

AI USES HOW MUCH WATER? NAVIGATING REGULATION OF AI DATA CENTERS' WATER FOOTPRINT POST-WATERSHED *LOPER BRIGHT* DECISION

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ABSTRACT

This Comment examines how the growth of AI data centers and the lack of federal regulation is negatively affecting the environmental resources of the United States, focusing particularly on water resources. Water is a precious resource for all living things that must be managed well amidst climate change's exacerbation of water scarcity. Tech companies continuously acknowledge the potential of AI technology as a tool to help combat climate change while ironically withholding the harmful effects AI and AI data centers are currently having on America's water resources. AI and AI infrastructure have yet to be federally regulated, leaving this inadvertent environmental harm to be self-regulated by the tech companies. This Comment argues that Congress needs to legislate for required transparency, sustainability, and accountability from tech companies operating AI data centers. This legislation will consider the current uncertainty regarding the future of federal agencies' deferential authority after the overturning of Chevron, and thus enact legislation with the clarity and specificity needed to withstand Loper Bright challenges in court. This legislation will allow the proper federal agencies to promulgate and enforce effective regulations for AI data centers' water consumption. Furthermore, the legislation contemplates the rapid growth associated with AI innovation and focuses on modernizing federal regulations to sufficiently withstand the constantly evolving nature of AI, without inhibiting innovation.

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I. INTRODUCTION

Imagine starting the day unlocking a phone to scroll through social media, the feed carefully curated for the user through an algorithm powered by artificial intelligence (AI).¹ Before leaving for work, a search for “best coffee near me” returns results with a section titled “AI Overview,” containing a succinct answer gathered from various sources by generative AI.² On the way to work, an email notification appears from an online store, leading to an advertisement, and then browsing through the current sale items. Pausing on an item not listed with the sale price, a chat box titled “Questions? Ask me!” appears at the bottom of the screen.³ A question is typed into the chat box and an instant response is provided by AI-driven customer service.⁴ After arriving at work, a reminder to send an email about the latest project update surfaces. The email needs to be professional, concise, and sent out as soon as possible. After opening the latest version of ChatGPT and typing in the request, within moments a draft email is generated.⁵ After a few quick edits, the email is sent in just a few minutes.

All before the lunch hour, millions of Americans utilize AI for everyday tasks.⁶ Many decisions, research efforts, and simple tasks are now accomplished with the help of AI.⁷ AI systems can now create art,⁸ predict diseases,⁹ analyze climate change data,¹⁰ and more.¹¹ A growing number of sectors and individuals are increasingly relying on AI,¹² yet many are unaware of the many problems that have arisen since its widespread introduction. Unforeseen issues stemming from AI, such as algorithmic discrimination and hallucinations,¹³ are now compounded by the high

1. See generally Shalwa, *How Many People Use AI in the World? The Pervasiveness of Everyday AI*, ARTSMART AI (May 29, 2024), <https://artsmart.ai/blog/how-many-people-use-ai-in-the-world/> (illustrating how AI has become integrated into everyday lives and routines).

2. See Liz Reid, *Generative AI in Search: Let Google Do the Searching For You*, GOOGLE THE KEYWORD (May 14, 2024), <https://blog.google/products/search/generative-ai-google-search-may-2024/>.

3. See Shalwa, *supra* note 1.

4. See *id.*

5. See *id.*

6. Christina Pazzanese, *Generative AI Embraced Faster Than Internet, PCs*, HARV. GAZETTE (Oct. 4, 2024), <https://news.harvard.edu/gazette/story/2024/10/generative-ai-embraced-faster-than-internet-pcs/>.

7. See Joshua A. Kroll et al., *Accountable Algorithms*, 165 U. PA. L. REV. 633, 633 (2017).

8. See Liz Mineo, *If It Wasn't Created By a Human Artist, Is It Still Art?*, HARV. GAZETTE (Aug. 15, 2023), <https://news.harvard.edu/gazette/story/2023/08/is-art-generated-by-artificial-intelligence-real-art/>.

9. See Don Nguyen, *How AI Can Help Diagnose Rare Diseases*, HARV. MED. SCH. (Oct. 18, 2022), <https://hms.harvard.edu/news/how-ai-can-help-diagnose-rare-diseases>.

10. See Rob Jordan, *Using AI to Link Heat Waves to Global Warming*, STAN. REP. (Aug. 21, 2024), <https://news.stanford.edu/stories/2024/08/using-ai-to-link-heat-waves-to-global-warming>.

11. See *id.*

12. See Shalwa, *supra* note 1.

13. *When AI Gets It Wrong: Addressing AI Hallucinations and Bias*, MIT SLOAN TEACHING & LEARNING TECH., <https://mitsloanedtech.mit.edu/ai/basics/addressing-ai-hallucinations-and-bias/> (last

demand of resources needed to power AI.¹⁴ The growing AI industry has led to an increase in data centers to house the computers and machines necessary to generate the power and calculations incidental to AI software.¹⁵ These AI data centers need large amounts of energy and water to function, but the exact quantity of the resources consumed evades precise determination.¹⁶ Tech companies have worked to present AI as an effective tool to help humanity and have successfully concealed its negative environmental impacts from the public.¹⁷

With increasing climate change disasters and a global water crisis,¹⁸ public citizens have a right to know the tangible effects of their AI use.¹⁹ The rapid innovations and growing popularity of AI are governed only by the tech companies themselves.²⁰ Naturally, these companies prioritize innovation and money over sustainability,²¹ thus creating a need for Congress to enact federal legislation prioritizing sustainability and transparency within the AI industry to protect our Nation's water resources.²² Transparency will allow

visited Feb. 27, 2025).

14. See David Berreby, *As Use of A.I. Soars, So Does the Energy and Water It Requires*, YALE ENV'T 360 (Feb. 6, 2024), <https://e360.yale.edu/features/artificial-intelligence-climate-energy-emissions>.

15. *Id.* See generally Stephanie Susnjara & Ian Smalley, *What Is a Data Center?*, IBM (Sept. 4, 2024), <https://www.ibm.com/topics/data-centers> ("A data center is a physical room, building or facility that houses IT infrastructure for building, running and delivering applications and services. It also stores and manages the data associated with those applications and services. . . . [Large-scale data centers] typically contain at least 5,000 servers and miles of connection equipment, and they can sometimes be as large as 60,000 square feet.")

16. See generally Berreby, *supra* note 14 (describing the scarcity of reliable data for data centers' greenhouse gas emissions or water consumption); Shaolei Ren et al., *Making AI Less "Thirsty": Uncovering and Addressing the Secret Water Footprint of AI Models*, CORNELL UNIV. 1 (Oct. 29, 2023), <https://arxiv.org/pdf/2304.03271> (explaining the purpose behind a study being the lack of reliable data on the water consumption of AI data centers).

17. See Amane Dannouni et al., *Accelerating Climate Action with AI*, GOOGLE SUSTAINABILITY (Nov. 2023), <https://www.gstatic.com/gumdrop/sustainability/accelerating-climate-action-ai.pdf>; Kara Hurst, *7 Ways Amazon Is Using AI to Build a More Sustainable Future*, AMAZON (Feb. 12, 2024), <https://www.aboutamazon.com/news/sustainability/how-amazon-uses-ai-sustainability-goals>.

18. See *Water – At the Center of the Climate Crisis*, U.N. CLIMATE ACTION, <https://www.un.org/en/climatechange/science/climate-issues/water#:~:text=Climate%20change%20is%20exacerbating%20both,world's%20water%20in%20complex%20ways> (last visited Feb. 18, 2025).

19. See generally Pranshu Verma & Shelley Tan, *A Bottle of Water Per Email: The Hidden Environmental Costs of Using AI Chatbots*, WASH. POST (Sept. 18, 2024), <https://www.washingtonpost.com/technology/2024/09/18/energy-ai-use-electricity-water-data-centers/> (discussing the amount of water needed to cool data centers).

20. See Melissa Heikkilä, *AI Companies Promised to Self-Regulate One Year Ago. What's Changed?*, MIT TECH. REV. (July 22, 2024), <https://www.technologyreview.com/2024/07/22/1095193/ai-companies-promised-the-white-house-to-self-regulate-one-year-ago-whats-changed/>.

21. See Alyssa Wong, *Regulatory Gaps and Democratic Oversight: On AI and Self-Regulation*, SCHWARTZ REISMAN INST. FOR TECH. AND SOC'Y (Sept. 21, 2023), <https://srinstitute.utoronto.ca/news/tech-self-regulation-democratic-oversight>.

22. See Kelsey Quinn, *How the U.S. Should Regulate AI After the End of Chevron Deference*, NEW LINES INST. (July 11, 2024), https://newlinesinstitute.org/wp-content/uploads/20240710-Chevron_AI-NLISAP.pdf.

lawmakers, developers, and the public generally to have a more accurate understanding of AI and AI data centers' environmental harm.²³

Once the environmental impacts are better understood, federal agencies can effectively regulate the AI industry's water consumption.²⁴ Congress must first pass legislation granting federal agencies the authority to regulate, but such legislation must consider the impacts of the recent Supreme Court decision overturning the longstanding doctrine of *Chevron* deference.²⁵ Considering the extremely technical nature of AI, Congress must give much forethought to the agencies authorized to regulate AI and clearly express this authority in its statutory language.²⁶ With the expressly delegated authority granted by the statute, federal agencies will be able to enact effective regulations without fear that they will be challenged and eventually struck down by the courts.²⁷

This Comment sets out to begin providing a solution to this problem. Part II begins by exploring basic information regarding AI data centers and their water consumption in the United States.²⁸ Next, Part II describes the current legal landscape of AI policy, including executive orders, proposed bills, and their shortcomings.²⁹ Then, Part II compares potential problems regulating AI's environmental impact to past issues regulating the environmental impact of crypto currency mining.³⁰ Part II then acknowledges the state of uncertainty felt by federal agencies in enacting regulations regarding AI due to the Supreme Court's recent decision in *Loper Bright*, which effectively stripped agencies of their previously deferential authority.³¹ Finally, Part II engages in a discussion regarding the actions Congress and federal agencies should take in the face of this uncertainty.³² Part III will propose legislation to promote the uniformity and clarity currently lacking

23. See Henry Gunther & Julietta Rose, *Governing AI: The Importance of Environmentally Sustainable and Equitable Innovation*, 50 ENV'T. L. REP. (ELI) 10888 (Nov. 2020).

24. See U.N. CLIMATE ACTION, *supra* note 18.

25. See Emma Dumain & Kelsey Brugger, *How the Chevron Ruling Could Change Congress*, U.S. HOUSE OF REP. SUSTAINABLE ENERGY & ENV'T COAL. (July 10, 2024), <https://seec.house.gov/media/in-the-news/how-chevron-ruling-could-change-congress>.

26. See Kelsey Quinn, *How the U.S. Should Regulate AI After the End of Chevron Deference*, NEW LINES INST. (July 11, 2024), <https://newlinesinstitute.org/future-frontiers/how-the-u-s-should-regulate-artificial-intelligence-after-the-chevron-ruling/>.

27. *Id.*

28. See discussion *infra* Section II.A (explaining the current issue facing AI data centers and water consumption).

29. See discussion *infra* Section II.B.1 (explaining the perceived issues with recent executive orders).

30. See discussion *infra* Section II.C.2 (discussing how past issues regulating cryptocurrency mining are analogous to AI's impact on the environment).

31. See discussion *infra* Section II.C.3 (highlighting how the role of federal agencies in AI regulation is questioned in light of recent Supreme Court decisions).

32. See discussion *infra* Section II.C.3 (explaining the actions Congress and federal agencies can now take).

within the governance of the AI industry.³³ Next, Part III illustrates how the proposed legislation allows federal agencies the latitude to enact effective regulations notwithstanding the absence of *Chevron* deference, and to keep up with AI's constant evolution.³⁴ Lastly, Part III then acknowledges the fear that AI regulation will inhibit innovation before ultimately arguing that data centers' harmful impacts, unsustainable practices, and perpetuation of environmental inequity weigh in favor of AI regulation.³⁵

II. AN OVERVIEW OF REGULATING AI DATA CENTERS' ENVIRONMENTAL FOOTPRINT

The introduction of generative AI to the public was highly successful and its popularity continues to thrive with each innovation.³⁶ In 2022, OpenAI introduced its generative artificial intelligence chatbot, ChatGPT, and reached 100 million active users within two months.³⁷ ChatGPT beckoned multiple technology corporations to race to release their own generative AI chatbots to the public.³⁸ Currently, ChatGPT has more than 200 million active users,³⁹ and tech companies are constantly pushing generative AI technology to be utilized for everything from writing an email to climate modeling.⁴⁰ Several scientists and companies are utilizing AI to help combat climate change and the challenges associated with it.⁴¹

Despite generative AI's potential and operation in a virtual capacity, it has considerable tangible effects.⁴² Every prompt given to a generative AI model runs through a server that completes thousands of calculations to elicit

33. See discussion *infra* Part III (proposing legislation to address water consumption by AI data centers).

34. See discussion *infra* Section III.A.2 (discussing how this proposed legislation overcomes regulatory concerns by providing uniformity).

35. See discussion *infra* Section III.C (explaining why the proposed legislation does not impose an undue burden on innovation given its environmental and social impacts).

36. See generally Dan Milmo et al., *ChatGPT Reaches 100 Million Users Two Months After Launch*, GUARDIAN (Feb. 2, 2023, 3:46 PM), <https://www.theguardian.com/technology/2023/feb/02/chatgpt-100-million-users-open-ai-fastest-growing-app> (showing the quick growth of ChatGPT users).

37. *Id.*

38. See Berreby, *supra* note 14.

39. Judy Babu, *OpenAI Says ChatGPT's Weekly Users Have Grown to 200 Million*, REUTERS (Aug. 29, 2024, 4:40 PM), <https://www.reuters.com/technology/artificial-intelligence/openai-says-chatgpts-weekly-users-have-grown-200-million-2024-08-29/>.

40. See Berreby, *supra* note 14.

41. See generally Aliza Chasan, *Some Experts See AI as a Tool Against Climate Change. Others Say Its Own Carbon Footprint Could Be a Problem*, CBS NEWS (Aug. 26, 2023, 7:00 AM), <https://www.cbsnews.com/news/artificial-intelligence-carbon-footprint-climate-change/> (discussing the use of AI to recycle and reuse water, detect wildfires, and predict the concentration of carbon dioxide, glacier mass, and sea level rise).

42. Pranshu Verma & Shelly Tan, *A Bottle of Water Per Email: The Hidden Environmental Costs of Using AI Chatbots*, WASH. POST (Sept. 18, 2024), <https://www.washingtonpost.com/technology/2024/09/18/energy-ai-use-electricity-water-data-centers/>.

the best response.⁴³ These servers, housed in data centers, generate large amounts of heat while computing these calculations.⁴⁴ Oftentimes, water cooling systems are used to keep this equipment from overheating.⁴⁵ These systems will then transport the generated heat into cooling towers so it can then escape the data center, “similar to how the human body uses sweat to keep cool.”⁴⁶ To put the amount of water used into perspective, a 100-word email generated by an AI chatbot requires a little more than one bottle of water.⁴⁷

Furthermore, before chatbots are even capable of answering prompts, tech companies must train them,⁴⁸ sometimes for several months, spending large amounts of resources like electricity and water.⁴⁹ As the popularity of generative AI continues to become more accessible, tech companies are pushing for growth in daily queries by users and scrambling to build more data centers to keep up with the demand, thus deepening environmental concerns.⁵⁰

A. The Current Issues Facing Water Consumption to Run AI Data Centers

In an increasingly digital world, data centers have become the backbone of society, allowing tech companies to keep up with the high demand for AI and data storage.⁵¹ As AI has become integrated in nearly all sectors of life,⁵² the capabilities of AI are increasingly complex and using even more data.⁵³ There are currently over 5,000 data centers in the U.S., and that number is projected to grow in order to power the AI revolution.⁵⁴

The surge of AI has created a rise in the number of AI data centers and their use of environmental resources since they “are one of the most

43. *Id.*

44. *Id.*

45. *Id.*

46. *Id.*

47. *Id.*

48. See generally *What Does It Mean to “Train a Model” When Talking About Generative AI Like ChatGPT?*, U. ARIZ. UNIV. LIBRS., <https://ask.library.arizona.edu/faq/407987> (last visited Feb. 27, 2025) (defining “training a model” as the process of exposing an AI system to large amounts of data in order “to learn patterns, relationships, and structures within the data, enabling it to generate new content”).

49. See Verma & Tan, *supra* note 42.

50. See Joseph B. Keller et al., *The US Must Balance Climate Justice Challenges in the Era of Artificial Intelligence*, BROOKINGS (Jan. 29, 2024), <https://www.brookings.edu/articles/the-us-must-balance-climate-justice-challenges-in-the-era-of-artificial-intelligence/>.

51. Kevin Hardy, *States Rethink Data Centers as ‘Electricity Hogs’ Strain the Grid*, STATELINE (Apr. 30, 2024, 5:00 AM), <https://stateline.org/2024/04/30/states-rethink-data-centers-as-electricity-hogs-strain-the-grid/>.

52. See Shalwa, *supra* note 1.

53. Patrick K. Lin, *The Cost of Training a Machine: Lighting the Way for a Climate-Aware Policy Framework That Addresses Artificial Intelligence’s Carbon Footprint Problem*, 34 FORDHAM ENV’T. L. REV. 1, 14 (2023).

54. *NTIA Seeks Comments on Supporting U.S. Data Center Growth*, NTIA (Sept. 4, 2024), <https://www.ntia.gov/press-release/2024/ntia-seeks-comments-supporting-us-data-center-growth>.

energy-intensive building types.”⁵⁵ The current lack of governance of the AI industry’s environmental impact, as well as tech companies’ desire to further innovation, has created a lack of transparency.⁵⁶ Unfortunately, this lack of transparency leaves AI companies unaccountable for their environmental impacts, specifically their data centers’ water footprint.⁵⁷ Without reliable measurements capable of describing AI data centers’ water footprint, AI data scientists are unable to develop more sustainable practices, legislators are unable to set standards for AI data centers to protect the environment, and the public remains unaware that their ChatGPT queries are taking others’ water resources.⁵⁸

1. *The Lack of Transparency from Tech Companies*

AI data centers’ environmental footprint has gone largely unnoticed due to a lack of transparency from the tech companies running them.⁵⁹ In considering this footprint, researchers, legislators, and the public generally may only rely upon the few water consumption figures released by tech giants.⁶⁰ However, the accuracy of these figures should not be assumed—especially considering the lack of regulation⁶¹ and the desire for tech companies to appear favorable in comparison to their counterparts.⁶²

With a global concern over freshwater scarcity,⁶³ a couple of tech giants have become more open with their water consumption figures. Google

55. See *Data Centers and Servers*, U.S. DEP’T OF ENERGY, <https://www.energy.gov/eere/buildings/data-centers-and-servers> (last visited Feb. 18, 2025) (“Data centers are one of the most energy-intensive building types, consuming 10 to 50 times the energy per floor space of a typical commercial office building.”); Ren et al., *supra* note 16, at 1 (“[T]raining the GPT-3 language model in Microsoft’s state-of-the-art U.S. data centers can directly evaporate 700,000 liters of clean freshwater, but such information has been kept a secret.”).

56. See generally Ren et al., *supra* note 16, at 6–7 (explaining how transparency from AI developers and data center operators would be valuable to researchers and the public).

57. See *id.* at 1–2.

58. See Berreby, *supra* note 14.

59. See Melody Petersen, *How Much More Water and Power Does AI Computing Demand? Tech Firms Don’t Want You to Know*, L.A. TIMES (Aug. 26, 2024, 3:00 AM), <https://www.latimes.com/environment/story/2024-08-26/tech-firms-conceal-water-and-power-demands-of-ai-computing>.

60. See generally *2024 Environmental Report*, GOOGLE SUSTAINABILITY (July 2024), <https://www.gstatic.com/gumdrop/sustainability/google-2024-environmental-report.pdf> (reporting on Google’s sustainability strategy and data from the 2023 fiscal year); *2024 Environmental Sustainability Report: Data Fact Sheet*, MICROSOFT, <https://query.prod.cms.rt.microsoft.com/cms/api/am/binary/RW1lmju> (last visited Feb. 27, 2025) (disclosing information about Microsoft’s environmental footprint); *2023 Amazon Sustainability Report*, AMAZON, <https://sustainability.aboutamazon.com/2023-report> (last visited Feb. 27, 2025) (reviewing Amazon’s sustainability goals and progress in 2023).

61. See Ren et al., *supra* note 16, at 6–7.

62. See generally Karen Hao, *AI Is Taking Water from the Desert*, ATLANTIC (Mar. 1, 2024), <https://www.theatlantic.com/technology/archive/2024/03/ai-water-climate-microsoft/677602/> (explaining how Microsoft sidelined the idea of publishing water efficiency for their data centers because “some of the company’s data centers would end up showing worse performance than Google’s”).

63. See Cindy Gordon, *AI Is Accelerating the Loss of Our Scarcest Natural Resource: Water*, FORBES (Feb. 25, 2024, 9:16 AM), <https://www.forbes.com/sites/cindygordon/2024/02/25/ai-is-accelera>

reported that the global water consumption for all of its data centers in 2021 was “approximately 4.3 billion gallons of water.”⁶⁴ Further, the report stated their average data center’s water consumption was “approximately 450,000 gallons of water per day.”⁶⁵ The report boasts of Google’s commitment to the climate-conscious cooling of its data centers.⁶⁶ The report also states that water cooling is typically the most efficient means of cooling, and has helped lessen data centers’ carbon emissions while also mitigating climate change.⁶⁷

In Google’s 2024 Environmental Report, Google stated that its total water consumption in 2023 for its data centers was approximately 6.4 billion gallons, a nearly one-billion-gallon increase in consumption from the previous year.⁶⁸ This report further stated that Google’s data centers try to use non-potable freshwater and freshwater alternatives for cooling and it claimed that third of Google’s data center campuses used reclaimed or non-potable water.⁶⁹ This report also displayed environmental data tables detailing some of its individual data centers’ specific water use.⁷⁰ According to these tables, all of the data centers displayed that are located within the U.S., with the exception of the Douglas County, Georgia campus, consume entirely potable water.⁷¹

Amazon released a 2023 Sustainability Report where the company reported that its data centers used 0.18 liters of water per kilowatt hour (L/kWh).⁷² This metric is also known as water usage effectiveness (WUE) and has been largely adopted by data centers to measure the effectiveness of their water consumption in relation to their energy consumption.⁷³ The lower the WUE value, the more efficient the use of water in a data center.⁷⁴ The report then stated that its 2023 measurement was a 5% improvement from

ting-the-loss-of-our-scarcest-natural-resource-water/.

64. See Urs Hölzle, *Our Commitment to Climate-Conscious Data Center Cooling*, GOOGLE: THE KEYWORD (Nov. 21, 2022), <https://blog.google/outreach-initiatives/sustainability/our-commitment-to-climate-conscious-data-center-cooling/>.

65. See *id.*

66. See *id.*

67. See *id.*

68. See *2024 Environmental Report*, *supra* note 60, at 44.

69. See *id.* See generally *Alternative Water Treatment Levels*, U.S. DEP’T OF ENERGY, <https://www.energy.gov/femp/alternative-water-treatment-levels> (last visited Feb. 27, 2025) (“[Non-potable water] has not been treated to standards safe for human consumption, but is useful for specific end uses such as irrigation, dust suppression, toilet and urinal flushing, or make-up water for mechanical equipment.”).

70. See *2024 Environmental Report*, *supra* note 60, at 79.

71. See *id.*

72. See *2023 Amazon Sustainability Report*, *supra* note 60, at 40.

73. Michael Patterson et al., *Water Usage Effectiveness (WUE): A Green Grid Data Center Sustainability Metric*, GREEN GRID 1, 4–6 (2011), <https://airatwork.com/wp-content/uploads/The-Green-Grid-White-Paper-35-WUE-Usage-Guidelines.pdf>.

74. *Id.*

2022.⁷⁵ Unlike Google, Amazon does not report its total water consumption or water consumption for specific data centers.⁷⁶

Microsoft's 2024 Environmental Sustainability Reports provide data related to the company's annual total water consumption.⁷⁷ For 2022, Microsoft reported nearly 1.7 billion gallons of water consumption, and in 2023, the company consumed 2 billion gallons of water.⁷⁸ Microsoft did not report specific figures for total or individual data center water consumption despite claiming it closely tracks data center water withdrawal and discharge.⁷⁹ Microsoft also claims that its new data centers "will consume zero water for cooling."⁸⁰

Several researchers and scientists have argued that the data provided is insufficient in the face of the growing tension between the huge amount of water consumed by data centers and global water challenges.⁸¹ An associate professor at University of California Riverside, Shaolei Ren, explained that without standards and regulations for the AI industry, companies have been able to report their AI environmental impact however they see fit.⁸² Ren, who has spent over a decade studying the water cost of computations, completed a novel study to calculate an average American data center's water costs for ChatGPT-3.⁸³

Ren's study found that, at an average American data center, ChatGPT-3 consumes a little more than a sixteen-ounce bottle of water for roughly ten to thirty responses.⁸⁴ The study also estimated that a total of over 1.4 million gallons of water are consumed during the training of large AI models.⁸⁵ The amount of water used was found to be largely dependent on the location and time of day a given model was deployed.⁸⁶ Ren estimated these figures may increase with ChatGPT-4 due to its reportedly larger model size.⁸⁷ For reference, ChatGPT-4 was released in March of 2023, and ChatGPT-5 is speculated to be released in late 2024 or early 2025, with a significant improvement in human-like capabilities.⁸⁸

75. 2023 Amazon Sustainability Report, *supra* note 60, at 40.

76. Compare *id.* (not reporting total water consumption data), with 2024 Environmental Report, *supra* note 60 (reporting total operational water metrics for its data centers).

77. See 2024 Environmental Sustainability Report, MICROSOFT 1, 26 (2024), <https://query.prod.cms.rt.microsoft.com/cms/api/am/binary/RW11MjE>.

78. *Id.*

79. *Id.* at 27.

80. *Id.*

81. See Ren et al., *supra* note 16.

82. See Berreby, *supra* note 14.

83. See Ren et al., *supra* note 16, at 1–3.

84. *Id.* at 7.

85. *Id.*

86. *Id.* at 3.

87. *Id.*

88. See generally CHATGPT, <https://chat-gpt-5.ai/> (last visited Feb. 27, 2025) (providing an overview of ChatGPT-5).

Professor Ren concluded his study by expressing the need for transparency from AI model developers and data center operators.⁸⁹ He reiterated that transparency is needed due to the notable variance in the amount of AI data center water consumption based on when AI models are employed and where their data centers are located.⁹⁰ Moreover, this transparency will help inform AI model developers and the public as a collective effort to combat global water scarcity.⁹¹

2. *The Unbalanced Dynamic Between AI Data Centers and Surrounding Communities*

While these tech giants have disclosed some of their AI data centers' water consumption data, they have also been accused of being "lazy" and capable of much more.⁹² This sentiment was felt by individuals in Goodyear, Arizona where Microsoft had purchased 279 acres for its data center complex.⁹³ This region of the country continues to face several significant and unique environmental challenges.⁹⁴ In 2023, Phoenix experienced its hottest summer on record, compounding one of the worst droughts the region has ever faced.⁹⁵ Farmers were forced to fallow fields and some communities outside of Phoenix even went without tap water due to the Colorado River dwindling.⁹⁶

Naturally, Microsoft's monstrous data center being erected amidst these dystopian disasters caused concern for many Goodyear residents.⁹⁷ Microsoft was aware of its data centers' local environmental impacts and eventually decided to fund water conservation and restoration projects,⁹⁸ but these neighborly efforts quickly became overshadowed. Some former anonymous Microsoft employees confirmed Microsoft's hesitancy for water data transparency, exposing Microsoft's rejection of the idea to publish each data centers water efficiency data.⁹⁹ The idea was rejected due to Microsoft's fear of showing an inferior performance to Google's data centers, which already report similar data.¹⁰⁰ An inquiry to the city regarding the Goodyear data center's water use prompted the city to turn over records with numbers

89. See Ren et al., *supra* note 16, at 9.

90. *Id.*

91. *Id.*

92. See Hao, *supra* note 62.

93. *Id.*

94. See *id.*

95. *Id.*

96. *Id.*

97. *Id.*

98. *Id.*

99. See *id.* ("A series of internal memos, written from 2020 to 2022 by a group of employees from across the company, proposed giving Azure customers new tools to measure the carbon footprint of their cloud use, . . . [b]ut these ideas were sidelined.").

100. *Id.*

redacted because these figures were “considered proprietary by Microsoft.”¹⁰¹

A similar incident occurred with one of Google’s data centers located in the Dalles, Oregon.¹⁰² A local newspaper, the *Oregonian*, inquired into Google’s water consumption, but the city refused to disclose any reports due to Google’s claim that the report qualified as “trade secret[s].”¹⁰³ The county district attorney then stated in an order that Google’s reports could not be kept hidden under the trade secret exemption because the data centers’ total water consumption data would not “give[] away the design or actual use of the water” and was therefore required to be released.¹⁰⁴ Still, the city refused to release the reports and sued to block its release on the basis that Google’s water use was a “trade secret.”¹⁰⁵ Soon after, the city council approved a water rights deal with Google and continued to withhold Google’s water consumption records from the public.¹⁰⁶

Finally, Google agreed to release the water records and the city agreed in a settlement to provide ten years of Google’s water usage data as well as annual water usage data in the future.¹⁰⁷ The city also disclosed that Google would be footing the bill for both sides’ attorney fees.¹⁰⁸ This raised questions as to the legitimacy of the settlement and whether it would cause harm to the public interest.¹⁰⁹ Allowing a private company like Google to finance “public advocacy” efforts to block information from being released to the public is completely contradictory to the underlying purpose of protecting proprietary information with trade secret exemptions.¹¹⁰

More often than not a tech company’s primary focus is on AI’s improvement, not reducing environmental harm¹¹¹ or environmental inequity.¹¹² AI’s climate impacts are compounded in areas reliant on fossil fuels and drought-stricken,¹¹³ which is often near communities of lower

101. *Id.*

102. See Mike Rogoway, *The Dalles Settles Public Records Lawsuit Over Google’s Data Centers, Will Disclose Water Use to the Oregonian/OregonLive*, OREGONLIVE (Feb. 22, 2023, 8:35 AM), <https://www.oregonlive.com/silicon-forest/2022/12/the-dalles-settles-public-records-lawsuit-over-googles-data-centers-will-disclose-water-use.html>.

103. *Id.*

104. *Id.*; see also MATTHEW ELLIS, *OREGONIAN V. CITY OF THE DALLES*, PUBLIC RECORDS DECISION 5 (2023), <https://cms5.revize.com/revize/wascocounty/Oregonian%20v%20City%20of%20The%20Dalles%20February%2010,%202023.pdf> (providing the district attorney’s decision on Google’s trade secret argument).

105. See Rogoway, *supra* note 102.

106. *Id.*

107. *Id.*

108. *Id.*

109. *Id.*

110. *Id.*

111. See Berreby, *supra* note 14.

112. See Keller et al., *supra* note 50.

113. Thomas Frank & E&E News, *AI’s Climate Impacts May Hit Marginalized People Hardest*, SCI. AM. (Jan. 31, 2024), <https://www.scientificamerican.com/article/ais-climate-impacts-may-hit-marginalized-people-hardest/>.

socioeconomic status.¹¹⁴ In turn, these conditions are at risk of perpetuating historical environmental inequity “related to extreme heat, pollution, air quality, and access to potable water.”¹¹⁵ An example of this pattern can be found at the data centers located in Goodyear, Arizona discussed earlier.¹¹⁶ Goodyear is located in the West Valley of the Phoenix area, a less economically developed area.¹¹⁷ Data centers have provided an economic opportunity for the city of Goodyear, an incentive to cut deals with more tech companies to build their data centers and utilize the city’s resources.¹¹⁸

Microsoft was aware of the area’s water concerns and made a promise to the city that it would not use water to cool their machines with temperatures under eighty-five degrees.¹¹⁹ However, Goodyear faces temperatures above eighty-five degrees most of the year.¹²⁰ Further, the city has since witnessed multiple amendments to Microsoft’s data center construction agreement, largely due to the surge in AI use which requires more resources.¹²¹

In contrast, Goodyear’s neighbor, Chandler, Arizona, located in a much wealthier part of the Phoenix area, has had a slightly different experience in allowing data centers to move into its community.¹²² Though Chandler currently houses several data centers, its officials recently passed several city ordinances to prevent more from moving in.¹²³ The city found that the economic benefit offered by AI data centers was outweighed by their natural increase to the city’s energy and water costs.¹²⁴ Weighing the costs and benefits of allowing new data centers is a privilege many underserved communities, like Goodyear, do not get to avail themselves of.¹²⁵ Unfortunately, the resources needed to run AI data centers and train future AI models will continue to compound economic and environmental inequities if AI developers and companies do not become mindful of their impact on existing marginalized communities.¹²⁶

While AI developers and tech companies may not have environmental inequity in mind, some researchers have identified this problem and are

114. Shaolei Ren & Adam Wierman, *The Uneven Distribution of AI’s Environmental Impacts*, HARV. BUS. REV. (July 15, 2024), <https://hbr.org/2024/07/the-uneven-distribution-of-ais-environmental-impacts>.

115. Keller et al., *supra* note 50.

116. See Hao, *supra* note 62.

117. *Id.*

118. *Id.*

119. *Id.*

120. *Id.*

121. *Id.*

122. *Id.*

123. *Id.*

124. *Id.*

125. *Id.*

126. See Emily M. Bender, et al., *On the Dangers of Stochastic Parrots: Can Language Models Be Too Big?*, ASS’N FOR COMPUTING MACH. 610, 618 (Mar. 3–10, 2021), <https://dl.acm.org/doi/pdf/10.1145/3442188.3445922>.

working towards solutions, such as equity-conscious geographical load balancing.¹²⁷ Geographical load balancing refers to the practice of redistributing energy traffic from users by connecting them with the closest network of data centers based on their geographical location.¹²⁸ Researchers have developed this technique to consider more factors than just proximity, including energy demand, real-time operating conditions, carbon intensities, and water efficiency.¹²⁹ Basically, this would enable a company to move its AI models' computing tasks to other data centers without disrupting the user's request.¹³⁰ This practice demonstrates that tech companies and AI developers are capable of prioritizing disproportionately burdened regions of the country by actively redistributing energy traffic while ensuring environmental equity.¹³¹

B. The Current State of American AI Policy

Presently, the U.S. does not have comprehensive legislation or regulations pertaining to the use of AI.¹³² However, there are some existing laws that implicate AI in different contexts.¹³³ Some examples of existing legislation are the Federal Aviation Administration Reauthorization Act which requires review of AI in aviation¹³⁴ and the National Defense Authorization Act for Fiscal Year 2020 which directed the undertaking of several AI-related activities.¹³⁵ There is also the National AI Initiative Act of 2020, a statute intended to further research and development of AI.¹³⁶ The Act also created the National Artificial Intelligence Initiative Office directed to oversee and implement the nation's AI strategy.¹³⁷ While there are no existing regulations that squarely address AI, there have been several guidelines released from the White House and legislative proposals concerning the regulation of AI use.¹³⁸

127. Ren & Wierman, *supra* note 114.

128. *Id.*

129. *See id.*; Pengfei Li et al., *Towards Environmentally Equitable AI via Geographical Load Balancing*, ASS'N FOR COMPUTING MACH. 1 (May 31, 2024), <https://doi.org/10.1145/3632775.3661938>.

130. *See* Ren & Wierman, *supra* note 114.

131. *See id.*

132. *AI Watch: Global Regulatory Tracker – United States*, WHITE & CASE LLP (Dec. 18, 2024), <https://www.whitecase.com/insight-our-thinking/ai-watch-global-regulatory-tracker-united-states>.

133. *Id.*

134. *See* FAA Reauthorization Act of 2018, Pub. L. No. 115–254, 132 Stat. 3186 (codified as amended in scattered sections of 49 U.S.C.).

135. *See* National Defense Authorization Act for Fiscal Year 2020, Pub. L. No. 116–92, § 256, 133 Stat. 1290 (describing AI education strategy).

136. National Artificial Intelligence Initiative Act of 2020, 15 U.S.C. § 9401.

137. *See id.* § 9411.

138. *See AI Watch: Global Regulatory Tracker – United States*, *supra* note 132.

1. *The Executive Order on Safe, Secure, and Trustworthy Artificial Intelligence*

On October 23, 2023, President Biden issued an Executive Order in the most sweeping attempt to protect Americans from the risks posed by AI.¹³⁹ The Executive Order on Safe, Secure, and Trustworthy Artificial Intelligence (Executive Order) was part of the Biden-Harris administration’s strategy for responsible innovation.¹⁴⁰ The Executive Order was aimed at several sectors and federal agencies, and is predicated on the fact that realizing AI’s “myriad [of] benefits requires mitigating its substantial risks.”¹⁴¹ The Executive Order further mandated that federal agencies develop federal standards and that developers of potentially dangerous AI models notify the U.S. government of their safety test results.¹⁴²

Additionally, although the Executive Order addressed climate change, it only discussed AI as a tool to combat climate change and failed to acknowledge the harmful environmental effects associated with increased AI usage.¹⁴³ Similar to large tech companies, the Executive Order was clear that one of its primary objectives was to maintain America’s prominent position in AI innovation and competition.¹⁴⁴ The Executive Order delegated these particular climate change related research tasks and development goals to the Secretary of Energy and several other relevant chairs and agencies.¹⁴⁵ Some of the most notable provisions of this section provided that the Secretary of Energy should collaborate with private companies and academics to develop AI as a tool to mitigate climate change risks, and to establish an office in charge of coordinating the development of AI.¹⁴⁶

2. *Proposed Bills Concerning AI, the Environment, and AI Education*

Several federal bills have been proposed looking to regulate AI, largely with a similar premise as the Executive Order—to promote innovation and keep Americans safe during this process, such as reducing algorithmic discrimination or protecting individuals whose likeness is recreated by generative AI.¹⁴⁷ On February 1, 2024, Senator Edward J. Markey and

139. See Exec. Order No. 14110, 88 Fed. Reg. 75191 (Oct. 30, 2023).

140. See Press Release, The White House, The Biden Administration Launches AI.gov Aimed at Broadening Access to Federal Artificial Intelligence Innovation Efforts, Encouraging Innovators of Tomorrow (May 5, 2021), <https://bidenwhitehouse.archives.gov/ostp/news-updates/2021/05/05/the-biden-administration-launches-ai-gov-aimed-at-broadening-access-to-federal-artificial-intelligence-innovation-efforts-encouraging-innovators-of-tomorrow/>.

141. See Exec. Order No. 14110, *supra* note 139.

142. *Id.*

143. *Id.*

144. *Id.*

145. *Id.*

146. *Id.*

147. See *AI Watch: Global Regulatory Tracker – United States*, *supra* note 132.

Representative Anna Eshoo introduced a novel bill that demanded more transparency from the data center industry and its environmental footprint: The Artificial Intelligence Environmental Impacts Act of 2024 (the Act).¹⁴⁸

The Act would direct the National Institute of Standards and Technology (NIST) to develop standards for the AI industry to use when reporting the environmental impacts of their data centers.¹⁴⁹ The NIST would also be in charge of creating a framework for a voluntary reporting system for these companies to publish information related to their AI data center environmental impacts.¹⁵⁰ Additionally, the Act would require multiple agencies—including the Administrator of the Environmental Protection Agency (EPA), the Secretary of Energy, the Director of the NIST, and the Director of the Office of Science and Technology Policy (OSTP)—to collectively conduct a comprehensive study of AI’s environmental impact and publish a report on their findings.¹⁵¹

This bill would be a valuable foundation for research, as it would allow for more reliable information to be used in the future when discussing how to allocate resources, especially for AI data centers.¹⁵² Supporters of the Act believe that AI has also had a hand in spreading misinformation regarding climate change, and that making AI’s large energy costs more transparent would help to change the narrative pushed by large tech companies.¹⁵³ Moreover, the Act’s supporters do not believe that Congress should trust that AI companies will have the greater good in mind when making decisions.¹⁵⁴

Another bill has been introduced by Senators Todd Young and Brian Schatz to raise awareness and increase trust in AI as it is becoming more prevalent in Americans daily lives.¹⁵⁵ The “Artificial Intelligence Public Awareness and Education Campaign Act” would direct the Secretary of Commerce to educate the public of the benefits and risks of AI.¹⁵⁶ The bill focuses on educating individuals on their rights in regards to AI, differentiating between AI-created media, the prevalence of AI in Americans daily lives, and opportunities to work with AI, including for the federal government.¹⁵⁷ While this bill would be beneficial to inform a larger

148. See Artificial Intelligence Environmental Impacts Act of 2024, S. 3732, 118th Cong. (2024).

149. *Id.*

150. *Id.*

151. *Id.*

152. See Press Release, Ed Markey, Senator for Mass., Markey, Heinrich, Eshoo, Beyer Introduce Legislation to Investigate, Measure Environmental Impacts of Artificial Intelligence (Feb. 1, 2024), <https://www.markey.senate.gov/news/press-releases/markey-heinrich-eshoo-beyer-introduce-legislation-to-investigate-measure-environmental-impacts-of-artificial-intelligence>.

153. *Id.*

154. *Id.*

155. See Artificial Intelligence Public Awareness and Education Campaign Act, S. 4596, 118th Cong. (2024), <https://www.congress.gov/bill/118th-congress/senate-bill/4596>.

156. *Id.*

157. *Id.*

population about AI's growing prevalence, it falls short in educating Americans about AI's environmental consequences.¹⁵⁸

C. Exploring the Role of Federal Agencies in AI Regulation

Even if the federal government were to authorize regulation of AI data centers' environmental impacts soon, federal agencies have several obstacles to bear in mind.¹⁵⁹ Some of these obstacles are clear, such as the sheer velocity of AI innovation, the industries' self-governance and lack of transparency, and the *Loper Bright* challenges looming in the courts.¹⁶⁰

I. Regulations from the Industrial Revolution to the AI Revolution

The U.S.'s current regulatory body was founded during the industrial era, when machines were being created to enhance human physical capabilities.¹⁶¹ Now, these regulatory structures have been tested in the digital era, where machines are being created to enhance human cognitive abilities.¹⁶² However, many fear these structures are "insufficiently agile" to keep up with current technology's velocity.¹⁶³ AI is incredibly technical, complex, and constantly evolving making it difficult to fully understand.¹⁶⁴ Because of this difficulty, Congress has allowed tech companies to largely govern themselves.¹⁶⁵ Naturally, tech companies share in this sentiment—they are the most qualified to regulate AI and its infrastructure.¹⁶⁶

However, not all members of Congress believe this is a wise approach.¹⁶⁷ Some feel that continuing to allow companies to self-regulate would result in Congress needlessly repeating its prior mistake regarding the lack of regulation for online platforms.¹⁶⁸ The harms resulting from self-regulated AI have already been observed in the creation of deepfakes, the presence of algorithmic discrimination, and its ever-increasing demand for resources.¹⁶⁹ AI has become far too important and powerful to continue

158. *Id.*

159. See discussion *infra* Section II.C.1 (providing the barriers to AI regulation by the federal government).

160. See *infra* Section II.C.3 (explaining challenges stemming from the pace of innovation, self-regulation, and *Loper Bright* restrictions).

161. See Tom Wheeler, *The Three Challenges of AI Regulation*, BROOKINGS (June 15, 2023), <https://www.brookings.edu/articles/the-three-challenges-of-ai-regulation/>.

162. *Id.*

163. *Id.*

164. *Id.*

165. *Id.*

166. *Id.*

167. *Id.*

168. See *id.* ("Congress failed to meet the moment on social media. Now we have the obligation to do it on AI before the threats and the risks become real.").

169. *Id.*

to allow companies to regulate themselves, while considering their profit margins before meaningful governance.¹⁷⁰

Transparency is vital in regulating AI because it allows developers, researchers, and lawmakers to identify problems in hopes that they might mitigate the harmful potential risks associated with AI's evolution.¹⁷¹ AI models are continuously improving and their capabilities and the resources needed to run them continue to increase as well.¹⁷² Sometimes, even their own creators do not know of its full potential or risks.¹⁷³ Transparency would also instill a duty of care to tech companies and AI developers to be aware of any harmful impacts and make an effort to minimize them before any bad-press reaches the hands of the public.¹⁷⁴

2. How AI Regulation Will Likely Play Out in the Courts

As safeguards for the use of AI have only recently been introduced and many more are being created by both federal and state governments currently, many lawsuits against AI and their tech companies are still working their way through the court system.¹⁷⁵ Most of the cases that have seen rulings are copyright infringement cases, largely mirroring the forefront of AI legislation in the United States.¹⁷⁶ Conversely, as there has been little AI legislation regarding its environmental impacts,¹⁷⁷ there has yet to be a lawsuit rooted in AI data centers' harm to the environment. While this may cause some difficulties in drafting AI environmental legislation, legislators could refer to the current caselaw regarding crypto mining's environmental harm to help anticipate and address issues. Like AI technology, crypto mining requires large amounts of electricity and utilizes data centers to generate power.¹⁷⁸

Crypto mining companies' energy usage data has not been available to the public and has largely been left unregulated despite its boom in popularity over the last decade.¹⁷⁹ Moreover, this data has proven difficult to collect because some of the data is considered proprietary information of the

170. *Id.*

171. *Id.*

172. *Id.*

173. *Id.*

174. *Id.*

175. Bruce Barcott, *AI Lawsuits Worth Watching: A Curated Guide*, TECH POL'Y PRESS (July 1, 2024), <https://www.techpolicy.press/ai-lawsuits-worth-watching-a-curated-guide/>.

176. *Id.*

177. See Artificial Intelligence Environmental Impacts Act of 2024, S. 3732, 118th Cong. (2024), <https://www.congress.gov/bill/118th-congress/senate-bill/3732/text>.

178. See Laila Kearney & Mrinalika Roy, *AI's Race for US Energy Butts Up Against Bitcoin Mining*, REUTERS (Aug. 28, 2024, 10:27 AM), <https://www.reuters.com/technology/artificial-intelligence/ais-race-us-energy-butts-up-against-bitcoin-mining-2024-08-28/>.

179. See David Pan, *Texas Bitcoin Miners Sue US Energy Department Over Data Usage Survey*, BLOOMBERG (Feb. 23, 2024, 8:23 PM), <https://www.bloomberg.com/news/articles/2024-02-23/texas-bitcoin-miners-sue-us-energy-department-over-data-usage-survey?embedded-checkout=true>.

company.¹⁸⁰ The increase in crypto mining in the U.S. created an increase in the energy needed to power their data centers.¹⁸¹ These increases caught Congress's attention and caused its officials to pressure agencies to collect information on the industry's energy usage.¹⁸² This pressure led the Department of Energy (DOE) and the Energy Information Administration (EIA) to use their authority under the Paperwork Reduction Act to issue the survey as an emergency.¹⁸³

When discussing the creation of safeguards for AI technology and AI data centers, many tech companies, developers, and shareholders have voiced concerns over rigid regulations on AI that they believe would hinder its innovation.¹⁸⁴ Legislators can point them to the recent case, *Texas Blockchain Council v. Department of Energy*, to help assure any concerned parties that federal agencies would not have an all-encompassing power when enacting regulations.¹⁸⁵ There, Texas Blockchain, an industry association for Bitcoin miners, filed suit against the DOE and the EIA to enjoin the enforcement of an emergency survey to collect data about its energy consumption.¹⁸⁶ Further, Texas Blockchain sought to have the enforcement of the emergency survey by the EIA deemed an unlawful agency action.¹⁸⁷

The DOE launched the emergency initiative in response to the federal government wanting more information regarding the industry's energy consumption rather than continuing to rely on estimates of its energy use.¹⁸⁸ However, the judge agreed with Texas Blockchain that compliance with the survey would cause irreparable injury due to nonrecoverable costs, threat of prosecution, and disclosure of proprietary information.¹⁸⁹ Thus, the judge granted the temporary restraining order and emphasized the "significant public interest in making sure administrative agencies abide by boundaries set forth in regulations and statutes."¹⁹⁰

The facts and circumstances of *Texas Blockchain* are analogous to the state of increase that AI data centers are experiencing currently. Legislators can use such analogous caselaw to avoid similar issues observed in the crypto mining industry, both regulatory and environmentally. Furthermore, legislators can reassure tech companies that their fears are unlikely to come

180. *Id.*

181. *Id.*

182. *Id.*

183. See *Tex. Blockchain Council v. Dep't of Energy*, No. W-24-CV-00099-ADA, 2024 WL 990067, at *1 (W.D. Tex. Feb. 23, 2024).

184. David Alexandru Timis, *How to Regulate AI Without Stifling Innovation*, WORLD ECON. F. (June 26, 2023), <https://www.weforum.org/stories/2023/06/how-to-regulate-ai-without-stifling-innovation/>.

185. See *Tex. Blockchain Council*, 2024 WL 990067, at *2.

186. *Id.* at *1.

187. *Id.* at *2.

188. *Id.*

189. *Id.*

190. *Id.*

to fruition—as the *Texas Blockchain* Court stated, “[t]here is generally no public interest in the perpetuation of unlawful agency action.”¹⁹¹

3. *The Regulations Must Withstand Loper Bright Challenges in Court*

Another hurdle for federal agencies in general was created after the Supreme Court’s recent decision in *Loper Bright Enterprises v. Raimondo*.¹⁹² This decision effectively overruled a longstanding precedent from *Chevron USA v. NRDC*, where the Court provided a framework to evaluate agency regulations interpreting federal statutes.¹⁹³ Under *Chevron*, the courts were instructed to defer to federal agencies’ interpretations of ambiguous statutes so long as the agency’s interpretation was “reasonable.”¹⁹⁴ This precedent, commonly referred to as *Chevron* deference, had previously allowed federal agencies the latitude to implement regulations to protect the American people where Congress’s language was unclear, at times due to lack of subject matter expertise or because Congress had not foreseen a particular problem.¹⁹⁵

On June 28, 2024, the Court abolished *Chevron* deference in *Loper Bright*.¹⁹⁶ The Court held that under the Administrative Procedure Act (APA), “courts must exercise independent judgment in determining the meaning of statutory provisions,” and federal agencies’ interpretations may only “help inform that inquiry.”¹⁹⁷ The Court asserted its own interpretive authority over the agencies and was largely dismissive of the argument that agency expertise should be dispositive since statutory interpretation is only delegated to the judicial branch.¹⁹⁸ Essentially, this decision shifted the courts’ evaluation of an agency’s regulation from deference to the agency to a de novo review.¹⁹⁹ Overall, this decision will intimidate federal agencies from adopting interpretations that are potentially controversial.²⁰⁰

Courts must now follow a precedent that requires agencies to demonstrate the higher standard of “persuasive reasoning,” meaning that “the amount of deference due depend[s] upon the persuasiveness of the agency’s position.”²⁰¹ Agencies thought to be at the highest risk of this new standard are those that are authorized to regulate extremely technical industries and

191. *Id.* (quoting *Texas v. Biden*, 10 F.4th 548, 560 (5th Cir. 2021)).

192. *Loper Bright Enters. v. Raimondo*, 603 U.S. 369, 370 (2024).

193. *Id.*

194. *Chevron, U.S.A., Inc. v. Nat. Res. Def. Council, Inc.*, 467 U.S. 837 (1984), *overruled by Loper Bright*, 603 U.S. 369.

195. *Id.*

196. *Loper Bright*, 603 U.S. at 370.

197. *Id.* at 394, 413.

198. *Id.*

199. See Chris S. Leason & Liam Vega Martin, *Supreme Court Overrules Chevron*, 54 ENVTL. L. REP. 10731, 10734 (2024).

200. See Quinn, *supra* note 26.

201. Leason & Martin, *supra* note 199, at 10731.

fields, such as AI.²⁰² Ultimately, the decision of whether an agency's argument is sufficiently clear and persuasive enough to prove the validity of a disputed regulation on AI will fall in the hands of judges.²⁰³ Therefore, federal agencies are predicted to have difficulty implementing regulations on AI, specifically due to the fear of implementing regulations that are highly debated and have a higher likelihood of being challenged in court.²⁰⁴ To meet these challenges, Congress must first pass legislation for agencies that need additional authority to implement regulations on AI and AI data centers.²⁰⁵

Many legal scholars are split on the actions that Congress should take next. Some suggest codifying *Chevron* deference into law.²⁰⁶ However, Congress has attempted and failed at this in the past, and the current era of legislative gridlock make this possibility even more far-fetched.²⁰⁷ Although, many agree that Congress could essentially codify the *Chevron* doctrine in individual laws where agency deference would be especially useful, such as AI, and certain provisions would direct courts to defer to a certain agency's reasonable interpretation.²⁰⁸ Under this approach, both liberal concerns about the necessity of flexible rulemaking in technical and constantly evolving areas and conservative concerns about the modern administrative state's constitutional legitimacy would be addressed.²⁰⁹ If Congress wants to ensure that federal agencies have the authority to interpret the gaps in its statutes, Congress must enact AI legislation with greater specificity and clarity.²¹⁰

III. CONGRESS SHOULD ENACT LEGISLATION AND THE AGENCIES SHOULD ENACT REGULATIONS THAT ADDRESS RISING WATER CONSUMPTION FOR DATA CENTERS RUNNING ARTIFICIAL INTELLIGENCE

Because of the growing number of AI data centers across the country and their increasingly negative environmental impact, Congress should enact federal legislation addressing this issue before states decide to enact their

202. See Quinn, *supra* note 26.

203. See *id.*

204. *Id.*

205. See generally Charlie Bullock, *What Might the End of Chevron Deference Mean for AI Governance?*, INST. FOR LAW & AI (May 2024), <https://law-ai.org/chevron-deference/> (“The Federal Trade Commission, for example, does not necessarily need additional authorization to issue regulations intended to protect consumers from harms such as deceptive advertising using AI. It already has some authority to issue such regulations under § 5 of the FTC Act, which authorizes the FTC to issue regulations aimed at preventing ‘unfair or deceptive acts or practices in or affecting commerce.’”).

206. See *id.*

207. See Stop Corporate Capture Act, H.R. 6107, 117th Cong. (1st Sess. 2021).

208. See Bullock, *supra* note 205.

209. *Id.*

210. See Paul Hemmersbaugh & Samantha Chaifetz, *Chevron Overruled: In Loper Bright v. Raimondo, the Supreme Court Reshapes the Regulatory Landscape*, DLA PIPER (June 28, 2024), <https://www.dlapiper.com/en-us/insights/publications/2024/06/chevron-overruled-in-loper-bright-v-raimondo>.

own laws.²¹¹ Leaving the issue up to the states would create a patchwork of various regulatory frameworks, giving rise to an uncertain regulatory environment and causing tech companies to have to closely monitor their AI data centers to avoid regulatory risk.²¹² Federal legislation designed to minimize AI data centers' water footprint would also align with the Biden administration's executive order that aims for a responsible use of AI through transparency, accountability, and sustainability.²¹³

Moreover, as more sectors begin to utilize AI, the environmental concerns will continue to grow as the demand for more AI data centers increases.²¹⁴ Currently, with no federal legislation or regulations to address this issue, the United States is relying on the tech companies themselves to develop AI and data centers responsibly and sustainably.²¹⁵ However, most of these tech companies have already shown that they are not willing to be completely transparent with their AI data centers' water consumption figures.²¹⁶ But, before Congress can create sound environmental legislation, it must first fully understand the environmental harm that AI data centers are currently causing.²¹⁷

A. The Proposed Model Federal Legislation

In light of the increase in AI data centers in the United States and their largely unknown water consumption, this Section presents a robust legislative framework designed to address this issue.²¹⁸ The proposed legislation will not only indicate the federal framework lacking within current AI governance regarding environmental impact, but will also anticipate challenges that might arise under the recent *Loper Bright* decision.²¹⁹ By clarifying the legal foundations for implementing actionable guidelines, this approach aims to ensure both effective enforcement and sustainable management of this country's water resources in the face of technological advancement and climate change.

211. See *US State-by-State AI Legislation Snapshot*, BCLP LAW, <https://www.bclplaw.com/en-US/events-insights-news/us-state-by-state-artificial-intelligence-legislation-snapshot.html> (last visited Mar. 3, 2025).

212. *Id.*

213. See Exec. Order No. 14110, 88 Fed. Reg. 75191 (Oct. 30, 2023).

214. See Lin, *supra* note 53, at 7.

215. See *US State-by-State AI Legislation Snapshot*, *supra* note 211.

216. See generally *infra* Section II.A.1–2 (discussing tech companies' lack of full transparency regarding data centers' water consumption data).

217. See Lin, *supra* note 53, at 7.

218. See *infra* Section III.A.1 (providing a model legislation to address the lack of transparency AI data centers water consumption).

219. See *infra* Section III.A.1 (presenting legislation that seeks to address issues arising under recent Supreme Court decisions).

1. The Proposed Sustainable AI Data Center Water Consumption Act

The language in the proposed legislation follows the goals of the executive order to protect the American public by unmasking the negative tangible effects that AI and AI data centers have on water resources.²²⁰ Because implementing transparency within the AI industry is the primary focus, the proposed model is divided into three main sections—a study to learn more about every individual data center’s water consumption, a mandatory reporting system for AI data center water consumption figures, and a public education outreach operation to inform the public of AI’s negative environmental impacts. The model statute would read:

Section 1. Short Title. This Act may be cited as the “Sustainable AI Data Center Water Consumption Act.”

Section 2. Definitions. In this Act:

(1) **ARTIFICIAL INTELLIGENCE.**—The term “artificial intelligence” [or “AI” refers to] a machine-based system that can, for a given set of human-defined objectives, make predictions, recommendations, or decisions influencing real or virtual environments.²²¹ Artificial intelligence systems use machine and human-based inputs to perceive real and virtual environments, abstract such perceptions into models through analysis in an automated manner, and use model inference to formulate options for information or action.²²²

(2) **AI DATA CENTER.**—The term “AI data center” refers to a facility with computing machines that process, store, and transmit large amounts of data²²³ necessary for development and execution of artificial intelligence applications, including machine learning models and large-scale data analytics.²²⁴

(3) **WATER USE.**—The term “water use” refers to the total amount of water withdrawn to be used by a facility.²²⁵

(4) **WATER CONSUMPTION.**—The term “water consumption,” or commonly known as “water footprint,” refers to the portion of

220. See Exec. Order No. 14110, 88 Fed. Reg. 75191 (Oct. 30, 2023).

221. See National Artificial Intelligence Initiative Act, 15 U.S.C. § 9401(3) (2020) (providing the language adopted by the federal government for the definition).

222. *Id.*

223. See *NTIA Seeks Comments on Supporting U.S. Data Center Growth*, NITA (Sept. 4, 2024), <https://www.ntia.gov/press-release/2024/ntia-seeks-comments-supporting-us-data-center-growth>.

224. See *The Impact of Artificial Intelligence on Data Centers: A Comprehensive Analysis*, DIGITAL REALTY, <https://www.digitalrealty.com/resources/articles/data-center-ai> (last visited Mar. 3, 2025).

225. See Paul Reig, *What’s the Difference Between Water Use and Water Consumption?*, WORLD RES. INST. (Mar. 12, 2013), <https://www.wri.org/insights/whats-difference-between-water-use-and-water-consumption>.

the water use that is not returned to the original water source after it has been withdrawn.²²⁶ This may occur in an AI data center’s onsite server cooling, onsite humidification systems, and electricity generation.²²⁷

(5) COOLING.—The term “cooling” refers to the dissipation of heat into the outside environment to avoid overheating the AI data center servers.²²⁸ The water cooling method or system that utilizes water to absorb and dissipate heat generated from the processing components may differ in a variety of AI data centers.²²⁹

(6) FEDERAL AGENCY.—The term “federal agency” has the meaning given to the term “agency” in § 551 of Title 5, United States Code.²³⁰

(7) ENTITY.—The term “entity” may include an individual, partnership, corporation, association, public or private organization, or federal agency.²³¹ The Administrator of the EPA has the discretion to name this particular entity.

(8) ADMINISTRATOR.—The term “Administrator” refers to the acting Administrator of the Environmental Protection Agency.

(9) EFFLUENT LIMITATION.—The term “effluent limitation” means any restriction established by a [s]tate or Administrator pertaining to the quantities, rates, and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources into navigable waters, the waters of a contiguous zone, or the ocean.²³²

Section 3. Study on Water Usage of AI Data Centers.²³³

(a) In General.—Not later than two years after the date of this Act’s enactment, the Administrator of the EPA, in collaboration with the Secretary of Energy, the Director of the National Institute of Standards and Technology, the Office of Science and Technology, and any other entity deemed relevant and necessary by the Administrator, shall carry out, submit to Congress, and

226. *Id.*

227. *See generally* Shaolei Ren, *How Much Water Does AI Consume? The Public Deserves to Know*, OECD (Nov. 30, 2023), <https://oecd.ai/en/wonk/how-much-water-does-ai-consume> (explaining why AI’s water usage needs to be better measured and shared with the public).

228. *Id.*

229. *See generally* Anne-Sophie David, *Liquid Cooling in Data Centers: A Revolution in Energy Efficiency*, DATA4 (June 10, 2024), <https://www.data4group.com/en/news-data4/liquid-cooling-in-data-centers-a-revolution-in-energy-efficiency/> (illustrating the different types of liquid cooling methods in data centers).

230. *See* 5 U.S.C. § 551(1).

231. *See generally id.* §§ 551(2)–(3) (providing a reference for the definitional language).

232. 33 U.S.C. § 1362(11) (providing the definition of “effluent limitation”).

233. *See generally* Artificial Intelligence Environmental Impacts Act of 2024, S. 3732, 118th Cong. (2024), <https://www.congress.gov/bill/118th-congress/senate-bill/3732/text> (inspiring the ideas and language of this proposed section of the statute).

make publicly available a report describing the results of a comprehensive study on the environmental impacts of individual AI data centers within the United States, with a primary focus on water usage and water consumption.

(b) Requirements.—The study required under subsection (a) shall include an examination of:

(1) the water consumption for the cooling of the data centers used in the design, development, implementation, and adoption life cycle of artificial intelligence models;

(2) the process used to make decisions during the design, development, implementation, and adoption life cycle of artificial intelligence models, including information pertaining to the environmental impact associated with the efficiency of artificial intelligence models used, the location, the power source, the design of data centers used, and the type of hardware used;

(3) potential impacts on the surrounding environment and its water resources, which may include water withdrawals that create water stress, the treatment of water with certain chemicals, the discharge of polluted wastewater, or any other impact identified by the Administrator;²³⁴

(4) the negative environmental impacts associated with the operation of an AI data center, which may include drawing water from highly stressed watersheds or excessive use of potable water in drought-stricken areas;²³⁵

(5) the use of potable or non-potable water, the use of recycled water, and the discharge method and location of spent water;²³⁶ and

(6) other significant environmental impacts, as determined by the Administrator.

(c) Standards.—The Administrator, in collaboration with any relevant and necessary entities, shall develop standards for the amount of water use and consumption dependent on the specific cooling method and effluent limitations based on the study for each AI data center in the United States. These standards shall be maintained by the AI data center and updated by the Administrator annually based on each data center's annual reports and the Administrator's findings.

234. See generally Rasheed Ahmad, *Engineers Often Need a Lot of Water to Keep Data Centers Cool*, AM. SOC'Y OF CIV. ENG'RS (Mar. 4, 2024), <https://www.asce.org/publications-and-news/civil-engineering-source/civil-engineering-magazine/issues/magazine-issue/article/2024/03/engineers-often-need-a-lot-of-water-to-keep-data-centers-cool> (describing potential environmental effects involved with keeping data centers cool).

235. *Id.*

236. *Id.*

(d) Public Comment Required.—In conducting the study required under subsection (a), the Administrator shall solicit and consider all public comments.

(1) The Administrator shall request comments from citizens residing in the same county of an AI data center, sharing a water resource with an AI data center, or significantly impacted by an AI data center's water consumption, regarding their experience sharing the community and water resources with the AI data center(s). The Administrator, and any entity deemed relevant and necessary, must hold a public hearing, in which citizens will have a meaningful opportunity to participate, and data center operators will answer the citizens' questions and concerns. A public hearing must be held in every county housing an AI data center no later than 120 days following the completion of the § 3 Study on Water Usage.

Section 4. Mandatory Reporting of Water Usage of AI Data Centers.²³⁷

(a) Inspections, monitoring equipment, entry, and access to information.—Whenever necessary to carry out the objective of this Act, including but not limited to (1) developing or assisting in the development of any effluent limitation, other standard, prohibition, effluent standard, or standard performance under this section; (2) determining whether any person is in violation of any such effluent limitation, other limitation, prohibition, effluent standard, or standard performance under this section; or (3) fulfilling any requirement established under this section or another section under this Act:

(A) the Administrator shall require the owner or operator of any AI data center to (i) establish and maintain sufficient records, (ii) create and maintain sufficient reports, (iii) install, use, and maintain sufficient monitoring equipment or methods, (iv) sample effluents (in accordance with the methods, at such locations, at such intervals, and in such a manner as the Administrator shall prescribe), and (v) provide such other information as may be required under this section; and

(B) the Administrator or authorized representative:

(i) shall have right of entry to, upon, or through any premises in which a water cooling mechanism or effluent source is located, or in which any records required under this section are located, and (ii) may at reasonable times have access to and copy

237. See generally 33 U.S.C. § 1318 (providing language for the section regarding mandatory reporting).

any records, inspect any monitoring equipment, and sample any effluents which the owner or operator of such source is required to sample under such section.

(b) The Administrator, in collaboration with any relevant and necessary entities, shall develop guidelines on how to calculate and report the water use and consumption associated with the full life cycle of AI models and hardware within the AI data center, as well as other significant environmental impacts of AI data centers.²³⁸

(c) Publication of Reports.²³⁹—Any records, reports, or information obtained under this section shall be made available to the public through a method or forum deemed appropriate by the Administrator and any other relevant assisting agency.

(1) Except upon a clear and convincing showing to the Administrator that records, reports, or information that if made public would divulge methods or processes entitled to protection as trade secrets of the AI data center, company, or other entity, the Administrator shall consider the report, record, information, or portion thereof confidential.

(2) The amount of water consumption or amount of spent water discharged shall not be considered confidential or proprietary without a clear and convincing showing to the Administrator.

(3) Any authorized representative who knowingly and willfully publishes, divulges, discloses, or makes known in any manner not authorized by law any information which is required to be confidential under this subsection shall be fined no more than \$1,000.

(d) Enforcement of Reporting Requirements.²⁴⁰—The relevant federal agencies under this section can issue administrative compliance orders requiring a violator to stop any ongoing illegal activity, and where appropriate, to remedy any illegal activity. When enforcing compliance with this section:

(1) The EPA has the authority under this Act to assess administrative civil penalties based on the liable actor's history of violations.

(2) The EPA has the authority to take civil judicial enforcement actions, seeking restoration and other types of injunctive relief, as

238. See generally Michael Patterson et al., *Water Usage Effectiveness (WUE™): A Green Grid Data Center Sustainability Metric*, GREEN GRID 1, 4–6 (2011), [https://airatwork.com/wp-content/uploads/The-Green-Grid-White-Paper-35-WUE-Usage-Guidelines.pdf_\(providing_WUE_as_an_industry_standard_measurement_of_water_usage\)](https://airatwork.com/wp-content/uploads/The-Green-Grid-White-Paper-35-WUE-Usage-Guidelines.pdf_(providing_WUE_as_an_industry_standard_measurement_of_water_usage)).

239. See generally 33 U.S.C. § 1318(b) (providing language for the subsection “Publication of Reports”).

240. See generally *id.* § 1319 (providing language for the subsection “Enforcement of Reporting Requirements”).

well as seek civil penalties and criminal judicial enforcement actions against those who knowingly or negligently violate this act.

Section 5. Public Education & Outreach Operation.²⁴¹

(a) AI Environmental Impacts Outreach.—Not later than 120 days following the completion of the § 3 Study on Water Usage, the Administrator in coordination with the heads of relevant federal agencies and entities shall conduct a public awareness and educational outreach operation to provide information to the American public regarding the environmental risks and consequences relating to the widespread and individual use of AI.

(b) Outreach Operation.—In carrying out the education and outreach operation, the Administrator, and any entity deemed relevant and necessary, shall conduct outreach to the American public relating to the use of AI technology and its associated environmental impacts by:

(1) facilitating access to data collected under the § 3 study and the individual AI data center’s annual environmental impact data to promote up-to-date knowledge regarding AI’s water consumption,

(2) incentivizing companies to assist in public outreach and education in any manner determined by the Administrator, and

(3) conducting outreach to all age groups relating to the environmental impacts of AI data centers across the country, as well as how their individual AI use impacts water resources.

Section 6. Report to Congress.²⁴²

Not later than three years after the enactment of this Act, the Administrator, the Secretary of Energy, the Director of the National Institute of Standards and Technology, and any other relevant and necessary entity shall jointly submit to Congress a report detailing the following:

(1) The main findings of the study conducted under § 3.

(2) A description of the reporting system(s) created under §§ 4 and 5.

(3) Recommendations for further legislative or administrative action to mitigate negative practices and promote positive practices of AI data centers’ water use consumption, and to further the public’s awareness of the environmental impacts of AI technology and data centers.

241. See Artificial Intelligence Public Awareness and Education Campaign Act, S. 4596, 118th Cong. (2024), <https://www.congress.gov/bill/118th-congress/senate-bill/4596> (providing language for the “Public Education & Outreach Operation” section).

242. See generally *id.* (providing language for the “Report to Congress” section).

Section 7. Express Preemption.

No state shall adopt or enforce any law, rule, regulation, standard or other provision having the force and effect of law relating to AI data centers' water consumption.²⁴³

While this proposed statute was modeled after currently proposed AI bills and the Clean Water Act, it mainly focuses on the aspect that almost all policymakers have overlooked in the race to establish the U.S. as an international leader in AI—the exhaustion of water resources by data centers powering AI.²⁴⁴ AI data centers will only become more frequent to keep pace with the demand, especially with large tech companies, politicians, and scientists pushing for the increased use of AI in every aspect of life, governance, and research.²⁴⁵ This statute aims to identify the water usage of individual AI data centers, develop sound standards for AI data centers to adhere to, promote more sustainable practices, and spread awareness to the reality of AI's impact on our environment.

2. This Model Overcomes Concerns Because It Provides Uniformity, Forethought, and Clarity to Serve as an Explicit Guide for Regulation of AI Data Centers' Water Consumption

Due to the widespread and growing use of AI technology, it is vital for users to understand the substantiality of every ChatGPT query and any generative AI content they prompt.²⁴⁶ The proposed statute would preempt states' patchwork legislation and provide uniformity in AI governance, which would mitigate AI developers' and shareholders' fears that patchwork regulation might hinder AI's innovation.²⁴⁷ Additionally, the proposed statute definitively identifies AI and AI data centers, something Congress has delayed doing despite an executive order from the Biden administration, several state government actions, and many international governments focusing their efforts on AI governance.²⁴⁸

243. See Kellen Norwood, *Federal Preemption of State and Local Law*, AM. BAR ASS'N (June 20, 2019), https://www.americanbar.org/groups/state_local_government/publications/state_local_law_news/2018-19/spring/federal-preemption-state-and-local-law/ (providing language for the "Express Preemption" section).

244. See S. 4596; S. 3732, 118th Cong. (2024); Exec. Order No. 14110, 88 Fed. Reg. 75191 (Oct. 30, 2023); Clean Water Act, 33 U.S.C. § 1251.

245. See Ahmad, *supra* note 234.

246. See Berreby, *supra* note 14.

247. See *US State-by-State AI Legislation Snapshot*, *supra* note 211.

248. See Exec. Order No. 14110, 88 Fed. Reg. 75191 (Oct. 30, 2023); CAL. CIV. CODE §§ 1798.100–1798.199 (West 2018); VA. CODE ANN. §§ 59.1-575–59.1-584 (2023); Laney Zhang, *China: Generative AI Measures Finalized*, LIBR. OF CONG. (July 19, 2023), <https://www.loc.gov/item/global-legal-monitor/2023-07-18/china-generative-ai-measures-finalized/>; *Singapore National AI Strategy 2.0*, SMART NATION SING. 1, 5–10 (2023), <https://file.go.gov.sg/nais2023.pdf>.

Under the proposed statute, annual reports of accurate water consumption by AI data centers would be required,²⁴⁹ and tech companies would be held accountable for any harm to the environment caused by their AI data centers and compelled to develop more sustainable practices in their data centers.²⁵⁰ The proposed legislation also prioritizes transparency from AI data centers, enabling legislators, developers, and researchers to identify problems sooner, which will help keep American citizens and their water resources safer.²⁵¹ Moreover, focusing on Americans' safety in the age of AI better aligns the priorities of the legislative branch with the executive's goal for safe and responsible AI innovation, creating a better likelihood for successful, comprehensive AI legislation and regulation.²⁵²

In the aftermath of the *Loper Bright* decision, Congress should enact statutes with greater specificity and direction to federal agencies.²⁵³ Accordingly, statutes should include, at the very least, "explicit delegations of interpretive authority to agencies" so that agencies may properly use their expertise to fill statutory gaps without fear that a court would strike down a regulation under a *Loper Bright* challenge.²⁵⁴ Now, this proposed statute will open the door for more federal agencies to fully and effectively regulate one of the many byproducts of AI technology—water consumption.²⁵⁵

Within the proposed statute, several agencies are granted authority to enact regulations and collaborate with other agencies or entities to develop regulations.²⁵⁶ The proposed statute also utilizes the approach of narrowing *Chevron* deference in an individual statute.²⁵⁷ Despite the disagreement surrounding the *Chevron* doctrine and its constitutionality or necessity, legal scholars on both sides agree that statutes are capable of granting discretionary power to the federal agencies to decide policy specifics.²⁵⁸

The proposed statute utilizes language that clarifies that the discretion is conferred to the named federal agency or agencies, such as "left to the discretion of [the specified federal agency]," "deemed relevant and necessary by [the federal agency]," and "as determined by [the federal agency]."²⁵⁹

249. See *supra* Section III.A.1 (outlining how AI data centers would be required to report water consumption).

250. See Jacob Roundy, *How to Manage Data Center Water Usage Sustainably*, TECHTARGET (Jan. 17, 2024), <https://www.techtargget.com/searchdatacenter/tip/How-to-manage-data-center-water-usage-sustainably>.

251. See Wheeler, *supra* note 161.

252. Exec. Order No. 14110, 88 Fed. Reg. 75191 (Oct. 30, 2023).

253. Hemmersbaugh & Chaifetz, *supra* note 210.

254. *Id.*

255. See *supra* Part III (discussing the need for proper legislation to effectively regulate AI data center water consumption).

256. See *supra* Section III.A.1 (laying out the authority for specific federal agencies).

257. See *supra* Section III.A.1 (specifying which federal agency has deference when promulgating regulations); Bullock, *supra* note 205.

258. See Bullock, *supra* note 205.

259. See *id.*; *supra* Section III.A.1 (providing the specific statutory language).

With this language, reviewing courts would only question whether the federal agency's interpretation was within its discretion, rather than whether the agency's interpretation was the best interpretation of the statutory language.²⁶⁰

Furthermore, the language of the statute will also mitigate several other challenges federal agencies are predicted to face when regulating AI post-*Loper Bright*.²⁶¹ The language in the proposed statute specifically conferring discretion to federal agencies eliminates the basis of the anticipated law suits challenging regulations, in light of the newly-leveled playing field for challengers since agencies can no longer win based on a "reasonable" interpretation of a statute.²⁶² The proposed statutory language will also encourage federal agencies to exercise their expertise in statutes Congress mandates them to implement, and allow agencies to promulgate sound and effective regulations.²⁶³

The proposed statute contemplates potential regulations to be enacted in the future, improvements in AI data center sustainability practices, and definitively delegates specific authorities to relevant agencies to enable them to effectively regulate AI data centers' water footprint.²⁶⁴ AI technology and data centers will continue to develop; therefore, the legislation needs to be flexible and keep innovation and the development of more sustainable practices within the AI industry at the forefront, while also leaving room for federal agencies to implement practical regulations for AI that lawmakers may lack expertise in.

B. Regulations Federal Agencies Can Implement Under the Proposed Statute

Furthermore, the flourishing demand of new AI technologies has led to a burgeoning of AI data centers in the United States.²⁶⁵ AI data centers' rapid increase and the increased demand for the energy resources needed for their

260. See Bullock, *supra* note 205.

261. See Quinn, *supra* note 26.

262. Samuel B. Boxerman et al., *Environmental Law Implications of Loper Bright and the End of Chevron Deference*, SIDLEY (July 2, 2024), <https://environmentalenergybrief.sidley.com/2024/07/02/environmental-law-implications-of-loper-bright-and-the-end-of-chevron-deference/>.

263. See *supra* Section III.A.1 (specifying which federal agency has deference when promulgating regulations); Bullock, *supra* note 205.

264. See *supra* Section III.A.1 (specifying which federal agency has deference when promulgating regulations); Oma Seddiq & Isabel Gottlieb, *Biden AI Rules Face Heightened Scrutiny in Post-Chevron World*, BLOOMBERG LAW (July 22, 2024, 4:00 AM), <https://www.bloomberglaw.com/product/blaw/bloomberglawnews/bloomberg-law-news/XEKR3UO0000000#jcite>.

265. See Preetha Chakrabarti et al., *ESG in the Metaverse: An Opportunity to Rethink Sustainability*, BLOOMBERG LAW (Mar. 2023), <https://www.bloomberglaw.com/external/document/XD81F1N4000000/esg-professional-perspective-esg-in-the-metaverse-an-opportunity>.

operation have made regulations for this industry essential.²⁶⁶ While federal agencies have been encouraged to manage the risk of using AI,²⁶⁷ they have not been given the latitude to address the environmental impacts of AI or AI data centers.²⁶⁸ This proposed legislation fosters cooperation among several agencies and entities to tackle this problem before it can have a catastrophic effect on this country's most precious finite resource—water.²⁶⁹

I. The Most Likely Regulators Under the Proposed Statute

The proposed statute grants several federal agencies regulatory authority while also giving authority to other agencies that may later be deemed relevant and necessary in confronting the widely overlapping problems associated with AI technology, AI data centers, tech companies, environmental harm, and environmental justice.²⁷⁰ Moreover, the statute gives several agencies the authority to cooperate with each other and AI developers the authority to create the most efficient plans for carrying out the goals delineated in the statute.²⁷¹

While the proposed statute encourages cooperation, specific agencies may be better suited to head certain goals and should have the latitude to do so when advantageous.²⁷² Under § 3, which requires studies to be conducted on the efficiency of water usage in data centers, the EPA would be a cognizant leader in developing plans and executing them with the assistance of other relevant agencies mentioned in the statute.²⁷³

The EPA's role in § 4 of the proposed statute could essentially mirror its role under the Clean Water Act by allowing the agency to set standards and enforce compliance for data centers powering AI and to continue working to protect water resources.²⁷⁴ Under this section, with the authority to enforce reporting, the EPA could deploy auditors to monitor the credibility

266. See Sean A. Lev et al., *Data Centers: Artificial Intelligence Spurs Need for More Energy Efficiency*, HWG LLP (Sept. 9, 2024), <https://hwglaw.com/2024/09/09/data-centers-artificial-intelligence-spurs-need-for-more-energy-efficiency-2/>.

267. *Artificial Intelligence (AI)*, U.S. DEP'T OF STATE, <https://www.state.gov/artificial-intelligence/> (last visited Mar. 3, 2025).

268. See *id.*

269. See *supra* Section III.A.1 (discussing the impact of the proposed legislation).

270. See *supra* Section III.A.1 (granting the necessary authority for agencies to confront AI issues).

271. See *supra* Section III.A.1 (giving certain federal agencies specific authority and the authority to name another entity to assist in achieving the goals of the statute). See generally Joshua P. Meltzer, *The US Government Should Regulate AI If It Wants to Lead on International AI Governance*, BROOKINGS (May 22, 2023), <https://www.brookings.edu/articles/the-us-government-should-regulate-ai/> (discussing the need for government regulation and focusing on the necessary collaboration between the government and scientists evaluating AI models).

272. See *supra* Section III.A.1 (providing a cooperative statutory scheme).

273. See *supra* Section III.A.1 (requiring a water usage report and detailing the requirements of such reports).

274. *Summary of the Clean Water Act*, ENV'T PROT. AGENCY (last updated June 12, 2024), <https://www.epa.gov/laws-regulations/summary-clean-water-act>.

of AI data centers' reported disclosures.²⁷⁵ The EPA could also play a larger role in the educational campaign to ensure the public is aware of AI data centers' impact on water resources, and more specifically how AI data centers consume the resources from the communities housing them for AI technology.²⁷⁶

Other federal agencies would likely play an essential role in carrying out the goals of the statute, given the high technicality and expertise needed for AI in general, such as the National Institute of Standards and Technology (NIST) and Office of Science and Technology Policy (OSTP).²⁷⁷ The NIST has experience in conducting research and establishing standards in AI technology.²⁷⁸ Recently, the NIST has been a leader in several developments for cybersecurity risk management and has started a comparable process for AI.²⁷⁹

However, because the NIST is a nonregulatory federal agency, it would largely serve in a research and advisory capacity, and would thus not be tasked with enforcement.²⁸⁰ Similarly, the OSTP has experience advising departments, agencies, and Congress on creating clear and effective policies for science and technology.²⁸¹ The OSTP would be a valuable asset for success in the statutory goals and potential future regulations as it also has experience with AI.²⁸²

Under § 5 of the proposed act, the Public Education and Outreach Operation, multiple agencies may be necessary to effectively organize the AI data center study data and the annual reported water consumption data in a coherent manner.²⁸³ Possible agencies that could oversee the operation are the EPA and the Department of Energy (DOE). After Biden's executive order, the DOE announced several actions in support of the order, such as aiding industry research in developing water cooling technologies that reduce energy and water usage, giving them expertise necessary to achieve the statutory objective.²⁸⁴ The DOE could also assist with Section 4, Mandatory

275. Tiffany J. Vora et al., *The Sustainability Questions Policymakers Should Be Asking About AI*, ATLANTIC COUNCIL (June 21, 2024), <https://www.atlanticcouncil.org/blogs/geotech-cues/the-sustainability-questions-policymakers-should-be-asking-about-ai/>. See generally *supra* Section III.A.1 (suggesting a potential regulation that would achieve the goal of § 4 of the proposed statute).

276. See *supra* Section III.A.1 (requiring publication of reports generated under the statute).

277. See generally *Artificial Intelligence Risk Management Framework*, NAT'L INST. OF STANDARDS & TECH., (July 2024), <https://doi.org/10.6028/NIST.AI.600-1> (discussing the risks of AI); *Office of Science and Technology Policy*, WHITE HOUSE, <https://bidenwhitehouse.archives.gov/ostp/> (last visited Mar. 3, 2025) (providing the policy goals).

278. *Artificial Intelligence Risk Management Framework*, *supra* note 278, at 1.

279. *Id.*

280. See *id.*

281. *Office of Science and Technology Policy*, *supra* note 278.

282. *Id.*

283. See *supra* Section III.A.1 (explaining the aspects of the act that may require multiple agencies).

284. *DOE Announces New Actions to Enhance America's Global Leadership in Artificial Intelligence*, U.S. DEP'T OF ENERGY (Apr. 29, 2024), <https://www.energy.gov/articles/doe-announces-new-actions-enhance-americas-global-leadership-artificial-intelligence>.

Reporting of Water Usage of AI Data Centers, because it has recently released a report outlining several incentives for data centers, such as tax credits, to generate clean energy and efficient tools.²⁸⁵

The proposed statute also gives authority to a designated agency to penalize companies for nonreporting, reporting falsified data, or failing to meet the regulatory standards.²⁸⁶ There are several natural candidates for this authority, such as the Securities and Exchange Commission (SEC), the EPA, or the DOE, because of their ability to enforce promulgated regulations. The designated agencies to carry out this responsibility should collaborate with other entities such as the OSTP, the NIST, and international counterparts to ensure flexible and organized response to rapid advances in the AI industry.²⁸⁷

2. *The Potential Regulations Under the Proposed Statute*

At the core of the proposed statute is the idea that transparency logically precedes accountability.²⁸⁸ Following this idea is § 3 which requires a “Study on the Water Usage of AI Data Centers.”²⁸⁹ Under this section, to effectively conduct the study and identify accurate measurements, the EPA could implement the requirement of Advanced Metering Infrastructure (AMI) in AI data centers or incentivize AI data centers to install AMI meters themselves.²⁹⁰ AMI meters allow the collection of “frequent and accurate water usage data to improve billing, leak detection, and water resource management.”²⁹¹ Data center owners could then easily share their water usage data with AI developers to identify potential issues in the system.²⁹²

Ideally, the AMI meters would also play a vital role in achieving the rest of the goals described in the proposed statute.²⁹³ The meters’ data would allow AI data center owners to collect accurate reports for potential EPA audits and provide accurate data for their center’s average annual water usage.²⁹⁴ AMI meters would also allow for standardization of the reported

285. *The Future of Resource Adequacy: Solutions for Clean, Reliable, Secure, and Affordable Electricity*, U.S. DEP’T OF ENERGY (Apr. 2024), <https://www.energy.gov/sites/default/files/2024-04/2024%20The%20Future%20of%20Resource%20Adequacy%20Report.pdf>.

286. See *supra* notes 237–40 and accompanying text (detailing the authority and requirements for penalizing companies).

287. See Vora et al., *supra* note 276.

288. See generally *supra* Section III.A.1 (outlining the requirements of the study on water usage of AI data centers).

289. See generally *supra* Section III.A.1 (outlining the requirements of the study on water usage of AI data centers).

290. *Advanced Metering Infrastructure*, ENV’T PROT. AGENCY, <https://www.epa.gov/watersense/advanced-metering-infrastructure> (last visited Mar. 3, 2025).

291. *Id.*

292. *Id.*

293. *Id.*

294. *Id.*

data, making for a simpler process in sharing the data with the public in a simple, coherent manner.²⁹⁵

However, some data centers may already utilize a different system of collecting their water usage data, which is why the EPA may decide to incentivize installing AMI meters for data centers.²⁹⁶ The EPA also has the authority to create standards for water consumption and effluent limitations based on the study, and the AMI meters may make adhering to these standards more manageable by following a standardized system.²⁹⁷

The next goal of the statute is to present AI data centers' water consumption data to the public in an easily accessible forum.²⁹⁸ Under the Mandatory Reporting section and the Public Education section, the EPA could create a publicly accessible online database that would display all figures from the study and future mandated reports.²⁹⁹ The database would likely need to be created in collaboration with several entities like the DOE, NIST, or OSTP to create an easily accessible forum for American AI users to reference and fully comprehend.³⁰⁰

The public website housing the database would ideally be created for users of all ages.³⁰¹ For example, members of younger generations are using AI more and will likely be using it for the rest of their lives.³⁰² Younger users need to be able to truly understand the physical impacts of their AI use on the environment and, therefore, should be able to comprehend the data, ideas, and problems presented on the website.³⁰³

This public website should be developed and available to the public soon after the study is completed and regularly updated to reflect annual data center reports, data center violations, and updates on AI sustainability.³⁰⁴ An open-access database providing improved transparency would also benefit investors and tech companies' progress towards sustainable AI goals by allowing regulators and the public to acknowledge and reward its efforts.³⁰⁵

While transparency could create a negative shaming stigma on AI data centers' reporting water usage that greatly exceeds other AI data centers or

295. *Id.*

296. See Rogoway, *supra* note 102 (discussing how Google collects its water usage data).

297. See Vora et al., *supra* note 276 (discussing the EPA's authority).

298. See generally *supra* Section III.A.1 (outlining how the mandatory reports from AI data centers will be made public in § 4(c) of the proposed statute).

299. See generally *supra* Section III.A.1 (laying out the accessibility of the mandatory reports to the public).

300. See generally *supra* Section III.B.1 (discussing the other entities that would play an essential role).

301. See generally *supra* Section III.A.1 (discussing the broad accessibility of the database).

302. Brian Kennedy et al., *Public Awareness of Artificial Intelligence in Everyday Activities*, PEW RSCH. CTR. (Feb. 15, 2023), <https://www.pewresearch.org/science/2023/02/15/public-awareness-of-artificial-intelligence-in-everyday-activities/>.

303. See *id.*

304. See generally *supra* Section III.A.1 (discussing the database being accessible to the public).

305. See Vora et al., *supra* note 276.

performs below the EPA's set standards,³⁰⁶ the transparency could instead create positive press for those AI data center operators who make efforts to improve their center's efficiency.³⁰⁷ Transparency further cultivates positive and sustainable industry practices, which can in turn stimulate consumer trust in AI technology and tech companies.³⁰⁸

Another regulation that could be created under the Public Education and Outreach section is for agencies like the EPA, OSTP, NIST, and others to increase public understanding of AI's environmental impact.³⁰⁹ This can be achieved through agency administrators and officials lecturing in public schools, providing online resources for students and adults to learn more about environmental issues caused by AI, and how they can be a part of the solution.³¹⁰ Other potential means could be through campaigning through billboards, commercials, and other media that aim to increase public awareness of the issue and knowledge of the public resources created under the proposed statute.³¹¹

C. When Weighing the Environmental and Social Impact, the Legislation and Potential Regulations Do Not Impose an Undue Burden on Innovation

Many AI developers fear that the enactment of AI legislation and regulation could hinder the industry's innovation.³¹² But while the fast and furious improvements of AI capabilities have been helpful in some areas,³¹³ they have led to numerous harms and risks as well.³¹⁴ Continuing to allow self-governance and voluntary reporting could cause America to repeat its past failures in not legislating the early world of online social media platforms.³¹⁵

This alternative—allowing further development to occur with no governance to incentivize sustainability or consideration of environmental interest—is unquestionably dangerous.³¹⁶ The undeniable good that comes from AI, or possible future AI capabilities, does not outweigh the physical

306. Tal Z. Zarsky, *Transparent Predictions*, 2013 U. ILL. L. REV. 1503, 1534–35 (2013).

307. Shlomit Yanisky-Ravid & Sean K. Hallisey, “*Equality and Privacy by Design*”: *A New Model of Artificial Intelligence Data Transparency Via Auditing, Certification, and Safe Harbor Regimes*, 46 FORDHAM URB. L.J. 428, 478 (2019).

308. *See id.*

309. *See* S. 3732, 118th Cong. (2024).

310. *See supra* Section III.A.1 (incentivizing public outreach and education on AI's environmental impacts).

311. *See supra* Section III.A.1 (discussing resources available under the proposed legislation).

312. *Why AI Still Needs Regulation Despite Impact*, THOMSON REUTERS: LEGAL (Feb. 1, 2024), <https://legal.thomsonreuters.com/blog/why-ai-still-needs-regulation-despite-impact/>.

313. *See* Kennedy et al., *supra* note 303.

314. *See Why AI Still Needs Regulation Despite Impact*, *supra* note 313.

315. *See* Wheeler, *supra* note 161 (“Congress failed to meet the moment on social media. Now we have the obligation to do it on AI before the threats and the risks become real.” (internal quotations omitted)).

316. *See* Yanisky-Ravid & Hallisey, *supra* note 308, at 474.

harms to the environment, especially when the primary rewards from AI technology are reaped only by a few powerful companies while the harms to resources and the environment are borne by the public—communities “tech companies [have attempted to] invisibilize.”³¹⁷

Requiring transparency is a way for consumers to ensure that the negative impacts of AI do not outweigh its benefits.³¹⁸ Moreover, AI technology is emerging in a world facing a climate crisis.³¹⁹ Global warming is no longer a looming threat; its repercussions are here and wreaking havoc on ecosystems and humanity.³²⁰ In the face of this grim reality, AI technology was introduced as a beacon of hope in the fight against climate change.³²¹

However, AI’s potential comes at a cost—a cost made worse by current conditions which allow the AI industry to prioritize progress over efficiency and sustainability.³²² Because AI is becoming increasingly more popular while also driving demand for resource consumption, a balance between AI development and sustainability will only become progressively more difficult to accomplish the longer a balance is delayed.³²³

Furthermore, transparency can provide assurance to shareholders and AI developers that AI can continue to innovate without fear of adverse reaction from the public.³²⁴ Backlash from the public has already been experienced by some tech companies due to their lack of transparency—especially in geographic areas experiencing major drought.³²⁵ Shareholders and AI developers can also feel assured that the courts will not allow agencies to freely enact regulations that are too stringent and that would cause undue harm or inhibit further innovation.³²⁶ While the AI industry should have the public’s interest in mind when developing more sustainable practices, the

317. Lois Parshley, *The Hidden Environmental Impact of AI*, JACOBIN (June 20, 2024), <https://jacobin.com/2024/06/ai-data-center-energy-usage-environment/> (quoting Brian Chen, policy director at the nonprofit Data & Society) (“It’s difficult to reckon with the physical harms of AI . . . because tech companies invisibilize the consequences of these systems, most people don’t have to think about it.” (internal quotations omitted)).

318. See Yanisky-Ravid & Hallisey, *supra* note 308, at 482.

319. *The Climate Crisis – A Race We Can Win*, UNITED NATIONS, <https://www.un.org/en/un75/climate-crisis-race-we-can-win> (last visited Mar. 3, 2025).

320. See Lin, *supra* note 53, at 4–5.

321. Todd Brady, *Intel Study: Applying Emerging Technology to Solve Environmental Challenges*, INTEL (Dec. 13, 2018), <https://download.intel.com/newsroom/2021/archive/2018-12-13-editorials-intel-study-applying-emerging-technology-solve-environmental-challenges.pdf>.

322. See Lance Eliot, *Brute Force Algorithms and AI: Use Case of Autonomous Cars*, AI TRENDS (June 20, 2019), <https://www.aitrends.com/ai-insider/brute-force-algorithms-and-ai-use-case-of-autonomous-cars/>.

323. See Keller et al., *supra* note 50.

324. See Yanisky-Ravid & Hallisey, *supra* note 308, at 486.

325. See generally Hao, *supra* note 62 (illustrating some communities’ frustrations with AI data centers and their operators).

326. See generally *supra* Section II.C.2 (analogizing to a crypto mining case over challenging a regulation to show that their fears are unlikely to come to fruition).

proposed legislation and regulations will ensure that the public is not further harmed.³²⁷

Overall, the current landscape of AI policy has placed continuing innovation at its forefront.³²⁸ In this digital age, the U.S. has left innovators to make the rules, which have naturally benefitted makers over consumers.³²⁹ The fear of AI regulation stifling innovation must be considered alongside the reality that a complete lack of regulation will lead to more uncertainty and unforeseen risks.³³⁰

Ultimately, the potential of AI to be a force in the fight against climate change is too great to be left unregulated or regulated poorly.³³¹ Governing AI can create trust in these communities that are skeptical or fear the emerging technology, especially if the tech companies demonstrate that they have these communities in mind when developing AI technology and infrastructure.³³² Requiring AI data centers to be transparent and accountable can invite more diverse users, create more efficient models, and help ensure that there remains a world for the future of AI to benefit.³³³

IV. CONCLUSION

Considering the Supreme Court's overturning of *Chevron*, and to avoid the state's patchwork of AI environmental regulation, Congress must enact legislation addressing the water footprint of AI data centers which expressly delegates authority to specific agencies to exercise their expertise.³³⁴ Therefore, in order to promote uniformity in the American AI industry and ensure AI technology does not become an exacerbating factor in the water crisis, Congress should enact legislation like the proposed statute that can withstand agency deference challenges while effectively governing the currently wasteful water consumption practices of AI data centers.³³⁵ Additionally, federal agencies need to collaborate with other agencies, AI developers, and academics to ensure that the development of practical and

327. See generally *supra* Section II.B.2 (discussing the benefits to the public of the proposed legislation).

328. See *AI Watch: Global Regulatory Tracker – United States*, *supra* note 132.

329. See Wheeler, *supra* note 161.

330. Rahul Tongia, *Why Regulating AI Can Be Surprisingly Straightforward, When Teamed with Eternal Vigilance*, WORLD ECON. FORUM (May 28, 2024), <https://www.weforum.org/agenda/2024/05/why-regulating-ai-can-be-surprisingly-straightforward-providing-you-have-eternal-vigilance/>.

331. Bill Whyman, *AI Regulation Is Coming- What Is the Likely Outcome?*, CSIS (Oct. 10, 2023), <https://www.csis.org/blogs/strategic-technologies-blog/ai-regulation-coming-what-likely-outcome>.

332. *Id.*

333. See *id.*

334. See *supra* Part III (demonstrating the need for legislation to regulate the use of AI in data centers).

335. See *supra* Section III.A (proposing federal legislation to solve the concerns of wasteful water consumption practices by AI data centers).

successful regulations under the proposed statute will not hinder AI's innovation.³³⁶

The AI industry's environmental impact has not been federally regulated in the United States, despite the emergence of several federal and state AI-focused legislation.³³⁷ The U.S. government will always prioritize technological innovation, but in the face of worsening climate concerns, action needs to be taken to reduce these innovations' inadvertent environmental consequences.³³⁸ Therefore, federal legislation that emphasizes this concern is the only plausible solution that will ensure that tech companies will keep this concern in mind when continuing the development of AI and AI data centers.³³⁹ Furthermore, opening the door for federal agencies to oversee this issue with explicit deferential authority will enable more efficient regulations capable of withstanding the evolving nature of AI.³⁴⁰ In sum, Congress must step in to minimize the negative impacts AI is having on the water crisis in the United States and to ensure accountability in the AI industry.

336. *See supra* Section III.A.2 (addressing the concerns of practicality and success through collaboration).

337. *See supra* Section II.B (explaining the current state of American AI policy and the need for change).

338. *See supra* Part II (discussing the current environmental footprint of AI data centers).

339. *See supra* Section II.C (addressing the need for federal regulations to correct the lack of clarity by technological companies).

340. *See supra* Section III.B (explaining the power of federal agencies to implement regulations to ensure that the implemented regulations are efficient and can withstand the evolving nature of AI).