



Hazardous Waste Phase 2 Rulemaking – Coal Rule Fiscal Impact Statement

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Fiscal and Economic Impact

If adopted, DEQ anticipates the *Disposal of Coal Combustion Residuals from Electric Utilities* federal rule will have minimal or no fiscal impact.

The new coal regulation is less stringent than current federal requirements. The rule excludes from hazardous waste regulations coal combustion residuals or CCR generated by coal-fired power plants commonly known as coal ash. This rule includes standard pollution control and other requirements for landfills and surface impoundments accepting CCR. The new standards include technical requirements for location restrictions, design and operating criteria, groundwater monitoring, closure, recordkeeping, notification, and internet posting requirements.

Assumptions

DEQ assumes the fiscal and economic impacts identified in federal rulemaking are accurate and apply to Oregon facilities same as determined during federal rulemaking.

Statement of Cost

State and federal agencies

The cost to comply with the proposed rule is identical to costs described under small and large businesses.

Oregon DEQ

Direct Impacts

The proposed rule may result in an indeterminable decrease in revenue for the hazardous waste program. If the rule is adopted, the formerly regulated hazardous waste stream could be managed as solid waste, resulting in less annual hazardous waste fees paid to DEQ.

Local governments

Landfills receiving coal combustion residuals may see a slight increase in disposal fees received.

Public

DEQ anticipates there will be no adverse fiscal impacts to the general public. The rule will likely create positive environmental and human health benefits by reducing groundwater contamination and airborne fugitive coal ash. This results in a positive economic benefit.

Large and Small Business

A small business is one with 50 or fewer employees.

The Regulatory Flexibility Act requires EPA to conduct economic assessments for small businesses before adopting rules. EPA determined the proposed rule would not have a significant economic impact on small businesses.¹

EPA estimates the costs and benefits for the rule are incremental to the current practices by the electrical utility industry. EPA estimates the cost over a 100-year period because of: (1) CCR unit lifespans (40-80 years); (2) groundwater migration (estimated time to peak potential exposures of CCR through groundwater migration to drinking water wells is 75 years); and (3) latency periods for onset of illness after exposure to CCR that can average 20 years.

The exhibit below summarizes the estimated, incremental costs and benefits of the rule under two discount rates. This illustrates the estimated costs to comply with the 12 pollution control requirements associated with the rule; estimated monetized values for 11 expected benefits; and 11 other non-monetized benefits.

Exhibit ES-C²		
Incremental Costs and Benefits: Alternate Discount Rates (millions of 2013\$)		
Present values:	3% Discount Rate	7% Discount Rate
1. Costs	\$23,200	\$7,260
2. Benefits	\$8,550	\$3,290
3. Net Benefits (2-1)	(\$14,700)	(\$3,970)
4. Benefit Cost Ratio (2/1)	0.37	0.45
Annualized:		
1. Costs	\$735	\$509
2. Benefits	\$289	\$232
3. Net Benefits (2-1)	(\$446)	(\$277)
4. Benefit Cost Ratio (2/1)	.039	0.46

When discounting is used, the future benefits decline in comparison to the present costs. When a higher discount rate is used, the results are less favorable for the action generating the future benefits.

DEQ reviewed its current list of small and large quantity generators, and found this rule may affect approximately one active coal-fired power plant. EPA estimated the affected businesses in Oregon include only one coal-fired power plant. This plant, anticipated to close within the next few years, burns sub-bituminous coal with a national average ash rate of 5.74%. EPA estimates this facility produces approximately 75,700 annual tons of CCR and manages it in a landfill and surface impoundment.

¹ Source: Federal Register (80 FR 21302-21501), Regulatory Flexibility Act, p.21463

² Source: EPA 2015 Regulatory Impact Analysis, p.ES-11

a. Estimated number and type of small businesses subject to proposed rule.	Using recent employment data, DEQ found one coal-fired power plant generating coal combustion residuals in Oregon under 221112 North American Industry Classification System code.
b. Projected reporting, recordkeeping and other administrative activities, including costs of professional services, required for small businesses to comply with the proposed rule.	This rule will incrementally increase administrative costs for new reporting, recordkeeping, meeting structural integrity requirements, and groundwater cleanup corrective action requirements. (See <i>Appendix A</i>)
c. Projected equipment, supplies, labor and increased administration required for small businesses to comply with the proposed rule.	This rule will incrementally increase costs to meet pollution control requirements and ancillary activity costs such as wet to dry conversion CCR handling, dewatering and capping of inactive CCR impounds. (See <i>Appendix A</i>)
d. Describe how DEQ involved small businesses in developing this proposed rule.	DEQ included small business representatives on the Hazardous Waste Rulemaking Advisory Committee. Representatives from Associated Oregon Industries on the committee will advise DEQ on the cost of compliance for small businesses. DEQ will also provide rulemaking notice to eligible small businesses for additional fiscal and economic impact considerations.

Documents relied on for fiscal and economic impact

Document title	Document location
Federal Register entries for the incorporated rule and amendments	Federal Register
Federal: <i>EPA's 2015 RCRA Final Rule Regulating Coal Combustion Residual (CCR) Landfills and Surface Impoundments at Coal-Fired Electric Utility Power Plants & Appendices</i>	2015 Regulatory Impact Analysis CCR Impact Analysis Appendices
Oregon Annual Hazardous Waste Reporting for NAICS 221112 code in 2014	Oregon Department of Environmental Quality Hazardous Waste Program 811 SW Sixth Avenue Portland, OR 97204
Oregon Department of Employment 3 rd quarter 2015 data	Employment Department 875 Union Street NE Salem OR 97311

Advisory committee

DEQ appointed an advisory committee.

As ORS 183.333 requires, DEQ will ask for the committee's recommendations on:

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

The committee will review the draft fiscal and economic impact statement and its findings will be in the record for this rulemaking.

If the committee determines there would be a significant impact to small businesses, as ORS 183.333 and 183.540 require, the committee will consider how DEQ could reduce the rule's fiscal impact on small businesses by:

- Establishing differing compliance or reporting requirements or time tables for small business;
- Clarifying, consolidating or simplifying the compliance and reporting requirements under the rule for small business;
- Utilizing objective criteria for standards; or
- Establishing less intrusive or less costly alternatives applicable to small business.

Housing cost

As ORS 183.534 requires, DEQ evaluated whether the proposed rule would 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. DEQ determined the proposed rule would have no effect on the development costs because the proposed rule only affects businesses under the hazardous waste regulations.

Appendix A
EPA 2015 Regulatory Management Costs

Exhibit ES-A					
Incremental CCR Management Costs – All CCR Management Units (millions 20132\$)					
CCR Pollution Control		3% discount rate		7% discount rate	
		Annualized	Present values	Annualized	Present value
A. Unit-Level pollution control costs*					
1	Groundwater monitoring for CCR contamination	\$4.79	\$151	\$2.80	\$39.9
2	Bottom liners	\$491	\$15,500	\$297	\$4,230
3	Leachate collection systems (landfills only)	\$51.6	\$1,630	\$18.4	\$263
4	CCR fugitive dust controls	\$7.09	\$224	\$3.36	\$48.0
5	Stormwater run-on/run-off controls	\$18.8	\$594	\$13.0	\$186
6	Location restrictions	\$43.6	\$1,380	\$20.0	\$285
7	Closure capping	\$20.1	\$630	\$12.0	\$171
8	Post-Closure groundwater monitoring (30 years)	\$0.0760	\$2.40	\$0.0430	\$0.613
9	CCR impoundment structural integrity requirements	\$10.9	\$344	\$11.1	\$158
B. Other ancillary costs					
10	Corrective action (groundwater cleanup)	\$19.0	\$600	\$19.1	\$273
11	Reporting & recordkeeping	\$26.3	\$831	\$27.3	\$389
12	Conversion from wet to dry CCR handling	\$92.0	\$916	\$57.3	\$818
13	Dewater & capping inactive CCR impoundments	\$12.0	\$380	\$26.7	\$381
	14. Subtotal Industry Costs (1+...+13) =	\$734	\$23,200	\$508	\$7,240
C. State Agency Paperwork Burden Costs					
15	CCR impoundment structural integrity requirements	\$0.218	\$6.88	\$0.221	\$3.16
16	Groundwater cleanup corrective action	\$0.380	\$12.0	\$0.382	\$5.45
17	Reporting & recordkeeping	\$0.526	\$16.6	\$0.546	\$7.78
18	Subtotal State Paperwork Burden Cost (15+16+17) =	\$1.12	\$35.5	\$1.15	\$16.4
	19. Column Total Costs =	\$735	\$23,200	\$509	\$7,260
<p>Notes</p> <ul style="list-style-type: none"> • Except for location restrictions, all unit-level CCR pollution control costs cannot be dissociated due to nonlinearity in the cost estimation modeling process. See Section 4.2 for additional information. As a result, relative costs for unit-level pollution controls are assigned based on the relative unit cost of these requirements and weighted by the number of existing and new landfills subject to these requirements. • For reason explained in Section 5.3.4 of this RIA, row 19 above (total cost) does not subtract the “cost offset” which is displayed in row 3 of Exhibit ES-B. Instead, this RIA includes the “cost offset” within the CCR beneficial use benefit category rather than as a negative cost. 					

Source: EPA 2015 Regulatory Economic Analysis, p. ES-9

Appendix B
Environmental and Human Health Benefits for the CCR Final Rule

Exhibit ES-B (millions 20132\$)					
Benefit Category		3% discount rate		7% discount rate	
		Annualized	Present values	Annualized	Present value
Monetized Benefits					
1	Reduced CCR impound releases	\$151	\$4,760	\$38	\$1,960
2	Reduced CCR groundwater contamination	\$12.8	\$405	\$9.86	\$141
	Closures	\$1.60	\$50.7	\$1.46	\$20.9
	Bottom liners	\$6.56	\$207	\$5.06	\$72.2
	Groundwater monitoring	\$4.65	\$147	\$3.34	\$47.7
3	Increase in CCR benefit uses*	\$117	\$3,130	\$79.0	\$1,120
	Avoiding air pollution & resource consumption	\$32.5	\$459	\$21.9	\$164
	CCR rule "Cost offset" (alternatively could be subtracted from row 19 of Exhibit ES-A)	\$84.5	\$2,670	\$57.1	\$956
4	Reduced incident of cancer	\$0.00546	\$0.173	\$0.00273	\$0.0390
5	Avoided IQ losses from mercury	\$0.279	\$8.80	\$0.0246	\$0.351
6	Avoided IQ losses from lead	\$0.186	\$5.87	\$0.0164	\$0.234
7	Reduced need for specialized education	\$0.00273	\$0.0863	\$0.000	\$0.000
8	Non-market surface water quality benefits				
	Improved aquatic and wildlife habitat				
	Enhanced water-based recreation				
	Aesthetic improvements of surface water	\$2.26	\$71.4	\$1.89	\$27.0
	Increased non-use ecosystem value				
	Reduced risks to aquatic wildlife				
9	Protection of threatened and endangered species in vicinity of CCR disposal units	\$0.909	\$28.7	\$0.759	\$10.8
10	Improved air quality from reduced power plant air pollutant emissions (fuel switching)				
	Reduced air emissions of NO _x , SO ₂	\$4.66	\$147	\$2.04	\$29.1
	Reduced air emissions of CO ₂				
11	Reduced groundwater withdrawals (after conversion from wet to dry CCR handling)	\$0.00273	\$0.0863	\$0.00273	\$0.0390
	Column Totals =	\$289	\$8,550	\$232	\$3,290
12	Financial benefit. Reduced investment risk and information asymmetry in financial markets for the electric utility industry.				
13	Dread reduction benefit. Reduced fear, stress, and anxiety (i.e. hazard dread) of citizens residing near CCR impoundments.				
14	CCR dust nuisance benefit. Reduced community nuisance from fugitive CCR dust. This is a separate benefit from the human health benefit from reduction in CCR dust inhalation, which is estimated in Chapter 5.				
15	Non-cancer human health benefit. Reduced non-cancer health effects resulting from fish consumption. This is a separate benefit from the avoided cancer risks monetized in Chapter 5.				
16	Cancer and non-cancer human health benefit. Reduced cancer and non-cancer health effects resulting from recreational water use. This is a separate benefit from the human health benefit from reduction in fish consumption, which is in Chapter 5				
17	Avoided sediment contamination. Reduced sediment contaminate from reduced deposition of toxic pollutants.				
18	Water quality benefit. Reduced water treatment costs for drinking and irrigation water.				
19	Commercial fisheries benefit. Improved commercial fishing yields and harvest quality due to aquatic habitat improvements.				
20	Tourism benefit. Increased participation in water-based recreation due to water quality improvements.				
21	Avoided impingement and entrainment mortality. Reduced fish impingement and entrainment mortality from CCR handling surface water intake.				
22	Increased property value. Improvement of aesthetic conditions of the local landscape stemming from the induced closure of CCR impoundments and the associated de-watering, capping, and re-vegetation requirements of the CCR final rule.				

Source: EPA 2015 Regulatory Economic Analysis, p. ES-10