costs						
One-time source test to measure metal emissions including total Cr. (Total Cr can be used as a proxy for Cr6)	-	-	$15,000	$25,000	-	-
One-time source test to measure Cr6 emissions when making products containing Cr3 (optional)	If Tier 1 and using control device, don't have to test for Cr6		$0	$65,000	-	-
One-time source test to demonstrate 99% PM control efficiency	$4,000	$15,000	-	-	-	-
Modeling Costs						
One-time modeling to find max production rate that results in acceptable source impact level						
AERSCREEN model only	-	-	$10,000	-	-	-
AERSCREEN followed by AERMOD model	-	-	-	$30,000	-	-
Cost of reduced production						
Stopping production of materials containing Cr6 (required to take source test + modeling exemption)	-	-	unknown	unknown	About 1/2 of products contain metal HAPs. There may not be workable substitute formulations. Facilities may choose to phase out one or a few metal HAPs but are likely to choose source test & modeling or installation of a control device.	
Reduced production if source testing shows it's needed to meet receptor conc limits	-	-	unknown	unknown		
Total Costs						
One-time costs	$261,200	$422,200	$32,200	$127,200	$7,200	$7,200
Annual costs	$4,608	$4,608	$31,608	$86,608	50% of facility profit (?)	
One-time costs (rounded)	$261,000	$422,000	$32,000	$127,000	$7,000	$7,000
Annual costs (rounded)	$32,000	$92,000	$5,000	$5,000	50% of facility profit (?)	