REGULATORY REPORT CARD | May 2014

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AGENCY

Environmental Protection Agency

Rule title

Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category

RIN	2040-AF14
Publication Date	April 19, 2013
Comment Period Closing Date	December 24, 2013
Stage	Proposed rule

REGULATORY SCORING

	SCORE
1. Systemic Problem: How well does the analysis identify and demonstrate the existence of a market failure or other systemic problem the regulation is supposed to solve?	**2**/5
2. Alternatives: How well does the analysis assess the effectiveness of alternative approaches?	**4**/5
3. Benefits (or Other Outcomes): How well does the analysis identify the benefits or other desired outcomes and demonstrate that the regulation will achieve them?[1]	**4**/5
4. Costs: How well does the analysis assess costs?	**3**/5
5. Use of Analysis: Does the proposed rule or the RIA present evidence that the agency used the Regulatory Impact Analysis in any decisions?	**3**/5
6. Cognizance of Net Benefits: Did the agency maximize net benefits or explain why it chose another alternative?	**2**/5
Total Score	**18**/30

SUMMARY

The EPA has proposed revisions to the effluent limitations guidelines and standards applying to the steam electric industry under the Clean Water Act. The proposed effluent limitations guidelines lower wastewater discharges into surface waters and those going to publicly owned treatment works. The aim is to reduce metals and other pollutants released into surface waters (streams, rivers, oceans, etc.).

The proposed rule discusses a number of impoundment failures but does not consider why this might be a market failure. The analysis fails to outline a coherent and testable theory that explains why the problem the regulation aims to solve is systemic rather than anecdotal. The EPA provides empirical evidence of pollution, but little in the way of a theory.

Fortunately, the EPA considers eight regulatory options for the proposed effluent limitation guidelines. While the analysis identifies the alternative that maximizes net benefits, each of the alternatives result in a net cost. The analysis identifies the alternative with the smallest net cost.

The EPA does show how the proposed rule will reduce emissions of various pollutants. By reducing emissions and thus, exposure, citizens will realize improved health outcomes, according to the proposed rule. The proposed rule identifies parties most likely to benefit, including those consuming fish (adults, children, and fetuses), those using ground water, and those using surface water for recreation. While the rule mentions it will likely result in higher electricity prices, few other costs affecting changes in human behavior are examined.

The Regulatory Studies Program at the Mercatus Center at George Mason University issues Regulatory Report Cards scored by a team of economists for economically significant proposed regulations. For more information about the program, scorers, other scores, and scoring conventions, see www.mercatus.org/reportcard.

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1. Systemic Problem: How well does the analysis identify and demonstrate the existence of a market failure or other systemic problem the regulation is supposed to solve?	**2**		
Does the analysis identify a market failure or other systemic problem?	1	1A	The proposed rule discusses a number of impoundment failures but does not consider why they might constitute a market failure.
Does the analysis outline a coherent and testable theory that explains why the problem (associated with the outcome above) is systemic rather than anecdotal?	0	1B	The analysis does not really outline a theory.
Does the analysis present credible empirical support for the theory?	1	1C	There is empirical evidence of pollution, but little in the way of a theory.
Does the analysis adequately address the baseline? That is, what the state of the world is likely to be in the absence of federal intervention not just now but in the future?	4	1D	The analysis does provide a baseline from which to compare several regulatory options. It is a projection of the past that assumes the future will be like the past. Therefore it does not give an accurate point of comparison.
Does the analysis adequately assess uncertainty about the existence or size of the problem?	2	1E	There is some anecdotal evidence, and no discussion of the size of the problem.
2. Alternatives: How well does the analysis assess alternative approaches?	**4**		
Does the analysis enumerate other alternatives to address the problem?	5	2A	Yes, the EPA considers eight regulatory options for the proposed effluent limitation guidelines.
Is the range of alternatives considered narrow (e.g., some exemptions to a regulation) or broad (e.g., performance-based regulation vs. command and control, market mechanisms, nonbinding guidance, information disclosure, addressing any government failures that caused the original problem)?	3	2B	The EPA considered eight regulatory options for the proposed ELGs. All are command and control. These options differ in the waste streams controlled by the regulation, the size of the units controlled, and the stringency of controls (see TDD for a detailed discussion of the options and the associated treatment technology bases). Thus, the EPA is proposing to revise or establish Best Available Technology Economically Achievable (BAT), New Source Performance Standards (NSPS), Pretreatment Standards for Existing Sources (PSES), and Pretreatment Standards for New Sources (PSNS) that apply to discharges of up to seven waste streams: flue gas desulfurization (FGD) wastewater, fly ash transport water, bottom ash transport water, combustion residual leachate from landfills and surface impoundments, wastewater from flue gas mercury control (FGMC) systems and gasification systems, and nonchemical metal cleaning wastes.

Does the analysis evaluate how alternative approaches would affect the amount of benefits or other outcome achieved?	4	2C	The EPA estimates the value of the benefits provided by five of the options considered. The EPA inferred benefits for three options (Options 3a, 3b, and 4a) "for illustrative purposes using elements of the more rigorous analysis done to estimate benefits for Options 2, 3 and 4" (footnote c on page 12-2 of *Benefit and Cost Analysis for the Proposed Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category* (EPA 821-R-13-004)).
Does the analysis identify and quantify incremental costs of all alternatives considered?	4	2D	Table 12-2 in *Benefit and Cost Analysis for the Proposed Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category* (EPA 821-R-13-004) lists the incremental cost of each of the eight options.
Does the analysis identify the alternative that maximizes net benefits?	**4**	2E	The analysis does identify the alternative that maximizes net benefits, even though all alternatives result in a net cost. The analysis identifies the alternative with the smallest net cost.
Does the analysis identify the cost-effectiveness of each alternative considered?	4	2F	"Cost effectiveness values for direct dischargers range from $44/lb-eq to $111/lb-eq, with options 3a and 5 being the most and least cost-effective, respectively. For indirect dischargers, cost effectiveness values range from $168/lb-eq to $445/lb-eq, with Options 2, 3, and 4a being the most cost-effective, and Option 5 being the least cost-effective. Incremental toxic-weighted pollutant removals achieved by moving from Option 2 to Option 3b come at the lowest incremental cost (-$63/lb-eq) for direct dischargers" (RIA, D-6).
3. Benefits (or other Outcomes): How well does the analysis identify the benefits or other desired outcomes and demonstrate that the regulation will achieve them?	4		
Does the analysis clearly identify ultimate outcomes that affect citizens' quality of life?	5	3A	The EPA identifies a large number of ways in which the proposed rule will enhance citizens' quality of life. The reduction in the emissions of metals into surface waters will reduce the number of cancer cases due to arsenic and avoid IQ loss from mercury and lead exposure by reducing fish tissue contamination. The proposed rule will also reduce CO_2, NO_X, and SO_X emissions and thus reduce human mortality from these sources.
Does the analysis identify how these outcomes are to be measured?	4	3B	Using the Value of a Statistical Life methodology, the EPA estimates the monetary benefit of reducing the incidence of cancer from fish consumption, the neurological effects to children ages 0 to 7 from exposure to lead, and the neurological effects to infants from in-utero exposure to mercury. The EPA also estimates the health benefits of reduction in CO_2, SO_X, and NO_X. The EPA calculates the monetary values for avoided neurological and cognitive damages based on the impact of an additional IQ point on an individual's future earnings and the cost of compensatory education for children with learning disabilities.
Does the analysis provide a coherent and testable theory showing how the regulation will produce the desired outcomes?	4	3C	The EPA does show how the proposed rule will reduce emissions of various pollutants. By reducing emissions, and thus, exposure, citizens will, according to the proposed rule, realize improved health outcomes.

Does the analysis present credible empirical support for the theory?	3	3D	The proposed rule cites a number of scientific articles that find a linkage between exposure to arsenic, lead, and mercury and negative health effects.
Does the analysis adequately assess uncertainty about the outcomes?	**3**	3E	The EPA lists nine uncertainties/assumptions that could alter their analysis. For instance, in Benefit and Cost Analysis for the Proposed Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category (EPA 821-R-13-004), the EPA recognizes that the "dose-response function used in this analysis may over- or underestimate IQ impacts arising from mercury exposure" (3–17).
Does the analysis identify all parties who would receive benefits and assess the incidence of benefits?	3	3F	The proposed rule identifies parties most likely to benefit, including those consuming fish (adults, children, and fetuses), those using ground water, and those using surface water for recreation.
4. Costs: How well does the analysis assess costs of the regulation?	3		
Does the analysis identify all expenditures likely to arise as a result of the regulation?	4	4A	The proposed rule does include the capital expenditures required for most of the regulatory options considered.
Does the analysis identify how the regulation would likely affect the prices of goods and services?	4	4B	The proposed rule does estimate the price effect of greater emission controls. For instance, Option 5 results in the highest increased compliance cost of 0.059¢ per kWh.
Does the analysis examine costs that stem from changes in human behavior as consumers and producers respond to the regulation?	2	4C	The rule mentions that a higher price will reduce the quantity supplied, but little else.
If costs are uncertain, does the analysis present a range of estimates and/or perform a sensitivity analysis?	4	4D	The Sensitivity Analysis summarizes the results of four alternate analysis scenarios to evaluate the sensitivity of results to different assumptions: (1) incorporating projected installations of air pollution control through 2020; (2) applying BAT and PSES requirements to all generating units regardless of the type or generating capacity; (3) assuming the immediate implementation of control technologies upon renewal of a plant's National Pollutant Discharge Elimination System (NPDES) permit following rule promulgation; and (4) assuming that plants pass through a fraction of their compliance costs to electricity consumers (RIA, 1–6). In each section the EPA lists limitations and uncertainties.

5. Use of Analysis: Does the proposed rule or the RIA present evidence that the agency used the analysis in any decisions?	**3**	5	The EPA uses much of the RIA to offer slight changes to three of the options for various types of power plants.
6. Net Benefits: Did the agency maximize net benefits or explain why it chose another alternative?	**2**	6	The EPA does not maximize the estimated net benefits. Given the benefits and costs estimated, all regulatory options result in a negative net benefit. However, the EPA's analysis of health benefits omits a number of health effects: "morbidity preceding cancer mortality from exposure to arsenic; neonatal mortality from exposure to lead (EPA, 2009a); effects to adults from exposure to lead (including increased incidence of hypertension, heart attack, strokes, and premature mortality, nervous system disorders, anemia and blood disorders, and other effects; EPA, 2009a; 2013a); effects to adults from exposure to mercury, including vision defects, hand-eye coordination, hearing loss, tremors, cerebellar changes, and others (Mergler et al., 2007; CDC, 2009); and noncancer effects from exposure to other steam electric pollutants. Therefore, the total monetized human health benefits included in this analysis represent only a subset of the potential health benefits that would result from the proposed ELGs" (*Benefit and Cost Analysis for the Proposed Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category* (EPA 821-R-13-004), 2-4).

1. According to the Morgenstern et al. study results for the four analyzed industry sectors, the demand effect is expected to have an unambiguously negative effect on employment, the cost effect to have an unambiguously positive effect on employment, and the factor-shift effect to have an ambiguous effect on employment. Therefore, without more information with respect to the magnitudes of these competing effects, it is not possible to predict the total effect that an environmental regulation will have on overall employment levels in the regulated sector. Overall, however, the Morgenstern et al. results suggest that increased pollution abatement expenditures generally do not cause a significant change in net employment. More specifically, their results indicate that, on average across the industries studied by Morgenstern et al., each additional $1 million spending on pollution abatement results in a (statistically insignificant) net increase of 1.55 jobs (at the 95 percent confidence interval, results range from approximately -2.84 to + 5.94 (i.e., 1.55 ± 4.39).

The four industries analyzed by Morgenstern et al. do not include the electric power industry. The analyzed industries may differ from the electric power industry sector in terms of the effects of environmental compliance expenditures on employment. Specifically, the control technologies described for this rule likely differ from those in the four industries analyzed by Morgenstern et al., but it is not possible to assess the magnitude or direction of these differences on employment effects. Consequently, the EPA estimated the change in the number of jobs in the electric power industry sector due to the proposed ELGs using, the average total effect coefficient of 1.55 jobs per $1 million (1987 dollars) in spending. Specifically, the Agency multiplied average annual compliance cost values estimated as part of the social cost analysis (see BCA Chapter 11: Assessment of Total Social Costs), restated in 1987 dollars using the Gross Domestic Product (GDP) deflator index published by the US Bureau of Economic Analysis (BEA), by 1.55. The EPA also calculated the range in effects based on employment changes estimated at the 95 percent confidence level.