IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

CLEAN WATER ACTION, *et al*., Plaintiffs, v. E. SCOTT PRUITT, *Administrator, U.S. Environmental Protection Agency, et al*., Defendants.	Civil Action No. 17-cv-00817 (KBJ)

DECLARATION OF ELIZABETH A. STANTON

I, Elizabeth A. Stanton, declare as follows:

1. This Declaration is submitted in support of Plaintiffs' Motion for Summary Judgment. The statements contained in this Declaration are true and correct to the best of my knowledge and, in the case of my opinions, I believe them to be true. If called as a witness, I could and would testify to the statements contained herein.

2. I am the Director and Senior Economist of the Applied Economics Clinic, a non-profit consulting group housed at Tufts University. The Applied Economics Clinic provides expert testimony, analysis, modeling, policy briefs, and reports for public interest groups on the topics of environment, consumer protection, and equity. The Clinic trains the next generation of expert technical witnesses and analysts by providing applied, on-the-job training to graduate students in related fields and working proactively to support diversity among both student workers and professional staff.

3. I am a researcher and analyst with more than 16 years of professional experience as a political and environmental economist. I have authored more than 120 reports, policy studies, white papers, journal articles, and book chapters on topics related to energy, the economy, and the environment.

4. In my previous position as a Principal Economist at Synapse Energy Economics, I led studies examining environmental regulation, cost-benefit analyses, and the economics of energy efficiency and renewable energy. I have submitted expert testimony and comments in Illinois, Vermont, New Hampshire, Massachusetts, and several federal dockets. My recent work includes extensive analysis of the Environmental Protection Agency's (EPA) proposed Clean Power Plan, critiquing the analyses used to support a flawed valuation method for nuclear power plants, developing testimony on Global Warming Solutions Act (GWSA) compliance for the Massachusetts Departments of Energy Resources and Environmental Protection, and analysis of the need for new gas pipelines in New England and the U.S. Southeast.

5. Prior to joining Synapse, I was a Senior Economist with the Stockholm Environment Institute's (SEI) Climate Economics Group, where I was responsible for leading the organization's work on the Consumption-Based Emissions Inventory (CBEI) model and on water issues and climate change in the western United States. While at SEI, I led domestic and international studies commissioned by the United Nations Development Programme, Friends of the Earth-U.K., and Environmental Defense, among others.

6. My articles have been published in Ecological Economics, Renewable Climatic Change, Environmental and Resource Economics, Environmental Science & Technology, and other journals. I have also published books, including *Climate Change and Global Equity*

(Anthem Press, 2014) and *Climate Economics: The State of the Art* (Routledge, 2013), which I co-wrote with Frank Ackerman. I am also coauthor of *Environment for the People* (Political Economy Research Institute, 2005, with James K. Boyce) and co-editor of *Reclaiming Nature: Worldwide Strategies for Building Natural Assets* (Anthem Press, 2007, with Boyce and Sunita Narain).

7. I earned my Ph.D. in economics at the University of Massachusetts-Amherst, and have taught economics at Tufts University, the University of Massachusetts-Amherst, and the College of New Rochelle, among others. My *curriculum vitae* is attached to this testimony as Exhibit A.

2013 Review of Proposed ELGs

8. In 2013, I was the lead author of a report entitled *Review of EPA's June 2013 Steam Electric Effluent Limitations and Guidelines (40 CFR pt. 423),* which was submitted by Earthjustice, Environmental Integrity Project, and Sierra Club together with their comments on the EPA's proposed Effluent Limitation Guidelines (ELGs). Stanton et al., *Review of EPA's June 2013 Steam Electric Effluent Limitations and Guidelines (40 CFR pt. 423) (2013)* [hereinafter Stanton et al. (2013)]. Stanton et al. (2013) examined EPA's benefit-cost analysis in support of that proposed rule, and critiqued EPA's decision to forgo further analysis of several more stringent pollution control options. Stanton et al. (2013) appears in the rulemaking docket for the ELG Rule as document EPA-HQ-OW-2009-0819-4686, Appendix A, *available at* https://www.regulations.gov/document?D=EPA-HQ-OW-2009-0819-4686.

EPA's April 25, 2017 Stay of the Final ELGs

9. In preparation for this declaration, I reviewed and considered the following materials, in addition to my previous research presented, with citations, in Stanton et al. 2013:

- EPA's *Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category; Final Rule* (Nov. 3, 2015) [ID No. EPA-HQ-OW-2009-0819-5558] including the final rule's: (1) announcement in the Federal Register; (2) Regulatory Impact Analysis; (3) Benefit and Cost Analysis; and (4) Technical Development Document.
- The Utility Water Act Group's (UWAG) *Petition for Rulemaking to Reconsider and Administratively Stay the Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category, Final Rule* (Mar. 24, 2017) [ID No. EPA-HQ-OW-2009-0819-6478] ("UWAG's Petition").
- EPA's announcement in the Federal Register of a *Postponement of Certain Compliance Dates for Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category* (Apr. 25, 2017) [EPA-HQ-OW-2009-0819-6479] ("EPA's April 25 Stay Notice" or the "April 25 Stay Notice").
- Barbara Gottlieb et al., *Selling Our Health Down the River: Why EPA Needs to Finalize the Strongest Rule to Stop Water Pollution from Power Plants*, EPA-HQ-OW-2009-0819-5557 (June 17, 2015), https://www.regulations.gov/document?D=EPA-HQ-OW-2009-0819-5557 [hereinafter Gottlieb et al.].
- Selected U.S. Energy Information Administration (EIA) data on the electric sector, including data gathered through EIA Forms 860, 861, and 923.

- U.S. Securities and Exchange Commission10-K forms for selected companies.

10. Based on the materials I have reviewed, and on my knowledge and expertise in environmental economics, I have concluded that:

- EPA's final ELGs have significant benefits not addressed in EPA's April 25 Stay Notice or UWAG's Petition to reconsider the rule.
- EPA's monetization of these benefits in the final ELG rule is incomplete with the result that the Agency's estimation of the total social value of these benefits in dollar terms greatly underestimates their actual value to society.
- Any delay in implementing the ELGs will result in harm to the public. When implemented, the ELGs will have the immediate impact of reducing toxins in water and food consumed in the United States. Delayed implementation of ELGs exposes human communities and natural environments to immediate, serious harm.
- ELGs do not pose an unreasonable burden to the steam electric generating industry as a whole. EPA's April 25 Stay Notice fails to present evidence of costs to the industry, but instead refers to evidence presented in UWAG's Petition. Evidence presented in UWAG's Petition: (1) fails to demonstrate unreasonable burdens to individual owners of steam electric generators; (2) fails to meet—or even address—the standard under the Clean Water Act for rejecting proposed ELG requirements; and (3) fails to demonstrate an unreasonable burden to the industry as a whole.

Implementing the ELGs Will Produce Benefits Not Addressed in EPA's April 25 Stay Notice

11. In the first five years of implementation of the ELGs, EPA expects a minimum of $2.7 billion[1] in societal benefits including reduced health impacts from children's exposure to

[1] All dollar values in this declaration are in 2013 dollars unless otherwise specified.

lead, mercury and arsenic, improved water quality, lower costs for both storing pollutants and cleaning up leaks from these storage systems, and reduced impacts from related air pollution.[2]

12. Although incomplete, EPA's estimated monetary benefits for ELGs range from $471 to $479 million in an average year. These benefits begin immediately in 2019 with a benefit value (based on EPA's partial, monetary benefits) of $512 to $545 million in that year alone.[3] The partial set of benefits monetized by EPA in the final ELG rule are listed here:[4]

[2] EPA, Benefit and Cost Analysis for the Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category, EPA-HQ-OW-2009-0819-5856, at 11-7 – 11-8 (Tables 11-3 and 11-4). $2.7 million is the average of the estimated partial benefits at 3 and 7 percent discount rates.
[3] *Id.* at 11-7 – 11-8 (Tables 11-3 and 11-4).
[4] *Id*. at Table 2-1.

Effect of ELGs	Benefit (Avoided Cost) Category	Analysis Type
Health Impacts		
Reduced exposure to lead, mercury, and arsenic from fish consumption	Reduced IQ losses to children ages 0 to 7 (from lead)	Monetized
	Reduced need for specialized education (from lead)	Monetized
	Reduced incidence of cardiovascular disease (from lead)	Monetized
	Reduced IQ losses to infants (mercury)	Monetized
	Reduced incidence of cancer (arsenic)	Monetized
Ecological Conditions and Recreational Use Benefits		
Improved water quality	Improved aquatic and wildlife habitat	Monetized
	Improved water-based recreation	Monetized
	Enhanced aesthetics	Monetized
	Enhanced non-use values	Monetized
	Improved aquatic and wildlife habitat	Monetized
	Improved protection of T&E species	Monetized
Market and Producitivity Benefits		
Reduced risk of impoundment releases	Avoided cost of clean up and natural resource damages	Monetized
Reduced cost of maintaining navigational waterways/reservoirs	Reducted dredging costs	Monetized
Reduced coal ash disposal	Beneficial use of coal ash	Monetized
Air-Related Benefits		
Reduced air emissions of NO_x and SO_2	Reduced mortality and morbidity from air pollution	Monetized
Reduced greenhouse gas emissions	Avoided climate change damages	Monetized
Water Withdrawals Impacts		
Reduced groundwater withdrawals	Increased availability of groundwater	Monetized

EPA Undervalues Benefits in its ELG Rule

13. EPA emphasizes that its accounting of societal benefits from the ELGs is incomplete: "[t]he monetized benefits of the final rule do not account for all benefits because they omit various sources of benefits to society from reduced steam electric pollutant discharges, such as reduction in certain non-cancer health risk (*e.g.*, effects of cadmium on kidney functions and bone density) and reduced cost of drinking water treatment."[5]

[5] *Id.* at 11-1.

14. Benefits of ELGs not monetized by EPA include the following[6]:

Effect of ELGs	Benefit (Avoided Cost) Category	Analysis Type
Health Impacts		
Reduced exposure to toxins in drinking water	Reduced adverse health effects	Discussed, Value Omitted
Reduced exposure to pollutants from recreational water uses	Reduced adverse health effects	Discussed, Value Omitted
Reduced exposure to bromide	Reduced incidence of cancer	Discussed, Value Omitted
Ecological Conditions and Recreational Use Benefits		
Improved water quality	Reduced sediment contamination	Discussed, Value Omitted
Reduced exposure to impoundments, constructed wetlands	Reduced adverse health impacts to wildlife	Value Omitted
Groundwater Quality Benefits		
Reduced groundwater contamination	Improved groundwater quality	Discussed, Value Omitted
Market and Producitivity Benefits		
Improved water quality for drinking and irrigation	Reduced water treatment costs	Discussed, Value Omitted
Improved fisheries yield	Increased commercial fisheries yield	Discussed, Value Omitted
Improved water quality	Benefits to tourism industry	Discussed, Value Omitted
	Increased property values	Discussed, Value Omitted
Reduction in wastewater storage	Increase land availability for redevelopment	Value Omitted
Avoided administrative costs	Avoided BPJ determinations and TMDL administration	Value Omitted
Reduction in illegal discharges and pollution	Avoided cost of litigation	Value Omitted
Air-Related Benefits		
Reduced air emissions from impoundments' parasitic load	Reduced mortality and morbidity from air pollution	Value Omitted
Reduced air emissions from dry handling of ash	Reduced mortality and morbidity from air pollution	Value Omitted
Water Withdrawals Impacts		
Reduced surface water withdrawals	Reduced vulnerability to drought	Discussed, Value Omitted
	Reduced fish mortality at power plants	Discussed, Value Omitted

[6] *Id.* at Section 2; Stanton et al. (2013) at 23-28 (Table 6).

15. Gottlieb et al. reviewed benefits of ELGs not monetized by EPA. Gottlieb et al. assert (at page 11) that "[t]he benefits that EPA monetized were just the tip of the iceberg," and note in particular that "EPA's analysis did not account for the risks associated with contaminated drinking water near power plants, or the risks associated with downstream consumption of contaminated fish or drinking water."

16. Using EPA's own data and analysis, Gottlieb et al. estimate the value of just one of the benefits omitted by EPA—reduced exposure to toxins in fish consumed in communities living downstream from polluting power plants. Gottlieb et al. estimate that the missing benefits from this single category of reduced harm have a monetized value of between $230 and $330 million each year (p.12). EPA omitted these downstream benefits from the benefit-cost analysis for the proposed rule, and it appears that EPA also omitted these benefits from the benefit-cost analysis for the final rule.

17. EPA's incomplete monetization of societal benefits from ELGs means that expected benefits from this rule are much larger than EPA's estimate of $2.7 billion over the first five years. Neither EPA's April 25 Stay Notice nor UWAG's Petition acknowledge either the monetized or the non-monetized benefits of the ELGs.

Any Delay to the Implementation of ELGs Will Result in Harm to the Public

18. The ELGs will save lives and reduce or eliminate enormous health burdens that disproportionately impact rural and low-income families.[7] Substantial pollution reductions are imminent, with immediate benefits to human health. Delayed implementation of ELGs directly exposes human communities and natural environments to immediate, serious harm.

[7] EPA, Benefit and Cost Analysis for the Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category, EPA-HQ-OW-2009-0819-5856, Chapter 14.

Later implementation cannot undo the damage from toxin exposure that will occur in the intervening years.

ELGs Do Not Pose an Unreasonable Burden to the Steam Electric Generating Industry

19. Evidence of costs to industry presented in UWAG's Petition fails to demonstrate unreasonable burdens to individual owners of steam electric generators. UWAG raises concerns regarding the cost burden of ELGs to the parent companies of generators. EPA's April 25 Stay Notice appears to adopt these concerns uncritically and without sufficient evidence.

20. The ELG cost estimates presented as evidence by UWAG amount to just 0.6 to 0.8 percent of the referenced parent companies' annual revenues:[8,9]

	UWAG Reported ELG Compliance Cost per Year	ELG Costs as a Share of Estimated Revenue
Dynegy	$44,000,000	0.8%
NRG Energy	$25,000,000	0.3%
AEP	$79,000,000	0.6%
City Utilities of Springfield	$1,590,000	0.6%

In addition, as is discussed below, it is extremely likely that these owners and utilities will pass some or all of these costs on to their customers.

21. Evidence of costs to industry presented in UWAG's Petition fails to meet—or even address—the standard required under the Clean Water Act for rejecting ELG requirements.

[8] Sources of cost estimates: UWAG Petition (2017) together with 10-Ks for Dynegy, NRG, and AEP. (10-Ks for NRG and Dynegy confirmed the cost numbers presented in UWAG's Petition; the 10-K for AEP did not.) Annualized costs are total ELG costs divided by stated range of years. For City Utilities of Springfield UWAG presents only capital costs. I estimated total annual costs by assuming a 7-year range and inflating UWAG's capital costs by 60 percent, the share of operating costs to total costs in EPA's ELG cost estimates (EPA (2015) Benefit and Cost Analysis for Steam Electric Power Generating ELGs, Table 12-2, and EPA (2015) Technical Development Document for Steam Electric Power Generating ELGs, Table 9-18).

[9] I provide a rough estimate of parent company revenue using public data sources. Electric distributors and generators submit forms on a monthly and/or annual basis to the U.S. Energy Information Administration (EIA). These forms (EIA 861 and EIA 923) include data regarding selected revenues, electric sales, and electric prices.

EPA's April 25 Stay Notice fails to address the actual standards under the Clean Water Act for accepting or rejecting technologies required in ELGs. As we explained in detail in Stanton et al. 2013:

> The Clean Water Act establishes a simple, clear standard for the choice of pollution control technologies to be enforced by EPA: For each industry, the most stringent, but still technologically achievable, control measures are identified. These are the measures to be enforced, unless there is evidence that a particular technology will place a prohibitive burden on the industry as a whole…
>
> Congress' mandate to EPA in the Clean Water Act requires that pollution control technologies be eliminated from consideration [to be required in ELGs] only on grounds of:
>
> 1. **Stringency:** There are other more effective technologies for controlling the discharge of pollutants from a particular effluent stream.
> 2. **Technological achievability:** The proposed technology is not achievable (i.e. cannot be purchased or installed).
> 3. **Economic achievability:** The cost of proposed technology is, in EPA's determination, an unreasonable burden to the industrial category as a whole (here, all steam electric generators other than oil-fired generating units and generating units with capacities 50 MW or smaller).

Stanton et al. (2013), p. 2-3.

22. The standard necessary to reject the most stringent pollution control technology that is technologically achievable is a determination by EPA that the technology's implementation would pose "an unreasonable burden to the industrial category as a whole." Stanton et al. (2013) at 3. UWAG's Petition provides no evidence pertinent to this standard.

23. Evidence of costs to industry presented in UWAG's Petition does not demonstrate an unreasonable burden to the industry as a whole. EPA's assessment of the costs of ELGs for the steam electric industry—for which UWAG provides no contradictory evidence—reports that:

- 96 percent of plants in this category will have annual costs that amount to less than 1 percent of their annual revenue; just 1 percent will have costs greater than 3 percent of revenue.[10]
- 92 percent of parent companies owning steam electric generators will have annual costs that amount to less than 1 percent of their annual revenue; just 2 percent will have costs greater than 3 percent of revenue.[11]
- 96 percent of "small entity" parent companies will have annual costs that amount to less than 1 percent of their annual revenue; just 2 percent will have costs greater than 1 percent of revenue.[12]
- As a result of ELGs, on aggregate, the total U.S. steam electric power industry will lose 0.2 percent of its capacity to early retirement, provide 0.2 percent less generation, and see an increase of 0.6 percent in total annual costs.[13]

24. It is difficult to see how costs of this magnitude can be construed as an "unreasonable burden" to the steam electric industry, and, while UWAG's Petition claims that industry costs may exceed EPA's estimates, it provides no actual evidence that this is the case.

25. It is also critical to consider the context of EPA's estimated costs to industry. In presenting these cost estimates, EPA used the admittedly flawed assumption that utilities and other electric distribution companies will pass none of their compliance costs on to their customers: "This analysis makes a counterfactual, conservative assumption of zero cost pass through."[14] EPA refers to its own cost assumption as "counterfactual" and the

[10] *Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category; Final Rule*, 80 Fed. Reg. 67,838, 67,865, Table IX-3 (Nov. 3, 2015).
[11] *Id*. at Table IX-4.
[12] *Id*. at Table XVII-3.
[13] *Id*. at Table IX-5.
[14] *Id*. at 67,865.

undeniably common practice in the industry is to pass some or even all of environmental compliance costs on to consumers in higher electric rates and bills.[15] As such, actual costs to industry—those that the operators are unable to otherwise recover from customers—will be half or even less of the values reported by EPA.

26. Indeed, in estimating the likely cost to households in increased electric bills, EPA makes the opposite assumption—that 100 percent of the industry's ELG compliance costs will be passed through to consumers—and reports a total annual increase to electric bills of less than two dollars per household for the United States as a whole. (EPA notes that this is a "'worst-case' impact scenario from the perspective of the electricity consumer".[16]) These worst-case bill increases range from $0.00 to $2.67 per household per year by region of the United States.[17]

I declare under the penalty of perjury that the foregoing is true and correct,

Executed on 6-9-17 in Somerville, Massachusetts

Elizabeth A. Stanton

[15] Stanton et al. 2013, p. 55.
[16] EPA (2015) Regulatory Impact Analysis for Steam Electric Power Generating ELGs, Doc EPA-821-R-15-004, at pp.7-1, 7-8.
[17] EPA (2015) Regulatory Impact Analysis for Steam Electric Power Generating ELGs, Table 7-3.