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December 12, 2022

Michael Regan
Administrator
United States Environmental Protection Agency
Office of the Administrator, Mail Code 1101A
1200 Pennsylvania Ave. NW
Washington DC 20460
Regan.Michael@epa.gov

Re: Patagonia et al. Petition for Rulemaking to add dams and reservoirs as a source category under the Greenhouse Gas Reporting Program

Dear Administrator Regan:

On March 21, 2022, Earthjustice submitted a Petition for Rulemaking requesting that the U.S. Environmental Protection Agency (EPA) promptly initiate a rulemaking to add dams and reservoirs as a source category under the Greenhouse Gas (GHG) Reporting Program. Earthjustice submitted the Petition on behalf of Patagonia and Save the Colorado, and over 130 other organizations and businesses also signed on to join the Petition. Patagonia and Save the Colorado respectfully submit the following comments regarding two relevant updates on GHG emissions from dams and reservoirs.

First, in April 2022, EPA included methane emissions from reservoirs for the first time in its *Inventory of U.S. Greenhouse Gas Emissions and Sinks* (the “GHG Inventory”). This annual report calculates the United States’ overall anthropogenic GHG emissions, and since the early 1990’s EPA has submitted the report to the United Nations each year in accordance with the Framework Convention on Climate Change.¹ EPA added several new categories of GHG emissions in the 2022 report, including methane emissions from

¹ *Inventory of U.S. Greenhouse Gas Emissions and Sinks*, EPA, <https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks> (last visited Dec. 9, 2022).

reservoirs.² EPA calculated the total methane emissions from reservoirs in each state, and it used a methodology that multiplied the surface area of each state’s reservoirs by climate-specific emission factors.³ The GHG Inventory concluded that reservoirs in the United States (not including Alaska, Hawaii, and U.S. Territories) emitted 753 kilotons of methane in 2020, which amounts to 18.8 million metric tons of carbon dioxide equivalent (CO_{2e}).⁴ The GHG Inventory also noted that Texas’ reservoirs collectively emit the largest amount of methane, followed by Florida, Louisiana, and Georgia.⁵

Second, EPA has announced an ongoing four-year study of GHG emissions from reservoirs, which the agency will complete in 2023.⁶ This Survey of Reservoir Greenhouse Gas Emissions (SuRGE) measures methane and carbon dioxide emissions from 108 reservoirs across the United States. According to EPA, the study results “will inform a greater understanding of the amount of greenhouse gases emitted from U.S. reservoirs, and the environmental factors that determine the rate of greenhouse gas emissions from reservoirs.”⁷ Additionally, EPA stated the survey results may inform how it calculates reservoir emissions in the GHG Inventory.⁸

Patagonia and Save the Colorado support and applaud EPA’s work to better understand and account for GHG emissions from dams and reservoirs. Including reservoirs’ methane emissions in the GHG Inventory should help raise awareness of these emissions and will hopefully result in better informed international climate policies. Yet Patagonia and Save the Colorado are concerned that this initial reporting significantly understates the actual GHG emissions from reservoirs. The GHG Inventory only reports methane emissions, while reservoirs also emit carbon dioxide and nitrous oxide.⁹ In addition, based on the scientific studies summarized in the Petition, it is likely that the United States’ reservoirs collectively emit substantially more than the 18.8 million metric tons of CO_{2e} reported in the GHG Inventory. For example, a 2016 study found that Lake Mead alone emits approximately 9.2 million metric tons of CO_{2e} annually—which represents approximately half of the reported emissions for all U.S. reservoirs.¹⁰ Further, emission factors derived from the Deemer et al. (2020) study discussed in the Petition suggest that total methane emissions from reservoirs in the United States exceed over 400 million

² EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2020* at ES-6 (pdf p. 39), 6-616 to 6-123 (pdf pp. 597–604) (2022), <https://www.epa.gov/system/files/documents/2022-04/us-ghg-inventory-2022-main-text.pdf>.

³ *Id.* at 6-119 to 6-122 (pdf. pp. 600–03).

⁴ *Id.* at 6-117 (pdf p. 598).

⁵ *Id.* at 6-118 (pdf p. 599).

⁶ *Research on Emissions from U.S. Reservoirs*, EPA, <https://www.epa.gov/air-research/research-emissions-us-reservoirs> (last visited Dec. 9, 2022).

⁷ *Id.*

⁸ *Id.*

⁹ *See, e.g.*, Patagonia et al. Rulemaking Petition at 10, Figure 1 (Mar. 21, 2022).

¹⁰ *Id.* at 11 (citing Laura Scherer & Stephan Pfister, *Hydropower’s Biogenic Carbon Footprint*, PLoS ONE (Sept. 14, 2016), <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0161947>).

metric tons per year.¹¹ Fortunately, the SuRGE study should provide more accurate GHG estimates for U.S. reservoirs and allow EPA to improve its methodology for calculating these emissions in the GHG Inventory. EPA should further refine its modeling using the SuRGE results, as well as consider that a potentially large quantity of methane, carbon dioxide, and nitrous oxide emissions also occur throughout the lifecycle of dams and reservoirs. Although EPA may report these additional lifecycle emissions in other GHG Inventory categories, the agency should correctly attribute the emissions to their cause at some point in its accounting and reporting process. For these reasons, Patagonia and Save the Colorado strongly urge EPA to update and improve the GHG Inventory's reporting methodology for reservoirs based on the SuRGE results and the best scientific data available from other studies.

EPA's current work also highlights why the agency should grant the Petition and promptly move forward with a rulemaking to add dams and reservoirs to the GHG Reporting Program. As EPA has recognized, the GHG Inventory and the GHG Reporting Program are distinct, yet complementary, programs.¹² The GHG Inventory provides a high-level overview of the United States' overall anthropogenic GHG emissions using national-level data, while the GHG Reporting Program provides detailed data regarding the specific emissions from individual facilities.¹³ As the current GHG Inventory shows, the United States' dams and reservoirs collectively emit a large amount of GHGs. And as the current scientific studies summarized in the Petition show, individual dams and reservoirs also emit large amounts of GHGs each year. Consequently, EPA should report dams and reservoirs' GHG emissions in both the GHG Inventory and the GHG Reporting Program. According to EPA, the GHG Reporting Program's facility-specific emissions data is crucial for informing climate change policies, documenting the GHG emissions of specific facilities within an industry, raising awareness of individual source's GHG emissions, and informing finance and investment decisions.¹⁴ And as the Petition explains in detail, this facility-specific emissions data is particularly needed for dams and reservoirs because regulators, policymakers, and the public frequently overlook these facilities' GHG emissions and also incorrectly assume that hydropower facilities produce clean, zero-carbon electricity. Adding dams and reservoirs to the GHG Reporting Program will thus provide new and long overdue GHG emissions data on a source category that currently does not report facility-specific emissions. This facility-specific GHG emissions data should result in better-informed climate policies and better-informed permitting decisions for dams and reservoirs.

Patagonia and Save the Colorado thank EPA for taking the important step of measuring and reporting reservoirs' GHG emissions in the GHG Inventory, and for further studying these emissions in the SuRGE study. The next step to better understand the scope and distribution of these emissions is to also report individual dams and reservoirs' GHG

¹¹ See *id.* at Attach. 2 (Mark Easter, *Greenhouse Gas Emissions from Dams and Reservoirs in the United States* (2022)).

¹² *Greenhouse Gas Reporting Program and the U.S. Inventory of Greenhouse Gas Emissions and Sinks*, EPA, <https://www.epa.gov/ghgreporting/greenhouse-gas-reporting-program-and-us-inventory-greenhouse-gas-emissions-and-sinks> (last visited Dec. 9, 2022).

¹³ *Id.*

¹⁴ *Id.*; see also Patagonia et al. Rulemaking Petition at 4–5.

emissions in the GHG Reporting Program. Patagonia and Save the Colorado's pending Petition provides an opportunity for EPA to do just that, and the agency should therefore grant the Petition and promptly begin the requested rulemaking.

Sincerely,



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