

ORAL ARGUMENT NOT YET SCHEDULED  
**IN THE UNITED STATES COURT OF APPEALS  
FOR THE DISTRICT OF COLUMBIA CIRCUIT**

**State of North Dakota, et al.,**

Petitioners,

v.

**United States Environmental  
Protection Agency,**

Respondent.

Case No. 24-1119  
(and consolidated cases)

On Petition for Review of Final Action of the United States  
Environmental Protection Agency

**UNOPPOSED MOTION OF STATE AND LOCAL  
GOVERNMENTS FOR LEAVE TO INTERVENE AS  
RESPONDENTS**

Pursuant to Federal Rule of Appellate Procedure 15(d) and Circuit Rule 15(b), the undersigned state and local governments (“Movant State and Local Governments”) move to intervene in support of the Environmental Protection Agency (“EPA”) in litigation challenging a federal rule that limits emissions of mercury and other hazardous air pollutants from coal- and oil-fired power plants. 89 Fed. Reg. 38,508 (May 7, 2024) (“Final Rule”).<sup>1</sup> Movant State and Local

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<sup>1</sup> National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units Review of the Residual Risk and Technology Review.

Governments seek to intervene to defend the rule, which will prevent toxic contamination of our waters and natural resources and protect our residents' health and our economies.

Respondents do not oppose this motion. Petitioners take no position on this motion.

The Court should grant this motion for intervention because it is timely, Movant State and Local Governments have legally protected interests that the petitions would impair, and no existing party can adequately represent those interests.

## **BACKGROUND**

### **I. STATUTORY AND REGULATORY BACKGROUND**

Clean Air Act section 112 requires EPA to establish national emissions standards for hazardous air pollutants from defined categories of stationary sources that emit or have the potential to emit more than certain emission thresholds amounts of those pollutants. *See* 42 U.S.C. §§ 7412(a)(1); 7412(c)(1); 7412(d)(1). Congress directed that EPA, prior to imposing such emissions standards on power plants (referred to as “electric utility steam generating units”), determine whether regulation of hazardous air pollutant emissions from that category of sources was “appropriate and necessary” after implementation of other provisions of the Clean Air Act based on a

study of the continued hazards they pose to public health. *See id.* § 7412(n)(1)(A).

Section 112(d) requires EPA to set standards for regulated source categories, including power plants if “appropriate and necessary,” based on the maximum degree of emissions reductions that it determines is achievable, “taking into consideration the cost of achieving such emission reduction and any nonair quality health and environmental impacts and energy requirements.” *Id.* § 7412(d)(2). These are known as “maximum achievable control technology” standards.

Congress further required that, at least every 8 years, EPA review and revise those standards “as necessary (taking into account developments in practices, processes, and control technologies).” *Id.* § 7412(d)(6); *see also Portland Cement Ass’n v. EPA*, 665 F.3d 117, 189 (D.C. Cir. 2011) (“Though EPA must review and revise standards ‘no less often than every eight years,’ nothing prohibits EPA from reassessing its standards more often.” (internal citation omitted)). Section 112(f) also requires that EPA, within 8 years of promulgation of maximum achievable control technology standards, conduct an analysis of the remaining risk after imposition of those standards and

promulgate further standards as necessary “to provide an ample margin of safety to protect public health.” *Id.* § 7412(f)(1)-(2).

In 2000, EPA determined, based on an extensive record reflecting over a decade of scientific research and data, that regulation of power plants was “appropriate and necessary,” 65 Fed. Reg. 79,825 (Dec. 20, 2000), and, amidst legal challenges, reaffirmed that determination in 2012, 2016, and 2023. 77 Fed. Reg. 9304 (Feb. 16, 2012); 81 Fed. Reg. 24,420 (Apr. 25, 2016); 88 Fed. Reg. 13,956 (Mar. 6, 2023).

Following its 2012 reaffirmation of the “appropriate and necessary” finding, EPA promulgated technology-based emissions limits for mercury and other hazardous air pollutants from coal- and oil-fired power plants (“2012 Standards”). 77 Fed. Reg. 9304. Since then, power plants have installed and begun operating significant pollution controls, which have led to dramatic reductions in emissions of mercury and other hazardous pollutants, and provided concomitant benefits to our jurisdictions. 88 Fed. Reg. at 13,963 (explaining that, after the 2012 Standards, mercury emissions decreased 86 percent, non-mercury metal hazardous air pollutant emissions decreased 81 percent, and acid gas hazardous air pollutant emissions decreased 96 percent from 2010 levels).

In 2020, EPA published a final action that summarized the findings of its residual risk assessment pursuant to section 112(f)(2) and its review of developments in practices, processes, and control technologies for the sources regulated by the 2012 Standards pursuant to section 112(d)(6), finding no revisions to the 2012 Standards were warranted (together, “Residual Risk and Technology Review”). 85 Fed. Reg. 31,286, 31,298 (May 22, 2020).

In 2023, EPA issued a proposed rule reviewing its 2020 Residual Risk and Technology Review, further analyzing the developments in practices, processes, and control technologies for emissions of hazardous air pollutants, and recommending amendments to the national emissions standards based on that review and analysis. *See* 88 Fed. Reg. 24,854 (Apr. 24, 2023) (“2023 Proposal”). Movant State and Local Governments submitted comments on the 2023 Proposal that, among other things, supported EPA’s proposal to impose more stringent limits on emissions of mercury from lignite coal-fired power plants and emissions of non-mercury metals from all coal-fired power plants and to require the use of particulate matter continuous emissions monitoring systems by both coal- and oil-fired plants to demonstrate compliance with the filterable particulate matter surrogate standard for emissions of non-mercury metals. *See*

Comments of the Attorneys General of Massachusetts, et al. (June 23, 2023), Docket ID No, EPA-HQ-OAR-2018-0794-5988 (“States’ 2023 Comments”). Movant State and Local Governments highlighted in comments that our jurisdictions continue to suffer from substantial exposure to mercury and other toxic air pollutants, and that these more stringent standards on power plant emissions would reduce pollution, and therefore the associated health and environmental harms our residents and natural resources face. *See id.* at 8–9.

## II. THE FINAL RULE

The 2023 Proposal received substantial comments from varied stakeholders including those representing industry, consumers, public health, government, and environmental interests. After duly considering all these submissions, EPA issued the Final Rule.

The Final Rule implements EPA’s proposed changes to the 2012 Standards based on developments in practices, processes, and control technologies that warrant such revisions. 89 Fed. Reg. 38,508. Relevant here, the Final Rule revises the emissions limit for filterable particulate matter for existing coal-fired power plants by making it more stringent and requires the use of continuous emissions monitoring systems by both coal- and oil-fired power plants to demonstrate compliance with their respective filterable particulate

matter standards. *Id.* at 38,518. The Final Rule also imposes a more stringent emissions limit for mercury from lignite coal-fired power plants, aligning it with the emissions limit for mercury that has been in place for other coal-fired power plants since 2012. *Id.*

### III. THE MOVANTS' LONG HISTORY IN MERCURY AND AIR TOXICS STANDARDS LITIGATION AND MERCURY REDUCTION

For over two decades, Movant States and Local Governments have advocated for and participated in litigation to promote and defend EPA's efforts to reduce hazardous pollution from power plants pursuant to section 112 of the Clean Air Act. Many of the undersigned successfully challenged EPA's reversal of the 2000 appropriate and necessary finding in *New Jersey v. EPA*, 517 F.3d 574, 581 (D.C. Cir. 2008). Moreover, this court allowed the intervention of many in this group to defend the reaffirmation of that finding in *White Stallion Energy Center, LLC v. EPA*, No. 12-1100 (D.C. Cir. May 18, 2012), ECF No. 1374443,<sup>2</sup> and *Murray Energy v. EPA*, D.C. Cir., No. 16-1127 (D.C. Cir. Aug. 3, 2016), ECF No. 1628451, and the legality of the 2012

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<sup>2</sup> Many of the undersigned also defended EPA's 2012 reaffirmation of the appropriate and necessary finding in the Supreme Court in *Michigan v. EPA*, 576 U.S. 743, 760 (2015) (reversing judgment in *White Stallion Energy Center, LLC v. EPA*, 748 F.3d 1222 (2014) (per curiam), and remanding for consideration of cost in determining whether it is "appropriate" to regulate power plants under section 112).

Standards in *Westmoreland Mining Holdings, LLC v. EPA*, No. 20-1160 (D.C. Cir. Sept. 11, 2020), ECF No. 1860992. Many of the undersigned also challenged EPA's illegal (and since, revoked) 2020 rule purporting to reverse its appropriate and necessary finding. Petition for Review, *Massachusetts v. EPA*, No. 20-1265 (D.C. Cir. July 20, 2020).<sup>3</sup>

#### IV. THIS LITIGATION

State Petitioners filed a petition for review of the Final Rule on May 8, 2024, *see* ECF No. 2053456, and Industry Petitioners filed petitions for review of the Rule on May 22, 2024, *see NACCO Natural Resources Corp. v. EPA, et al.*, No. 24-1154 (D.C. Cir. May 22, 2024), ECF No. 2053101, and on June 3, 2024, *see Natl. Rural Elec. Coop.*

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<sup>3</sup> This and other pending cases involving challenges to EPA's 2016 reaffirmation of the appropriate and necessary finding and its 2020 rule were voluntarily dismissed in July, 2023, after EPA's 2023 reaffirmation of the appropriate and necessary finding was not challenged. *See* Order, *Massachusetts v. EPA*, No. 20-1265 (D.C. Cir. July 13, 2023), ECF No. 2007748; Order, *Westmoreland Mining Holdings, LLC v. EPA*, No. 20-1160 (D.C. Cir. July 13, 2023), ECF No. 2007767; Order, *Murray Energy v. EPA*, D.C. Cir., No. 16-1127 (D.C. Cir. July 7, 2013).



*Assoc., et al. v. EPA, et al.*, No. 24-1179 (D.C. Cir. June 3, 2024), ECF No. 2057870.

Before filing this motion, counsel for the Movant State and Local Governments contacted counsel for Respondents and Petitioners in the consolidated cases. Counsel for Respondents in the consolidated cases do not oppose this motion. Counsel for Petitioners in Case Nos. 24-1119, 22-1154, and 24-1179 have taken no position on this motion.

### **LEGAL STANDARD**

Federal Rule of Appellate Procedure 15(d) authorizes intervention in circuit court proceedings to review agency actions on a motion containing “a concise statement of interest of the moving party and the grounds for intervention” that is filed within 30 days after the petition for review. In determining whether to grant intervention, this Court typically draws on the policies underlying Federal Rule of Civil Procedure 24. *See Mass. Sch. of Law at Andover, Inc. v. United States*, 118 F.3d 776, 779 (D.C. Cir. 1997). Under Federal Rule of Civil Procedure 24, a party seeking to intervene as of right must satisfy four factors: (1) timeliness of the application to intervene; (2) a legally protected interest; (3) that the action, as a practical matter, impairs or impedes that interest; and (4) that no party to the action can adequately represent the potential intervenor’s interest. *Crossroads*

*Grassroots Pol’y Strategies v. FEC*, 788 F.3d 312, 320 (D.C. Cir. 2015); *see also Old Dominion Elec. Coop. v. FERC*, 892 F.3d 1223, 1233 (D.C. Cir. 2018) (looking “to the timeliness of the motion to intervene and whether the existing parties can be expected to vindicate the would-be intervenor’s interests”).

A court may also grant permissive intervention when a movant makes a timely application and the applicant’s claim or defense and the main action have a question of law or fact in common. Fed. Rule Civ. Proc. 24(b)(1); *see EEOC v. Nat’l Children’s Ctr., Inc.*, 146 F.3d 1042, 1046 (D.C. Cir. 1998).

## ARGUMENT

### I. MOVANT STATE AND LOCAL GOVERNMENTS ARE ENTITLED TO INTERVENE AS A MATTER OF RIGHT.

Movant State and Local Governments easily satisfy the Federal Rule of Appellate Procedure 15(d) standard for intervention and the showings required for intervention as of right under Federal Rule of Civil Procedure 24(a)(2). First, this motion is timely filed within 30 days of the filing of the petition for review. *See* Fed. Rule App. Proc. 15(d). Second, as this Court has repeatedly found in granting Movant State and Local Governments’ motions to intervene as respondents in multiple prior challenges to the appropriate and necessary finding and

to the 2012 Standards, Movant State and Local Governments have legally protected interests in the reductions in mercury and other toxic air pollutants that the Final Rule secures, and which would be impaired by the petition here. *See Crossroads*, 788 F.3d at 320. Finally, no existing party to the action can adequately represent Movant State and Local Governments' unique sovereign and quasi-sovereign interests. *See id.*

**A. Movant State and Local Governments Have Legally Protected Interests in the Final Rule that would be Impaired if the Petition is Granted.**

Movant State and Local Governments have longstanding, legally protected interests in reducing power-plant emissions of mercury and other toxic air pollutants that harm our residents' health, contaminate our natural resources, damage our economies, and impair our ability to meet environmental standards. *See Massachusetts v. EPA*, 549 U.S. 497, 521-23 (2007) (recognizing states' interests in protecting their territory and residents from harmful pollution). Movant State and Local Governments also have a significant interest in the reduced pollution and increased transparency for our residents associated with requiring that power plants install and maintain particulate matter

continuous emissions monitoring systems to comply with the non-mercury metals emissions standards.

Mercury is a persistent toxic metal that, after release into the ambient air from power plants, deposits in soil and water where it transforms into methylmercury. *See* 89 Fed. Reg. at 38,515. Methylmercury bioaccumulates in the aquatic food web, which results in highly concentrated levels in larger and longer-living fish, which—when consumed—can lead to elevated mercury exposures in humans. *See id.*

The harmful health effects of mercury are well known and are detailed in the administrative record here, as well as throughout the administrative records in over 20 years of related EPA actions. *Id.*; *see also, e.g.*, 77 Fed. Reg. at 9310. In particular, mercury has insidious effects on the developing brains of children and fetuses, where exposure can lead to permanent neurological damage and lifetime loss of IQ. *See* 89 Fed. Reg. at 38,515; States' 2023 Comments at 4–6. Children born in communities where fish is a primary dietary staple and those with nutritional deficits are likely more vulnerable to harmful neurological effects from mercury consumption. *See* 89 Fed. Reg. at 38,515. Early exposure to mercury may also cause harm to children's developing cardiovascular systems. *See id.* In adults,

mercury exposure is linked to increased risks of diabetes and autoimmune dysfunction and strongly correlates with adverse cardiovascular effects, including fatal and non-fatal heart diseases. *See States' 2023 Comments* at 4.

Despite major reductions in mercury emissions due to implementation of the 2012 Standards, *see id.* at 10–11, coal-fired power plants continue to contribute to mercury contamination within many of our borders, *see* 89 Fed. Reg. at 38,515. Mercury contamination of waterbodies is a serious problem across the Nation. Over 70,000 miles of rivers and streams and over 8 million acres of lakes, reservoirs, and ponds nationwide are designated as “impaired” under the Clean Water Act due to mercury contamination, *see States' 2023 Comments* at 7, including waterbodies located on lands owned by the Movant States, *see e.g.*, Decl. of C.M. Smith, Mass. Dep’t Env’t Prot. (“Smith Decl.”) ¶ 14. Indeed, mercury contamination is so severe as to require regional/statewide limits on mercury inputs through “total maximum daily loads” (“TMDLs”) in thirteen states, many of which are Movant States here. *See States' 2023 Comments* at 4–5. That contamination has also necessitated widespread fish consumption advisories in our jurisdictions to prevent the consumption of mercury-laden fish, *id.*, as well as expenditure of public funds to monitor

contamination levels and implement those advisories. *See* Decl. of H.M. Bouchareb, Minn. Pollution Control Agency (“Bouchareb Decl.”) ¶¶ 10, 12, 23; Smith Decl. ¶¶ 8-10.

In addition to threatening our residents’ health when they consume contaminated fish, mercury contamination in our water bodies reduces the economic value of Movant State and Local Governments’ recreational and commercial fisheries, *see id.* at 8, 12–13. While fish consumption advisories in our jurisdictions are essential to prevent harmful effects from eating contaminated fish, these advisories decrease consumer demand for commercial fish and reduce recreational fishing. *See id.* at 4–5; *see also* Comments of the Attorneys General of Massachusetts, et al. 12–13 (Apr. 11, 2022), Docket ID No. EPA-HQ-OAR-2018-0794-4942 (“States’ 2022 Comments”). As a result, reducing mercury contamination that can travel to our water bodies has economic benefits related to protecting in-state industries, *see id.*, which, in turn, support our jurisdictions’ tax base.

Power-plant emissions of non-mercury metal hazardous air pollutants regulated by the 2012 Standards also threaten the health of our residents, and therefore impose health care burdens on our jurisdictions. *See* Decl. of S. Johnson, N.Y.C. Dept. Health & Mental Hygiene (“Johnson Decl.”) ¶¶ 7, 11-13. Exposure to non-mercury

metals including arsenic, chromium, nickel, and cobalt, can cause various chronic health disorders including kidney damage and decreased pulmonary function and can also cause symptoms such as nausea and vomiting. 89 Fed. Reg. at 38,515. Arsenic, chromium, and nickel are known to cause—and cadmium, selenium, and lead are likely to cause—cancer in humans. *Id.* Moreover, children are often more susceptible to harms from such toxins through greater exposures (due to their higher respiratory and soil/dust ingestion rates) and their rapidly developing systems and organs and immature detoxification pathways. 76 Fed. Reg. 24,976, 25,018 (May 3, 2011). Again, despite significant reductions in power sector emissions of these hazardous air pollutants since implementation of the 2012 Standards, power plants remain the largest domestic source. *See* 88 Fed. Reg. at 24,857.

Importantly, the impacts of mercury and non-mercury metal hazardous air pollutants are not evenly distributed within our jurisdictions. Instead, the burden of these pollutants falls disproportionately on communities already facing other environmental burdens. *See* Johnson Decl. ¶¶ 14-16.

Communities within a three-mile radius of power plants tend to face greater exposure to mercury and most other hazardous air pollutants. *See* States' 2023 Comments at 5. These communities as well

as those populations that consume higher quantities of fish disproportionately include people of color and communities experiencing poverty, among other disadvantaged communities. *See id.*; 89 Fed. Reg. at 38,556. Tribal communities, in particular, are three to ten times more likely than the U.S. population as a whole to be exposed to methylmercury. *See States' 2023 Comments* at 5. For example, the Wisconsin Anishinaabe (Ojibwe or Chippewa Peoples) who consume walleye—a species of fish that is both subject to mercury fish consumption advisories and essential to maintaining a traditional way of life—at significantly higher rates than the rest of the state. *See id.* Additionally, fishers experiencing poverty in urban areas are less likely to travel to safer fishing areas due to income and transportation limitations and are less likely to follow or trust fish advisories. *See id.*

Furthermore, the communities disproportionately impacted by methylmercury exposure through fish consumption also face cumulative impacts, and certain demographic groups show higher blood mercury levels. EPA's watershed-based risk assessment showed low-income Black subsistence fishers in the Southeast face higher risks of fatal heart attacks from power plant methylmercury exposures; Tribal subsistence fisher in the Great Lakes region are also likely to face similar cumulative impacts. 87 Fed. Reg. at 7647.



Movant State and Local Governments also have a regulatory interest in the reductions in mercury emissions that will be achieved by the Final Rule. In particular, two Movant States with acute mercury loads, Minnesota and Michigan, have developed state-wide (and EPA-approved) Total Maximum Daily Loads (TMDLs),<sup>4</sup> along with concomitant implementation plans for mercury reduction, *see* Bouchareb Decl. ¶¶ 11, 19-22. Additionally, Illinois has a near-shore TMDL for Lake Michigan,<sup>5</sup> and Connecticut, Maine, Massachusetts, New York, Rhode Island, and Vermont participate in a northeast regional TMDL.<sup>6</sup> *See* Smith Decl. ¶ 16. The reductions in mercury

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<sup>4</sup> *E.g.*, Minnesota Pollution Control Agency, *Minnesota Statewide Mercury Total Maximum Daily Load* (March 27, 2007), available at <https://www.pca.state.mn.us/sites/default/files/wq-iw4-01b.pdf>; Michigan Department of Environmental Quality, *Michigan Statewide Mercury Total Maximum Daily Load* (June 2018), available at <https://www.michigan.gov/egle/-/media/Project/Websites/egle/Documents/Programs/WRD/GLWARM/TMDL-Other/statewide-mercury.pdf?rev=d9ed9250468943c9ab85d3dea08e6fa4&hash=F7E54A341C3EF7F2CF228B15F9105756>

<sup>5</sup> Illinois Environmental Protection Agency, *Illinois Lake Michigan Nearshore PCB and Mercury TMDL* (April 18, 2019), available at <https://epa.illinois.gov/content/dam/soi/en/web/epa/topics/water-quality/watershed-management/tmdls/documents/final-illinois-lake-michigan-nearshore-mercury-tmdl-report-april-2019.pdf>.

<sup>6</sup> New York State Department of Environmental Conservation, *Northeast Regional Mercury TMDL Fact Sheet* (April 2007), available at [https://extapps.dec.ny.gov/docs/water\\_pdf/mercfact.pdf](https://extapps.dec.ny.gov/docs/water_pdf/mercfact.pdf).

emissions from upwind power plants will help our jurisdictions attain the targets set out in these plans. *See* Bouchareb Decl. ¶¶ 30-33; Smith Decl. ¶¶ 16–18; Johnson Decl. ¶ 21.

In addition, power plants' use of updated technological controls required to comply with the revised standards in the Final Rule will generate reductions in emissions of harmful particulate matter—pollutants that cause premature deaths, asthma, and other lung and heart problems—which will reduce the health care costs our jurisdictions must shoulder. *See* States' 2023 Comments at 8; 89 Fed. Reg. at 38,511; 81 Fed. Reg. at 24,440; Johnson Decl. ¶ 14. Reductions in particulate matter emissions from the 2012 Standards have already resulted in tens of billions of dollars in annual monetized benefits each year, *see* 81 Fed. Reg. at 24,440, which accrue in substantial part to Movant State and Local Governments. *See* States' 2023 Comments at 8; Johnson Decl. ¶¶ 12, 18 (attributing approximately 600 deaths and 1,500 hospital visits and hospitalizations each year in New York City to upwind sources of PM<sub>2.5</sub>, including coal-fired power plants). And reductions in the particulate matter and other criteria pollutants emitted by coal-fired power plants help reduce regional haze issues in the Midwest and other regions of the U.S. *See* States' 2023 Comments at 8.

For all of the above reasons, Movant State and Local Governments have an interest in the further reductions in mercury and non-mercury hazardous air pollutant emissions from power plants that the Final Rule will secure.

In addition, Movant State and Local Governments have an interest in the benefits that will accrue from power plants' required use of continuous emissions monitoring systems for particulate matter to evaluate compliance with the non-mercury metals standard. *See* States' 2023 Comments at 20–21. This compliance method will lead to increased transparency about emissions of hazardous air pollutants, which will enable communities that reside next to power plants to better protect themselves and will facilitate more rapid identification of problems with pollution control equipment, which will ensure that such equipment is repaired more quickly—reducing pollutant deposition within our borders. *See* 89 Fed. Reg. at 38,510.

Movant State and Local Governments' interests in the Final Rule, as described above, would be impaired if the petition is granted and the Final Rule set aside, making intervention warranted here. *See Fund for Animals, Inc. v. Norton*, 322 F.3d 728, 733 (D.C. Cir. 2003) (determining that intervention in administrative review proceedings is appropriate where movant would be harmed by successful challenge to

regulatory action and that harm could be avoided by a ruling denying the relief sought by petitioner).

**B. Movant State and Local Governments' Interests Are Not Adequately Represented.**

Movant State and Local Governments also satisfy the fourth and final factor of Federal Rule of Civil Procedure 24(a) because no existing party in the case can vindicate their interests. This requirement is “not onerous,” and a “movant ordinarily should be allowed to intervene unless it is clear that” existing parties “will provide adequate representation.” *Crossroads Grassroots*, 788 F.3d at 321. “[G]eneral alignment” between would-be intervenors and existing parties is not dispositive. *Id.*

Movant State and Local Governments more than meet this “minimal burden,” *id.* Although Movant State and Local Governments would join EPA in defending the Final Rule in the litigation, we have unique sovereign and quasi-sovereign interests in protecting our residents, waterbodies, wildlife, and industries—interests that, as noted above, are squarely addressed by the Final Rule. Moreover, states with mercury TMDLs have a particular interest in the Final Rule’s impact on their state-specific mercury loads and reduction plans. These state interests are distinct from EPA’s interests in

promulgating and defending the Final Rule, even if Movant State and Local Governments and EPA are generally aligned in contending that the petitions should be denied. As a result, EPA and Movant State and Local Governments may choose to advance different arguments or make different strategic choices in this litigation. *See NRDC v. Costle*, 561 F.2d 904, 912 (D.C. Cir. 1977) (recognizing that “shared general agreement . . . does not necessarily ensure agreement in all particular respects,” and that one need not “predict . . . the specific instances” of such divergence). Movants therefore satisfy this final requirement for intervention as of right.

**C. For the Same Reasons, Movant State and Local Governments Have Article III Standing.**

As this Court has observed, “any person who satisfies Rule 24(a) will also meet Article III’s standing requirement.” *Roeder v. Islamic Republic of Iran*, 333 F.3d 228, 233 (D.C. Cir. 2003); *see also Crossroads*, 788 F.3d at 320. Thus, for the same reasons that Movant State and Local Governments satisfy Federal Rule of Civil Procedure 24(a)’s standard for intervention as of right, they have Article III standing.

Indeed, Movant State and Local Governments meet each of the required elements of Article III standing. This Court’s “cases have

generally found a sufficient injury in fact [for a respondent intervenor] where a party benefits from agency action, the action is then challenged in court, and an unfavorable decision would remove the party's benefit." *Crossroads Grassroots*, 788 F.3d at 317.

As described above, Movant State and Local Governments will benefit from the pollution reductions and increased transparency brought about by the Final Rule, and a decision in favor of the petitioners would remove those benefits, thereby establishing an injury-in-fact here.

This injury to Movant State and Local Governments is "directly traceable" to Petitioners' challenge to the Final Rule, and a successful defense of the Final Rule would thus "prevent the injury," establishing the requisite causation and redressability. *Crossroads Grassroots*, 788 F.3d at 316; *see also Fund for Animals, Inc. v. Norton*, 322 F.3d 728, 733 (D.C. Cir. 2003) (determining that intervention in administrative review proceedings is appropriate where the movant would be harmed by a successful challenge to a regulatory action and that harm could be avoided by a ruling denying the relief sought by the petitioner).

## **II. ALTERNATIVELY, MOVANT STATE AND LOCAL GOVERNMENTS ARE ENTITLED TO PERMISSIVE INTERVENTION.**

Movant State and Local Governments also satisfy the requirements for permissive intervention. Under Federal Rule of Civil Procedure 24(b)(1), courts may “permit anyone to intervene who . . . has a claim or defense that shares with the main action a common question of law or fact” so long as the motion is timely and intervention would not “unduly delay or prejudice the rights of the original parties.” Fed. Rule Civ. Proc. 24(b)(1)(B), (3).

Movants’ defense of the Final Rule will share questions of law with the challenges that petitioners will raise against the Rule. And as it is timely filed within 30 days of the petition, intervention at this early stage in the litigation will not cause any delay or prejudice. *See Massachusetts v. Microsoft Corp.*, 373 F.3d 1199, 1236 (D.C. Cir. 2004) (holding that existing parties would not be prejudiced by any “issue proliferation” because proposed intervenors had already submitted comments on relevant issues that were considered in the underlying decision).

### **CONCLUSION**

For the foregoing reasons, we respectfully request that this Court grant this motion to intervene.

Dated: June 6, 2024

Respectfully submitted,

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**CERTIFICATE AS TO PARTIES AND AMICI**

Pursuant to D.C. Circuit Rules 27(a)(4) and 28(a)(1)(A), I hereby certify the parties and amici are as follows:

In case 24-1119, petitioners are the States of North Dakota, West Virginia, Alaska, Arkansas, Georgia, Idaho, Indiana, Iowa, Kansas, Louisiana, Mississippi, Missouri, Montana, Nebraska, Oklahoma, South Carolina, South Dakota, Tennessee, Texas, Utah, and Wyoming, and the Commonwealths of Kentucky and Virginia.

In case 24-1154, the petitioner is NACCO Natural Resources Corporation.

In case 24-1179, petitioners are National Rural Electric Cooperative Association, Lignite Energy Council, National Mining Association, Minnkota Power Cooperative, Inc., East Kentucky Power Cooperative, Inc., Associated Electric Cooperative, Inc., Basin Electric Power Cooperative, and Rainbow Energy Center, LLC.

In these consolidated cases, respondents are United States Environmental Protection Agency and Michael S. Regan, Administrator of the Environmental Protection Agency.

There are no amici that have appeared in the litigation.

*/s/ Julia E. Jonas-Day*

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JULIA E. JONAS-DAY

**CERTIFICATE OF COMPLIANCE**

I hereby certify that this filing complies with the requirements of Fed. R. App. P. 27(d)(1)(E) because it has been prepared in 14-point Georgia, a proportionally spaced font. I further certify that the motion complies with the type-volume limitation of Fed. R. App. P. 27(d)(2)(A) because it contains 4,456 words, excluding the parts of the motion exempted under Fed. R. App. P. 32(f), according to the count of Microsoft Word.

*/s/ Julia E. Jonas-Day*

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JULIA E. JONAS-DAY

**CERTIFICATE OF SERVICE**

I hereby certify that copies of the foregoing Unopposed Motion for Leave to Intervene as Respondents have been served through the Court's CM/ECF system on all registered counsel this 6th day of June, 2024.

*/s/ Julia E. Jonas-Day*

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JULIA E. JONAS-DAY

ORAL ARGUMENT NOT YET SCHEDULED  
**IN THE UNITED STATES COURT OF APPEALS  
FOR THE DISTRICT OF COLUMBIA CIRCUIT**

**State of North Dakota, et al.,**

Petitioners,

v.

**United States Environmental  
Protection Agency,**

Respondent.

Case No. 24-1119 (and  
consolidated cases)

On Petition for Review of Final Action of the United States  
Environmental Protection Agency

I, Hassan M. Bouchareb, state and declare as follows:

**I. Purpose of this Declaration**

1. I am an Engineer for the Minnesota Pollution Control Agency (“MPCA”). MPCA is the state agency responsible for monitoring environmental quality, providing technical and financial assistance, and enforcing environmental regulations.

2. I provide this declaration on behalf of the State of Minnesota and MPCA in support of the State and Local Government movants’ motion to intervene in support of the Environmental Protection Agency’s



(“EPA’s”) final rule titled National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units Review of the Residual Risk and Technology Review (“Final Rule”). 89 Fed. Reg. 38,508 (May 7, 2024).

3. The Final Rule finalizes EPA’s amendments to the national emission standards for hazardous air pollutants (NESHAP) for the Coal- and Oil-Fired Electric Utility Steam Generating Units (EGUs) source category.

4. The Final Rule is the result of EPA’s review of its prior 2020 Residual Risk and Technology Review (“2020 RTR”). 85 Fed. Reg. 31,286 (May 22, 2020). The changes include the filterable particulate matter (fPM) surrogate emission standard for non-mercury metal hazardous air pollutants (HAP) for existing coal-fired EGUs, the fPM emission standard compliance demonstration requirements, and the mercury (Hg) emission standard for lignite-fired EGUs.

## **II. Experience and Qualifications**

5. My responsibilities at MPCA include leading agency air quality rulemaking efforts and providing technical analysis for rulemaking, coordinating mercury reduction activities and technical analyses,

providing engineering technical leadership and expertise to air program staff and leadership, tracking regional and federal actions (including, specifically, coordinating comments and review on NESHAP revisions), and providing information to other MPCA staff, agency stakeholders, and the general public about NESHAP regulations.

6. I have more than 12 years of experience in the fields of air quality environmental regulation and 7 years of experience coordinating statewide mercury reduction efforts across the state of Minnesota, including evaluating the capabilities of emission reduction technologies and strategies for reducing mercury emissions from a variety of sources. I am familiar with sources of mercury, such as coal- and oil-fired power plants, the transport and deposition of mercury, and the impacts of mercury on environment and human health.

7. I received a B.S. in Chemical Engineering in 2011 from the University of Minnesota - Twin Cities. I served on the 2021 Ad Hoc Committee on Mercury Contamination that was charged to develop a policy resolution for the Great Lakes Commission (GLC) focusing on mercury monitoring, research and reduction, legislative priorities, and other needs in the Great Lakes-St. Lawrence River basin. I have served on

the board of directors for the Air and Waste Management Association-Upper Midwest Section (AWMA-UMS) beginning in 2022. I have presented annually since 2016 on air quality regulatory updates at the Conference on the Environment hosted in Minneapolis, MN, by AWMA-UMS and Central States Water Environment Association (CSWEA). I was invited and presented as a keynote speaker at the National Association of Environmental Professionals 2024 annual conference and training symposium.

8. I have been the co-author on 12 MPCA reports on mercury and have been responsible for coordinating implementation of Minnesota's Statewide Mercury Total Maximum Daily Load ("Mercury TMDL") pursuant to the federal Clean Water Act.<sup>1</sup>

### **III. Minnesota is Adversely Impacted by Anthropogenic Mercury Deposition from Regional and Global Sources.**

9. Minnesota is known as "The Land of 10,000 Lakes." Fishing is an important cultural, recreational, and economic resource to the state and is a hallmark component of several tribal treaty rights. Self-caught fish are

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<sup>1</sup> See 33 U.S.C. § 1313(d)(1) (requiring development of TMDLs for impaired waters).

a major component of many Minnesotans' diets – from Indian country to the Twin Cities Metro area – especially Minnesotans in environmental justice communities.

10. Mercury is a well-known neurotoxin, especially to developing nervous systems, and fish consumption is the primary source of mercury to humans and wildlife. Minnesota has an astonishing 1,696 mercury-impaired waterbodies due to mercury in fish tissue or sediment.<sup>2</sup> And fish consumption advisories are in place for hundreds of lakes and rivers, advising Minnesotans not to consume fish because of unhealthy levels of mercury toxicity.<sup>3</sup>

11. Minnesota's EPA-approved Mercury TMDL sets a mercury budget that is intended to reduce mercury contamination in Minnesota's waters to levels that will allow for the lifting of fish consumption

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<sup>2</sup> MPCA, *2024 Impaired Waters List* (Apr. 1, 2024), <https://www.pca.state.mn.us/sites/default/files/wq-iw1-81.xlsx>.

<sup>3</sup> See Minn. Dep't Pub. Health, *2024 Fish Consumption Guidelines for Pregnant Women, Women Who Could Become Pregnant, and Children under Age 15 – Lakes* (Mar. 2024), <https://www.health.state.mn.us/communities/environment/fish/docs/eating/specoprivers.pdf>; Minn. Dep't Pub. Health, *2023 Fish Consumption Guidelines for Pregnant Women, Women Who Could Become Pregnant, and Children under Age 15 – Lakes* (July 2023), <https://www.health.state.mn.us/communities/environment/fish/docs/eating/specoplakes.pdf>.

advisories. Minnesota regularly revises the list of impacted waters covered by its original 2007 Mercury TMDL based on MPCA's development of fish tissue concentration data and mercury water column data developed in accordance with Minnesota's water quality monitoring strategy. See 33 U.S.C. § 1313(d)(1) (requiring development of TMDLs for impaired waters). Minnesota also regularly revises the list of mercury-emitting facilities which are covered by the TMDL. Both types of revision are subject to regulatory processes and must be approved by EPA. (Such revisions do not make any changes to the original TMDL targets, reduction factors, loading capacities, allocations, reduction goals or other equation elements.) On March 5, 2024, EPA issued its approval of Minnesota's 2024 Revisions to the Minnesota TMDL.<sup>4</sup>

12. Minnesota has been monitoring mercury in fish since 1970. Mercury concentrations in lakes and rivers throughout the state have declined since 1970 but remain high. There actually has been an upward

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<sup>4</sup> EPA, *Minnesota TMDL Approval Letter* (March 5, 2024), <https://www.pca.state.mn.us/sites/default/files/wq-iw4-01ah.pdf>.

trend of mercury in fish since 1990.<sup>5</sup> Northern Minnesota is dominated by forests, wetlands, and lakes, yet mercury levels in sport fish are higher than in other parts of the state. Essentially all the mercury entering Minnesota's waterbodies is from atmospheric deposition. Less than one percent is from point source discharges to surface waters, and there are no geologic sources.

13. Several recent studies have demonstrated the decrease of mercury levels in fish following decreased regional mercury emissions. For example, a large collaborative investigation of mercury in the Great Lakes region showed generally downward mercury trends in Northern Pike and Largemouth Bass that corresponded to the decline in regional mercury emissions and mercury deposition to lakes.<sup>6</sup>

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<sup>5</sup> Monson, B.A., *Trend reversal of mercury concentrations in piscivorous fish from Minnesota Lakes: 1982–2006*, 43(6) *Environmental Science & Technology* 1750-55 (2009).

<sup>6</sup> Evers, D.C., Wiener, J.G., Driscoll, C.T., Gay, D.A., Basu, N., Monson, B.A., Lambert, K.F., Morrison, H.A., Morgan, J.T., Williams, K.A. and Soehl, A.G., *Great Lakes mercury connections: the extent and effects of mercury pollution in the Great Lakes region* (2011); Evers, D.C., Wiener, J.G., Basu, N., Bodaly, R.A., Morrison, H.A., Williams, K.A., *Mercury in the Great Lakes region: bioaccumulation, spatiotemporal patterns, ecological risks, and policy*, 20(7) *Ecotoxicology* 1487-99 (2011); Drevnick, P.E., Engstrom, D.R., Driscoll, C.T., et al., *Spatial and temporal patterns of mercury accumulation in lacustrine*

14. According to MPCA estimates in the original 2007 Mercury TMDL, approximately 90% of the mercury deposition in Minnesota comes from outside the state, both from global and regional sources.<sup>7</sup>

Anthropogenic mercury deposition originating from regional sources was estimated to account for about 30% of Minnesota's mercury deposition, while in-state contributions were estimated to make up 10% of the load.<sup>8</sup>

The exact contribution from various regional, out-of-state sources remains a topic of current research, but because Minnesota receives mercury pollution from outside the state, as well as from in-state sources, addressing mercury impairments in waterbodies requires reducing pollution from both in-state and out-of-state sources.

15. Ambient air mercury concentrations across the United States have fallen due to federal and state regulatory actions and market forces, even as emission inventories show global increases in mercury emissions,

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*sediments across the Laurentian Great Lakes region*, 161 *Env't Pollut.* 252-60 (2012); Monson, B.A., Staples, D.F., Bhavsar, S.P., Holsen, T.M., Schrank, C.S., Moses, S.K., McGoldrick, D.J., Backus, S.M. and Williams, K.A., *Spatiotemporal trends of mercury in walleye and largemouth bass from the Laurentian Great Lakes region*, 20(7) *Ecotoxicology* 1555-67 (2011).

<sup>7</sup> MPCA, *Minnesota Statewide Mercury Total Maximum Daily Load 20-22* (2007), [www.pca.state.mn.us/sites/default/files/wq-iw4-01b.pdf](http://www.pca.state.mn.us/sites/default/files/wq-iw4-01b.pdf).

<sup>8</sup> *Id.*

indicating that local and regional mercury reductions continue to be important. Because local fish mercury concentrations remain unacceptably high in Minnesota, and across the United States, more reductions are needed locally and regionally to reduce those levels for the long term.

16. Domestic coal-fired power plants have long been a significant contributor to mercury contamination in the United States, including the Great Lakes region. The latest United Nations global mercury assessment,<sup>9</sup> published in 2018, reports the emissions of mercury to air from specific sectors within countries for 2015; in the United States, power plant combustion of coal represented 53% of the total domestic mercury emissions.<sup>10</sup>

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<sup>9</sup> U.N. Env't Program, *Global Mercury Assessment* (2018), <https://www.unep.org/topics/chemicals-and-pollution-action/pollution-and-health/heavy-metals/mercury/global-mercury-2>.

<sup>10</sup> U.N. Env't Program, *Technical Background Report to the Global Mercury Assessment* at 3-17, Tbl. 3-5 (2018) (projecting 19,145 kg in mercury emissions from U.S. coal-fired power plants and 36,332 kg in total U.S. anthropogenic mercury emissions in 2015), [https://wedocs.unep.org/bitstream/handle/20.500.11822/29831/gma\\_tech.pdf?sequence=1&isAllowed=y](https://wedocs.unep.org/bitstream/handle/20.500.11822/29831/gma_tech.pdf?sequence=1&isAllowed=y).



17. As described in the Great Lakes Binational Strategy for Mercury Risk Management (“Binational Strategy”),<sup>11</sup> mercury emitted from anthropogenic sources may remain in the atmosphere for six months to a year, enabling long-range global transport prior to eventual atmospheric deposition. Atmospherically deposited mercury accumulates on trees, soil, water, or other surfaces. In addition to long-range transport and deposition, mercury also deposits locally. Gaseous oxidized and particulate mercury forms generally deposit much more rapidly than elemental mercury and have a much shorter atmospheric residence time. Although those oxidized forms of mercury make up a small fraction of total atmospheric mercury, they can be a large part of total mercury deposition.

18. The Binational Strategy specifically reports that observed reductions in mercury contamination in North America in recent years reflect the phase-out of mercury from commercial products as well as mercury emissions reductions as a co-benefit from sulfur dioxide (SO<sub>2</sub>) and

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<sup>11</sup> Env’t & Climate Change Canada and EPA, *Great Lakes Binational Strategy for Mercury Risk Management* 3 (June 2021), <https://binational.net/wp-content/uploads/2021/06/20210615-Mercury-Strategy-FINAL.pdf>.

nitrogen oxides (NO<sub>x</sub>) emission controls on coal-fired utilities.<sup>12</sup> But there is still more work to do in Minnesota and the Great Lakes region.

#### **IV. Minnesota has Long Worked to Reduce Mercury Deposition within its Borders.**

19. In an effort to combat this widespread mercury contamination within the state, Minnesota has developed an EPA-approved implementation plan for its Mercury TMDL.

20. Minnesota's implementation of the Mercury TMDL has been focused primarily on reducing all in-state mercury emissions by 93% from 1990 levels. However, the TMDL emphasizes that we also need national and international mercury reductions to meet our state's water quality standard for mercury.

21. The original 2007 Mercury TMDL established a load allocation for the primary nonpoint mercury source, atmospheric deposition. MPCA assigned wasteload allocations to point sources, including electricity generators, wastewater treatment facilities, and industrial discharges (*e.g.*, pulp and paper mills, taconite processing facilities and refineries). The work of the Mercury TMDL remains underway as MPCA continues to

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<sup>12</sup> *Id.*

pursue the reductions necessary to meet the water quality standards for mercury.

22. Minnesota is a member of The Great Lakes Commission, which recently published a unanimous resolution by an Ad Hoc Committee on Mercury Contamination.<sup>13</sup> That resolution summarizes extensive mercury-reduction efforts in Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin. Among other things, the resolution supports efforts in the United States and Canada to authorize and fund mercury-monitoring efforts, supports research to better understand and target mercury reductions and remediation, and encourages continued pursuit of mercury reduction and remediation.

23. Minnesota agencies, including MPCA, the Department of Health, and the Department of Natural Resources expend time, taxpayer dollars, and other resources monitoring, assessing, and responding to mercury levels in state waters.

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<sup>13</sup> Great Lakes Commission Resolution, *Mercury Monitoring, Research, and Risk Reduction Efforts in the Great Lakes Basin* (Oct. 14, 2021) (unanimous), <https://www.glc.org/wp-content/uploads/FINAL-GLC-Resolution-Mercury-20211014.pdf>.

24. In 2006, Minnesota passed the Mercury Emissions Reduction Act (MERA), which set a schedule for the largest coal-fired utility boilers in the state to reduce mercury emissions by 90% from 2005 levels.<sup>14</sup> As of 2015, all Minnesota utilities have achieved full compliance with MERA. To achieve these reductions, utilities retrofitted some coal-fired plants with improved pollution controls, switched some to natural gas, and shut down others. The changes these facilities made to reduce mercury emissions also brought 75-80% reductions in emissions of air pollutants such as NO<sub>x</sub>, SO<sub>2</sub>, and PM<sub>2.5</sub>, as well as significant reductions in greenhouse gases.

25. Minnesota also has a substantial taconite ore industry that contributes to the state's mercury contamination, and Minnesota has long advocated for control of mercury emissions from that industry through development of a NESHAP and Risk and Technology Review under Clean Air Act section 112. Despite the Clean Air Act's requirement that EPA set a limit for mercury emissions from the taconite ore industry by 2000, EPA did not set one until 2024.<sup>15</sup> That decades-long delay in federal regulation

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<sup>14</sup> Minn. Stat. §§ 216B.02-216B.688.

<sup>15</sup> *National Emission Standards for Hazardous Air Pollutants: Taconite Iron Ore Processing*, 89 Fed. Reg. 16,408 (March 6, 2024).

of mercury emissions from taconite ore processing contributed to Minnesota's cumulative mercury load. Further, because EPA's recent taconite processing standards for mercury emissions face legal challenges, ensuring reductions in regional mercury deposition from power plant emissions is especially important for reducing mercury contamination in Minnesota.

26. MPCA's efforts to address mercury contamination within its borders have necessarily focused on Minnesota's own contribution to regional, national, and global mercury air pollution. But, as discussed next, the Final Rule is significant as it provides for federal emissions standards that will improve mercury emissions from lignite-fired plants just over our border in North Dakota.

**V. Minnesota Faces a Significant Risk of Regional Mercury Deposition from Emissions of Upwind Lignite-Fired Power Plants.**

27. As the Final Rule describes, mercury pollution emitted by EGUs is one of the largest domestic sources of mercury – and it can be

controlled by readily available and cost-effective control technologies such as activated carbon injection (ACI).<sup>16</sup>

28. But such controls were not required for lignite-fired EGUs, which now compose 16 of the top 20 mercury-emitting units.<sup>17</sup> As of 2021, lignite-fired EGUs were responsible for almost 30% of all mercury emitted from coal-fired EGUs, while generating only about 7% of total 2021 megawatt-hours. Lignite accounted for 8% of total U.S. coal production in 2021.<sup>18</sup> But by the same token, EPA concluded that there are available cost-effective control technologies and improved methods of operation that

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<sup>16</sup> 89 Fed. Reg. at 38,517-518; *see also* EPA, *2023 Technology Review for the Coal- and Oil-Fired EGU Source Category* (“2023 Technical Memo”), (Document ID No. EPA-HQ-OAR-2018-0794-5789).

<sup>17</sup> 89 Fed. Reg. at 38,537.

<sup>18</sup> *Id.*

would ensure that even lignite-fired units can achieve more stringent mercury emissions standards.<sup>19</sup>

29. Specifically, EPA expects that lignite-fired units could meet a 1.2 lb/TBtu standard by using brominated activated carbon at certain injection rates.<sup>20</sup> This represents a 90% mercury control.<sup>21</sup>

30. Absent the Final Rule, and absent any applicable state requirements for implementing mercury controls, units that fire lignite coal will continue to emit mercury at very high levels.

31. There are approximately 22 units that are permitted as lignite-fired EGUs in the entire country, and 7 of them are located in North Dakota. North Dakota does not have any state requirements for its lignite-fired EGUs to meet the 1.2 lb/TBtu emission standard that the Final Rule provides, and I am not aware of any other plan for these seven lignite-fired

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<sup>19</sup> *Id.*

<sup>20</sup> 89 Fed. Reg. at 38,547.

<sup>21</sup> *Id.*

plants in North Dakota to achieve a 90% mercury control level without the Final Rule's requirements.

32. As detailed above, Minnesota and the Great Lakes region suffer from regional deposition of anthropogenic mercury emissions and Minnesota has gone to great lengths to control and address mercury deposits within its own borders. Minnesota shares its western border with North Dakota and is situated downwind from North Dakota according to the prevailing polar jet stream, which flows over the area from west to east.<sup>22</sup> The jet stream continues west to east throughout the rest of the Great Lakes region.<sup>23</sup>

33. A reduction in the mercury emissions from the 7 lignite-fired EGUs in North Dakota will directly benefit Minnesota by reducing regional anthropogenic mercury deposition and will support Minnesota's own efforts to address mercury contamination, including its TMDL and implementation plan, within its own borders. It will also benefit

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<sup>22</sup> National Oceanic and Atmospheric Administration, *The Jet Stream*, <https://www.noaa.gov/jetstream/global/jet-stream>.

<sup>23</sup> *Id.*



Minnesota's efforts as part of the Great Lakes Commission to address mercury deposition in the Great Lakes region.

I declare that to the best of my knowledge, under the penalty of perjury under the laws of the United States, that the foregoing is true and correct.

Executed on June 6, 2024, in Dakota County, Minnesota.



Hassan Bouchareb

ORAL ARGUMENT NOT YET SCHEDULED  
**IN THE UNITED STATES COURT OF APPEALS  
FOR THE DISTRICT OF COLUMBIA CIRCUIT**

**State of North Dakota, et al.,**

Petitioners,

v.

**United States Environmental  
Protection Agency,**

Respondent.

Case No. 24-1119  
(and consolidated cases)

**DECLARATION OF C. MARK SMITH, OFFICE OF RESEARCH AND  
STANDARDS, MASSACHUSETTS DEPARTMENT OF  
ENVIRONMENTAL PROTECTION**

I, C. Mark Smith, state and declare as follows,

**I. Purpose of this Declaration**

1. I am the Director of the Office of Research and Standards (“ORS”) within the Massachusetts Department of Environmental Protection (“MassDEP”). That office provides scientific expertise to MassDEP in environmental health, toxicology, standard setting, ecological and human health risk assessment, chemistry and statistics. I also manage the scientific efforts of the Wall Experiment Station, Division of Environmental Laboratory Services (“WES-DELS”). In this capacity, I am responsible for overseeing MassDEP’s monitoring of fish tissue mercury concentrations across Massachusetts and its involvement in a

multi-agency effort to assess that contamination in order to protect the Commonwealth's public health and natural resources.

2. I submit this declaration on behalf of the Commonwealth of Massachusetts in support of the State and Local Government parties' Motion to Intervene as Respondents in *North Dakota v. U.S. Environmental Protection Agency*, U.S. Court of Appeals for the District of Columbia Circuit, No. 24-1119 (and consolidated cases), which seeks review of the final agency action of the U.S. Environmental Protection Agency ("EPA") entitled *National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units Review of the Residual Risk and Technology Review*, 89 Fed. Reg. 38,508 (May 7, 2024) ("MATS RTR"). That final action, taken pursuant to section 112 of the Clean Air Act, 42 U.S.C. 7412(d)(6), strengthens the Mercury and Air Toxics Standards ("MATS"), 77 Fed. Reg. 9304 (Feb. 12, 2012), that limit power-plant emissions of mercury and other hazardous non-mercury metals. As I explain below, those federal standards have been essential to protecting the Commonwealth's public health and natural resources from the dangers of out-of-state power-plant mercury emissions.

## **II. Experience and Qualifications**

3. I have over 35 years of experience in the field of environmental science, policy, and management. I have expertise in the fields of toxicology,

epidemiology, environmental science, exposure assessment, and environmental policy and have published in these fields.

4. I hold a Ph.D. in Pharmacology and Toxicology from Harvard University and an M.S. in Environmental Management from the Harvard School of Public Health. I have extensive state, interstate, national, and international experience related to mercury impacts and policy. I served as the Co-Chair of the New England Governors (“NEG”) and Eastern Canadian Premiers (“ECP”) Mercury Task Force, charged with overseeing implementation of the 1998 NEG-ECP Mercury Action Plan; represented the Commonwealth in the development and negotiation of the NEG-ECP Mercury Action Plan; played lead roles in the development and implementation of the Massachusetts Zero Mercury Strategy; co-founded and chaired the Environmental Council of States (“ECOS”) Quicksilver Caucus, a national organization comprised of a group of interstate organizations focused on mercury issues; served as one of two state representative in the development and implementation of the trilateral North American Regional Action Plan (“NARAP”) for mercury; and, have published on mercury science and policy.

### **III. Mercury Contamination is Widespread in Massachusetts Freshwater Waterbodies and Fish.**

5. Mercury is a potent toxin that causes adverse effects to the neurological, immune, kidney, and cardiovascular systems of humans and similar

harms to wildlife.<sup>1</sup> The brains and developing nervous systems of fetuses and children are especially vulnerable to mercury exposure, even at low levels.<sup>2</sup> Because consumption of mercury-contaminated fish is the primary source of human exposure to mercury, for decades MassDEP, in coordination with the Massachusetts Department of Public Health (DPH) and Department of Fish and Game, has been assessing the levels of mercury contamination in the Commonwealth's freshwater fish in order to evaluate the extent of mercury contamination in Massachusetts' waters and reduce the health risks to the public from consumption of mercury-contaminated fish.

6. While there are natural sources of mercury, anthropogenic sources are the most significant. Atmospheric deposition of mercury emitted to the air by anthropogenic sources—in particular, coal-fired power plants, which until recently

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<sup>1</sup> See, e.g., D.C. Evers et al., *A Synthesis of Patterns of Environmental Mercury Inputs, Exposure and Effects in New York State*, 29(10) ECOTOXICOLOGY 1565, 1577-79 (2020), <https://pubmed.ncbi.nlm.nih.gov/33170395/>; Philippe Grandjean et al., *Adverse Effects of Methylmercury: Environmental Health Research Implications*, 118(8) ENV'T HEALTH PERSP. 1137, 1140-41 (2010), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2920086/pdf/ehp-0901757.pdf>.

<sup>2</sup> See, e.g., Sara T.C. Orenstein et al., *Prenatal Organochlorine and Methylmercury Exposure and Memory and Learning in School-Age Children in Communities Near the New Bedford Harbor Superfund Site, Massachusetts*, 122(11) ENV'T HEALTH PERSP. 1253, 1256, 1257-58 (2014), <https://ehp.niehs.nih.gov/doi/10.1289/ehp.1307804>; Stephanie Bose-O'Reilly et al., *Mercury Exposure and Children's Health*, 40(8) CURRENT PROBS. IN PEDIATRIC & ADOLESCENT HEALTH CARE 186, 186 (2010), <https://doi.org/10.1016/j.cppeds.2010.07.002>.

were the largest regulated source of human-caused mercury emissions in the United States<sup>3</sup>—is responsible for the majority of mercury contamination in the Commonwealth.<sup>4</sup> Once released to the air, mercury is deposited into waterbodies through dry and wet deposition (precipitation) and transformed into methylmercury by microorganisms. Methylmercury is a particularly toxic and bioavailable form of mercury that bioaccumulates in fish as it moves up the food chain, creating a risk to humans and wildlife who consume such fish.

7. Mercury contamination is a serious problem in Massachusetts. Currently, 205 waterbodies have been listed by Massachusetts as impaired due to mercury contamination, meaning that, as a result of that contamination, they are not able to support designated uses, such as fishing and fish consumption. Those waterbodies include (1) 131 “category 5” waterbodies for which the

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<sup>3</sup> In 2020, annual mercury emissions from electric arc furnaces (3.8 tons per year) surpassed annual mercury emissions from coal-fired power plants (3.6 tons per year). U.S. Env’t Prot. Agency, *2020 National Emissions Inventory Technical Support Document: Overview* 2-19, 2-24 to 2-26, Tbl. 2-10 (2023), [https://www.epa.gov/system/files/documents/2023-01/NEI2020\\_TSD\\_Section2\\_Overview\\_0.pdf](https://www.epa.gov/system/files/documents/2023-01/NEI2020_TSD_Section2_Overview_0.pdf). Previously, in 2014, coal-fired power plants were the largest emitter of mercury (22.9 tons). U.S. Env’t Prot. Agency, *2014 National Emissions Inventory, version 2: Technical Support Document* 2-23, 2-28, Tbl. 2-14 (2018), [https://www.epa.gov/sites/default/files/2018-07/documents/nei2014v2\\_tsd\\_05jul2018.pdf](https://www.epa.gov/sites/default/files/2018-07/documents/nei2014v2_tsd_05jul2018.pdf).

<sup>4</sup> Northeast States for Coordinated Air Use Mgmt. (“NESCAUM”), *Sources of Mercury Deposition in the Northeast United States* 1, 3 (March 2008) (“NESCAUM 2008 Report”), [http://www.nescaum.org/documents/nescaum-sources-of-hg-depo-in-northeast\\_2008-final.pdf/](http://www.nescaum.org/documents/nescaum-sources-of-hg-depo-in-northeast_2008-final.pdf/).

Commonwealth must develop Total Maximum Daily Loads (“TMDLs”), or mercury “budgets,” pursuant to Federal Clean Water Act section 303(d)(1), in order to reduce the mercury contamination to a level that will allow for fishing and fish consumption, and (2) 74 “category 4a” waterbodies for which the Commonwealth has already developed mercury TMDLs. *See* 33 U.S.C. § 1313(d)(1) (requiring TMDLs for impaired waters).<sup>5</sup>

8. Pursuant to a Memorandum of Understanding between MassDEP, the DPH, and the Department of Fish and Game, ORS and WES-DELS are primarily responsible for collecting and analyzing freshwater fish tissue samples from lakes across the Commonwealth for mercury through their Fish Mercury Long Term Monitoring Research Program. That testing data is then used by DPH to develop fish consumption advisories for those waterbodies.

9. MassDEP began monitoring mercury levels in fish in 1994 and, since 2001, has sampled a subset of lakes over time during the spring. In order to ensure

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<sup>5</sup> Commonwealth of Mass. Exec. Off. of Energy & Env’t Aff., *Final Massachusetts Integrated List of Waters for the Clean Water Act 2022 Reporting Cycle* (CN 568.1) 84-105, 121-214 (May 2023) (identifying all “category 4a” waters for which TMDLs have been developed and the impairment-causing pollutant(s) and all “category 5” waters for which TMDLs must be developed and the impairment-causing pollutant(s)), <https://www.mass.gov/doc/final-massachusetts-integrated-list-of-waters-for-the-clean-water-act-2022-reporting-cycle/download>. These numbers do not reflect hundreds of additional waters that have not yet been assessed pursuant to section 303(d) for impairment by mercury or other pollutants. *See id.* at 8, 64-83.

that the sampled lakes are representative of those likely to be used by recreational fishers, each of the lakes is typical of those within a particular area of the state, based on geographic location and size, and supports two species of popular sportfish, largemouth bass and yellow perch. Not only are those species often caught and eaten by recreational fishers, they are also good indicators of mercury levels in other species.<sup>6</sup> MassDEP expends significant resources to monitor fish mercury levels. In recent years, MassDEP has incurred annual contractor expenses of approximately \$30,000 for fish sampling services. In addition, several MassDEP employees devote a portion of their work time to the monitoring program. These efforts include management of fish tissue samples, completion of laboratory analyses, maintaining analytical equipment, designing and implementing data management systems, and designing and completing statistical analyses and reports. In recent years MassDEP estimates that these staff efforts have totaled between one-quarter and one-half of a full-time equivalent employee annually. Atmospheric deposition of mercury, including that attributable to U.S. coal-fired power plants, was a significant factor in the establishment of MassDEP's monitoring program.

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<sup>6</sup> MassDEP ORS, *Fish Mercury Long Term Monitoring Annual Data Reports – Methods* (July 2010), <https://www.mass.gov/doc/methods-for-annual-data-reports-fish-mercury-long-term-monitoring-0/download>.



10. Since the inception of the fish mercury monitoring program in 1994, Massachusetts has tested thousands of fish tissue samples for mercury. Many of those samples have shown mercury concentrations greater than 0.3 mg Hg/kg wet weight, EPA's fish tissue criterion for the protection of human health,<sup>7</sup> and average fish mercury concentrations in many freshwater bodies have exceeded the DPH criteria for fish consumption for one or more species.<sup>8</sup> As a result, DPH has issued a statewide advisory warning pregnant women and children to avoid eating certain types of fish due to mercury contamination from all waterbodies in Massachusetts, as well as separate mercury-related advisories for 192 individual Massachusetts waterbodies in which fish tissue has been tested.<sup>9</sup>

**IV. Massachusetts Has Made Substantial Efforts to Reduce Mercury Contamination of Its Waters and Natural Resources through In-State Controls and Regional Cooperation.**

11. Massachusetts has worked for decades to reduce the serious mercury contamination in its waterbodies and natural resources. In 1998, Massachusetts joined with the other New England states and the Eastern Canadian Provinces to adopt a Regional Mercury Action Plan, with the goal of reducing by 50 percent

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<sup>7</sup> See U.S. EPA, *Water Quality Criterion for the Protection of Human Health: Methylmercury* xvi (Jan. 2001), <https://www.epa.gov/sites/production/files/2020-01/documents/methylmercury-criterion-2001.pdf>.

<sup>8</sup> Mass. DPH, *Freshwater Fish Consumption Advisory List* (May 2024), <https://www.mass.gov/doc/public-health-freshwater-fish-consumption-advisories-2024-0/download>.

<sup>9</sup> See *id.*

anthropogenic mercury releases within the region by 2003.<sup>10</sup> In 2001, the Commonwealth developed a Zero Mercury Strategy, a coordinated, multi-agency, multi-media strategy for eliminating the use and release of anthropogenic mercury in Massachusetts through reduction and control of mercury sources, outreach and education, and research and monitoring.<sup>11</sup> That strategy set an additional goal of reducing in-state mercury emissions by 75 percent in 2010.<sup>12</sup>

12. As part of the Zero Mercury Strategy, the Commonwealth established strict mercury pollution control targets and requirements on in-state municipal solid waste incinerators, medical waste incinerators, and coal-fired power plants, all of which were significant sources of mercury air emissions.<sup>13</sup> It similarly put in place regulations limiting the discharge of mercury attributable to the dental sector, which had been a significant contributor of mercury to both solid waste and wastewater.<sup>14</sup> State legislation and MassDEP regulations were also adopted

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<sup>10</sup> Comm. on Env't of Conf. of N. Eng. Governors & E. Canadian Premiers, *Mercury Action Plan 1998* 7 (June 1998), <https://www.mass.gov/doc/new-england-governorseastern-canadian-premiers-mercury-action-plan/download>.

<sup>11</sup> Mass. Mercury Task Force, *Massachusetts Zero Mercury Strategy* 5 (2000), <https://www.mass.gov/doc/massachusetts-zero-mercury-strategy/download>.

<sup>12</sup> *See id.*

<sup>13</sup> *See* 310 Mass. Code Regs. §§ 7.08(2) (solid waste incinerators), 7.29(5)(a)3. (coal-fired power plants).

<sup>14</sup> *See* 310 Mass. Code Regs. § 73.00 *et seq.*

prohibiting many unnecessary uses of mercury and requiring enhanced mercury recycling programs state-wide.<sup>15</sup>

13. By 2008, Massachusetts had reduced in-state mercury air emissions by over 91 percent, as compared to 1996 levels, exceeding the goals of the Zero Mercury Strategy.<sup>16</sup> Moreover, MassDEP's monitoring data documented significant declines in fish tissue mercury levels statewide—approximately 13 percent for largemouth bass and 19 percent for yellow perch—between the years 1999 and 2011, which encompass the period during which the significant declines in statewide mercury air emissions occurred.<sup>17</sup> Even greater reductions, approximately 44 percent and 43 percent, for the two species noted above respectively, occurred in the Merrimack Valley, an area in northeast Massachusetts, which, prior to implementation of the Zero Mercury Strategy, had been a mercury emission “hotspot” containing a large number of municipal solid waste and medical waste incinerators.<sup>18</sup>

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<sup>15</sup> See Mass. Gen. Laws, c. 21H, §§ 6a-6n (Mercury Management Act).

<sup>16</sup> NESCAUM, *Massachusetts State Anthropogenic Mercury Emissions Inventory Update 1-2* (Dec. 20, 2011), <https://www.nescaum.org/documents/ma-hg-inventory-update-201112-final.pdf>.

<sup>17</sup> See Michael S. Hutcheson et al., *Temporal and Spatial Trends in Freshwater Fish Tissue Mercury Concentrations Associated with Mercury Emissions Reductions*, 48 ENV'T. SCI. & TECH. 2193, 2193 (2014), <https://www.ncbi.nlm.nih.gov/pubmed/24494622>.

<sup>18</sup> See *id.* at 2196, Tbl. 1.

14. At the same time, however, the monitoring program showed, and continues to show, that mercury levels have remained too high in many waterbodies to allow for unrestricted human consumption, requiring fish consumption advisories to remain in place across the Commonwealth. In 46 of the lakes monitored by MassDEP, fish mercury levels are so high that they are subject to individual mercury-based fish consumption advisories. At least five of those forty-six lakes are located on Commonwealth-owned land.

**V. The Federal Controls on Out-of-State Power-Plant Mercury Required by the MATS Rule Are Essential to Making Massachusetts Waters Safe from Mercury Pollution.**

15. Mercury pollution emitted from sources outside of Massachusetts, including from upwind states that lack the strict in-state mercury emission limitations that Massachusetts has put in place, is carried by the wind across state borders and is a significant source of the mercury loading to the Commonwealth's waterbodies.<sup>19</sup> As a result, in addition to implementing the rigorous in-state mercury control measures, Massachusetts has worked with other states in the region and has long advocated for strong federal standards to address mercury pollution emitted from uncontrolled sources in upwind states.

16. In 2007, Massachusetts, along with the New England states and New York, petitioned EPA to establish a Northeast Regional Mercury TMDL pursuant

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<sup>19</sup> NESCAUM 2008 Report, *supra* note 4, at 1.

to section 303(d)(1) of the Federal Clean Water Act. *See* 33 U.S.C. § 1313(d)(1). That TMDL, approved by EPA, sets a mercury budget that is projected to reduce mercury contamination in the region’s waters to levels that will allow for the lifting of fish consumption advisories.<sup>20</sup> In order to reach the targeted safe mercury levels, the TMDL concludes that it will be necessary to reduce deposition of anthropogenic atmospheric mercury in the TMDL region by 98 percent, which will require “significant reductions from upwind out-of-region sources, primarily coal-fired power plants.”<sup>21</sup> Indeed, modelling undertaken to support achievement of the TMDL reductions process showed that mercury emissions from sources in states immediately upwind of the TMDL region were responsible for 40 percent of the domestic U.S. contribution to the region.<sup>22</sup>

17. Many of those most immediately upwind states identified during the TMDL process as contributing to that load, including Pennsylvania, Ohio, and West Virginia, continue to have coal-fired power plants operating within their

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<sup>20</sup> Conn. Dep’t of Env’t Prot., Me. Dep’t of Env’t Prot., Mass. Dept’ of Env’t Prot., N.H. Dep’t of Env’t Serv., N.Y. Dep’t of Env’t Conservation, R.I. Dep’t of Env’t Mgmt., Vt. Dep’t of Env’t Conservation, New England Interstate Water Pollution Control Comm’n, *Northeast Regional Mercury Total Maximum Daily Load* 44 (Oct. 24, 2007) (“Northeast Regional Mercury TMDL”), <https://www.mass.gov/doc/final-northeast-regional-mercury-tmdl-0/download>.

<sup>21</sup> *Id.* at 33, 39, 44.

<sup>22</sup> NESCAUM 2008 Report, *supra* note 4, at 1.

borders.<sup>23</sup> As a result, the federal mercury emissions limits mandated by MATS have been, and continue to be, essential to reducing the contribution of out-of-state power-plant emissions to the mercury load in Massachusetts and the TMDL region as a whole. And while the MATS RTR will require more stringent mercury emission limits only on power plants that burn lignite coal, which are primarily located in Texas and North Dakota,<sup>24</sup> the TMDL process also identified mercury emissions from those states as contributing, albeit to a more limited degree, to the mercury load in the region.<sup>25</sup> It should be noted, however, that the contribution percentages identified as part of the TMDL process likely underestimate the current contribution from upwind states because the modeling predates the implementation of state-based mercury emission limits on waste incinerators and power plants in the TMDL region, as well as in New Jersey, which substantially reduced those in-region emissions.<sup>26</sup>

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<sup>23</sup> *Id.* at 18, 19, Tbl. 6-1; U.S. Energy Info. Admin., Energy Atlas: U.S. Operable Power Plants, <https://eia.maps.arcgis.com/apps/mapviewer/index.html?layers=bf5c5110b1b944d299bb683cdbc02d2a> (showing locations of operable coal-fired power plants in the U.S.).

<sup>24</sup> 89 Fed. Reg. 38,508, 38,537, n.65 (May 7, 2024); 88 Fed. Reg. 24,854, 24,876, Tbl. 5 (Apr. 24, 2023).

<sup>25</sup> NESCAUM 2008 Report, *supra* note 4, at 18, Tbl. 6-1.

<sup>26</sup> See Susannah King et al., *Reducing Mercury in the Northeast United States*, 10 & Fig. 1 (May 2008), <http://www.nescaum.org/documents/reducing-mercury-in-the-northeast-united-states/ne-mercury-progress-em-200805.pdf> (mercury emissions from municipal waste incinerators and medical waste incinerators in

18. Further, because reductions in mercury air emissions have been shown to produce relatively rapid decreases in mercury levels in affected waterbodies and fish,<sup>27</sup> mercury emissions limits on large out-of-state U.S. sources, such as those required for coal-fired plants by MATS since its 2015 compliance date, have likely reduced mercury deposition in Massachusetts waterbodies and contamination of freshwater fish. In this way, the MATS mercury emissions limits have likely reduced adverse effects on the environment, public health, and recreational fisheries in Massachusetts, and have complemented the substantial investment the Commonwealth has made over the last decades to reduce that contamination.

I declare that to the best of my knowledge, under the penalty of perjury under the laws of the United States, that the foregoing is true and correct.

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New England, New York, and New Jersey declined from 15,600 lbs. to 2,058 lbs. between 1998 and 2002).

<sup>27</sup> Cheng-Shiuan Lee et al., *Declining Mercury Concentrations in Bluefin Tuna Reflect Reduced Emissions to the North Atlantic Ocean*, 50(23) SCIENCE & TECH. 12,825, 12,829-30 (2016), <https://pubs.acs.org/doi/10.1021/acs.est.6b04328>; Ford A. Cross et al., *Decadal Declines of Mercury in Adult Bluefish (1972-2011) from the Mid-Atlantic Coast of the U.S.A.*, ENVTL. SCI. TECH. 9064-72 (2015); see also Brian Bienkowski, *Cleaner Bluefish Suggest Coal Rules Work*, SCIENTIFIC AMERICAN (Jul. 20, 2015), <http://www.scientificamerican.com/article/cleaner-bluefish-suggest-coal-rules-work/>; Hutcheson (2014), *supra* note 17, at 2198.

Executed on June 4, 2024, at Winchester, Massachusetts.

A handwritten signature in black ink, appearing to read "C. Mark Smith". The signature is written in a cursive style with a horizontal line underneath the name.

C. Mark Smith



ORAL ARGUMENT NOT YET SCHEDULED  
**IN THE UNITED STATES COURT OF APPEALS  
FOR THE DISTRICT OF COLUMBIA CIRCUIT**

<p><b>State of North Dakota, et al.,</b></p> <p style="text-align: right;">Petitioners,</p> <p style="text-align: center;">v.</p> <p><b>United States Environmental Protection Agency,</b></p> <p style="text-align: right;">Respondent.</p>	
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Case No. 24-1119 (and consolidated cases)

**DECLARATION OF SARAH JOHNSON, AIR QUALITY PROGRAM, NEW YORK CITY DEPARTMENT OF HEALTH AND MENTAL HYGIENE**

I, Sarah Johnson, declare as follows,

**I. Purpose of this Declaration**

1. I am the Executive Director of the Air Quality Program at the New York City Department of Health and Mental Hygiene (“DOHMH”). I submit this declaration in support of the joint motion of the Commonwealth of Massachusetts and the City of New York, among other states and cities (collectively, “Movant State and Local Governments”), to intervene as Respondents in support of the Environmental Protection Agency’s (“EPA’s”) National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units Review of the Residual Risk and Technology Review (the “Final Rule”).

## II. Experience and Qualifications

2. I earned a Bachelor's degree in Biology from University of North Carolina, Chapel Hill, a Master's of Science in Ecology from University of California, Davis and a Master's of Public Health from University of California, Berkeley.

3. I have been the Executive Director of the Air Quality Program at DOHMH since 2018. Prior to my current role, I served as a Senior Spatial Analyst with the Air Quality Program. In that role, I executed spatial and statistical analyses to predict air pollution distribution, health effects, and inform program planning and evaluation.

4. DOHMH, New York City's public health agency, performs a wide-ranging portfolio of services for the City and its residents. One unit providing such services is the Bureau of Environmental Science and Policy in the Division of Environmental Health, which collects and analyzes crucial environmental and health data, including factors related to air quality, climate change, and health outcomes, among others.

5. In my current capacity, I oversee DOHMH's research related to air quality and its relation to health outcomes such as premature deaths and hospital visits. A major component of the air quality program is the New York City Community Air Survey ("Survey"), which measures black carbon, nitrous oxides,

ozone, sulfur dioxide, and fine particulate matter (“PM<sub>2.5</sub>”) across 78 sites citywide. These sites, which measure pollution at the street level, where people spend most of their time, provide detailed information that supplements information gathered from federally required building-mounted monitors throughout the City.

6. Coal- and oil-fired electric utility steam generating units (“EGUs”) subject to the EPA’s National Emission Standards for Hazardous Air Pollutants (“HAPs”) are major sources of HAPs, PM<sub>2.5</sub>, and other harmful air pollutants, which endanger New Yorkers’ health and well-being.

### **III. AIR POLLUTION IN NEW YORK CITY ADVERSELY IMPACTS NEW YORKERS’ HEALTH AND WELL-BEING**

7. Exposure to HAPs, including mercury, lead, arsenic, chromium, nickel and cadmium, can cause a wide range of human health harms, including neurological, immunological, reproductive, and genetic injuries, and increased risk of pulmonary and cardiovascular disease.<sup>1</sup>

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<sup>1</sup> David L. MacIntosh et al., Env’t Health & Eng’g, Inc., *Emissions of Hazardous Air Pollutants from Coal-Fired Power Plants* 5, tbl.1, 35 (2011), <https://www.lung.org/getmedia/25962184-d2fc-42f8-b5a3-8ece3257fbab/emissionsofhazardous-air.pdf>; Muhammad E. Munawer, *Human Health and Environmental Impacts of Coal Combustion and Post-Combustion Wastes*, 17 J. Sustainable Mining 87, 89, fig. 1, 93, tbl. 1 (2018), <https://www.sciencedirect.com/science/article/pii/S2300396017300551>; 88 Fed. Reg. 24,854, 24,857 (Apr. 24, 2023); 77 Fed. Reg. 9304, 9310 (Feb. 16, 2012); 76 Fed. Reg. 24,976, 24,978, 24,994-95 (May 3, 2011).

8. Since 2004, mercury exposure among New York City adults has substantially decreased.<sup>2</sup>

9. Despite this substantial progress, New Yorkers are still exposed to mercury. As of 2014, 12.1% of the New York City adult population had elevated blood total mercury levels, defined as 5µg/L or greater.<sup>3</sup>

10. Mercury exposure is linked to an increased risk of diabetes,<sup>4</sup> autoimmune dysfunction,<sup>5</sup> and is strongly correlated with adverse and fatal cardiovascular effects.<sup>6</sup> Children *in utero* and in early developmental stages are

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<sup>2</sup> Wendy McKelvey et al., *Tracking Declines in Mercury Exposure in the New York City Adult Population, 2004-2014*, *J Urban Health* 813, 813, (2018), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6286276/>.

<sup>3</sup> New York City Dep't of Health, *NYC Health and Nutrition Examination Survey*, <https://a816-health.nyc.gov/hdi/epiquery/visualizations?PageType=ps&PopulationSource=HANES> (last visited May 30, 2024).

<sup>4</sup> Ka He et al., *Mercury Exposure in Young Adulthood and Incidence of Diabetes Later in Life: The CARDIA Trace Element Study*, *36 Diabetes Care* 1584, 1587 (2013), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3661833/pdf/1584.pdf>.

<sup>5</sup> Jennifer F. Nyland et al., *Biomarkers of Methylmercury Exposure Immunotoxicity among Fish Consumers in Amazonian Brazil*, *119(12) Env't Health Persp.* 1733, 1736–37 (2011), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3261989/pdf/ehp.1103741.pdf>.

<sup>6</sup> Giuseppe Genchi et al., *Mercury Exposure and Heart Diseases*, *14(1) Int'l J. Env't Rsch. & Pub. Health* 1, 8–9 (2017), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5295325/pdf/ijerph14-00074.pdf>.

particularly susceptible to mercury exposure,<sup>7</sup> which can cause permanent neurological damage.<sup>8</sup>

11. Exposure to non-mercury HAPs is associated with a wide range of serious health conditions, including adverse neurological, cardiovascular, immunological, reproductive, liver, kidney, and respiratory effects, as well as cancer.<sup>9</sup> Exposure to a mixture of these metals can be especially dangerous.

12. New Yorkers are additionally exposed to non-HAP air pollution, most significantly PM<sub>2.5</sub>. In 2022, the citywide average PM<sub>2.5</sub> concentration was 5.8 mcg/m<sup>3</sup>, a decrease of 46% since 2009.<sup>10</sup> This decrease was driven, in part, by the implementation of Mercury and Air Toxic Standards.<sup>11</sup>

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<sup>7</sup> Stephanie Bose-O'Reilly et al., *Mercury Exposure and Children's Health*, 40(8) *Current Probs. in Pediatric & Adolescent Health Care* 186, 186 (2010), <https://doi.org/10.1016/j.cppeds.2010.07.002>.

<sup>8</sup> 76 Fed. Reg. at 25,018; *see also* Pub. Health & Env't, World Health Org., *Exposure to Mercury: A Major Public Health Concern* 3 (2021), <https://iris.who.int/bitstream/handle/10665/340715/9789240023567-eng.pdf?sequence=1> (neurological symptoms of prenatal methylmercury exposure can include “intellectual disability, seizures, vision and hearing loss, delayed development, language disorders and memory loss”).

<sup>9</sup> Raina M. Maier et al., *National Institute of Environmental Health Sciences Superfund Research Centers at the University of Arizona and University of New Mexico, Prepared for Applied Environmental Law and Policy, Toxicity Review of Metals Emissions from Coal Fired Power Plants*, 10-11 (Mar. 2022).

<sup>10</sup> NYC Environmental & Health Data Portal, *Air Quality*, <https://a816dohbesp.nyc.gov/IndicatorPublic/data-explorer/air-quality/?id=2023#display=summary>.

<sup>11</sup> Eric J. Mei et al., *Impacts of Fuel Prices and Regulations on Electricity Generation Emissions and Urban Air Quality*, *ACS EST Air* 2024, 1, 103-12 (2024), <https://pubs.acs.org/doi/epdf/10.1021/acsestair.3c00034>.

13. This pollution poses significant risks to New Yorkers' health. PM<sub>2.5</sub> can cause or exacerbate asthma, cancer, strokes, lung disease, and cardiovascular disease.<sup>12</sup> PM<sub>2.5</sub> pollution contributes to approximately 2,000 deaths and 5,150 hospital visits annually in New York City.<sup>13</sup>

#### **IV. THE HEALTH IMPACTS FROM HAPS AND PM<sub>2.5</sub> ARE NOT EXPERIENCED EQUALLY CITYWIDE**

14. Health impacts from HAPs and PM<sub>2.5</sub> are not experienced equally across New York City. Communities of color and low-income populations in New York City experience the worst health outcomes from air pollution.<sup>14</sup> High-poverty neighborhoods tend to have higher baseline rates of many health conditions, including those associated with air pollution—so people living in these neighborhoods are more likely to have existing health problems that are worsened by air pollution.<sup>15</sup>

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<sup>12</sup> NYC Environmental & Health Data Portal, *The Public Health Impacts of PM<sub>2.5</sub> from Traffic Air Pollution*, <https://a816-dohbsp.nyc.gov/IndicatorPublic/data-stories/traffic-and-air-pollution/> (last visited May 30, 2024).

<sup>13</sup> NYC Environmental & Health Data Portal, *Health Impacts of Air Pollution*, <https://a816-dohbsp.nyc.gov/IndicatorPublic/data-explorer/health-impacts-of-air-pollution/?id=2124#display=summary> (last visited May 30, 2024).

<sup>14</sup> New York City Dep't of Health, *Efforts to reduce air pollution should focus on neighborhoods with the worst health impacts*, Env't & Health Data Portal (2022), <https://a816-dohbsp.nyc.gov/IndicatorPublic/data-stories/hia/>.

<sup>15</sup> *Id.*

15. Children face greater exposure to HAPs due to their higher respiratory and soil/dust ingestion rates.<sup>16</sup>

16. And, as of 2014, the prevalence of elevated blood total mercury levels is significantly higher in adult Asian populations in New York City at 23.7%, compared to 12.1% of all New York City adults due to the higher consumption of fish by that population.<sup>17</sup>

**V. COAL- AND OIL-FIRED POWER PLANT EMISSIONS ARE A SIGNIFICANT CONTRIBUTOR TO AIR POLLUTION IMPACTING PUBLIC HEALTH IN NEW YORK CITY**

17. Coal and oil-fired power plants contribute significantly to the presence of mercury and PM<sub>2.5</sub> in New York City.

18. Mercury can travel hundreds of miles from coal-fired power plants,<sup>18</sup> and a significant portion of Northeast mercury deposition originates from inadequately controlled coal-fired power plants located in other states.<sup>19</sup>

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<sup>16</sup> 76 Fed. Reg. at 25,018.

<sup>17</sup> New York City Department of Health, NYC Health and Nutrition Examination Survey, <https://a816-health.nyc.gov/hdi/epiquery/visualizations?PageType=ps&PopulationSource=HANES>; see also Wendy McKelvey et al., *A Biomonitoring Study of Lead, Cadmium, and Mercury in the Blood of New York City Adults*, 115(10) Env't Health Persp. 1435, 1439–40 & tbl.3 (2007), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2022653/> (Asian participants had significantly higher blood-mercury levels and reported significantly higher fish consumption than other ethnic groups surveyed).

<sup>18</sup> 77 Fed. Reg. at 9444.

<sup>19</sup> See Barbara Morin & Paul J. Miller, *Northeast States for Coordinated Air Use Mgmt. (“NESCAUM”), It Remains “Appropriate and Necessary” to Regulate*

19. Mercury emitted by power plants falls back to the earth, where microorganisms convert it to methylmercury, a potent neurotoxin.<sup>20</sup> Methylmercury moves up the food chain in marine and freshwater ecosystems.<sup>21</sup> Mercury-contaminated fish are bought and sold in interstate commerce, and individuals who consume store-bought fish thus suffer the downstream effects of power plant emissions.

20. In addition, between 20% and 30% of the PM<sub>2.5</sub> in New York City's air comes from sources in areas upwind from the City, including out-of-state coal-burning power plants,<sup>22</sup> and that portion of the City's PM<sub>2.5</sub> load is estimated to contribute to approximately 600 deaths and 1,500 hospital visits and hospitalizations each year.<sup>23</sup>

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*Toxic Air Emissions from Coal- and Oil-fired Electric Generating Units* 7 (Apr. 7, 2022), <https://www.nescaum.org/documents/nescaum-it-remains-approp-necess-reg-air-toxics-from-coal-oil-egus-20190417-final.pdf>.

<sup>20</sup> See Philippe Grandjean et al., *Adverse Effects of Methylmercury: Environmental Health Research Implications*, 118(8) *Env't Health Persp.* 1137, 1140–41 (2010), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2920086/pdf/ehp-0901757.pdf>.

<sup>21</sup> MacIntosh, *supra* note 1, at 16.

<sup>22</sup> New York City Dep't of Health, *The New York City Community Air Survey*, <https://a816-dohbesp.nyc.gov/IndicatorPublic/data-features/nyccas/> (last visited May 30, 2024).

<sup>23</sup> See Masha Pitiranggon, et al., *Long-term trends in local and transported PM<sub>2.5</sub> pollution in New York City*, 248 *Atmospheric Environment*, 118238 at 5 (2021) (finding that 23-30 percent of PM<sub>2.5</sub> in NYC in 2017 was attributable to regional sources and that sulfate was the largest component of that PM<sub>2.5</sub>); Steffania Squizzato, et al., *A long-term source apportionment of PM<sub>2.5</sub> in New York State during 2005–2016*, 192 *Atmospheric Environment* 35, 38-39 (2018) (finding that



21. Thus, by limiting HAP emissions from coal- and oil-fired power plants, MATS has for years reduced New Yorkers' exposure to mercury, other hazardous metals, and PM<sub>2.5</sub>. The Final Rule, particularly by making more stringent the filterable particulate matter surrogate emissions standard for hazardous non-mercury metals, will further reduce New Yorkers' exposure to those HAPs and PM<sub>2.5</sub>. And, accordingly, health impacts, including hospitalizations and premature mortality associated with HAPs and PM<sub>2.5</sub>, will decrease as a result of the Final Rule.

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

Executed in Hicksville, New York on June 6, 2024.



Sarah Johnson

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the sulfate fraction of PM<sub>2.5</sub> in New York is highly correlated with variations in selenium which supports its association with coal-fired power plants); New York City Dep't of Health, *Health Impacts of Air Pollution: Asthma Emergency Departments Visits due to Ozone*, Env't & Health Data Portal (2017) (showing a total of 5191 annual hospital visits and hospitalizations and a total of 1971 annual deaths attributable to PM<sub>2.5</sub> exposure), <https://a816-dohbosp.nyc.gov/IndicatorPublic/beta/data-explorer/health-impacts-of-air-pollution/>; Vincent Dutkiewicz, et al., *Elemental composition of PM<sub>2.5</sub> aerosols in Queens, New York: Evaluation of sources of fine particle mass*, 40 Atmospheric Environment 347, 351, 355, 357-58 (2006) (finding selenium to be associated with transported coal emissions in northeastern U.S.).