

COMMENTS

Man v. the Machine: Will the Rise in AI Data Centers Strain Finite Natural Resources

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I. INTRODUCTION

Artificial Intelligence (AI) has been integrated into the lifestyles of millions, who likely will never ask the question that begs to be answered: how the search query is being generated. AI has been a part of technology use since the 1950s, but the form of AI that generally comes to mind today has just recently soared into our view.¹

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1. Marc Weber, *Relax. Machines Already Took Our Jobs*, COMPUT. HIST. MUSEUM (Feb. 16, 2021), https://computerhistory.org/blog/relax-machines-already-took-our-jobs/?gad_source=1&gclid=CjwKCAiAiaC-BhBEEiwAjY99qEjEAHyc59dn-uzUwYxnFbdKBp34oHPxa6T0iuEH2jWXt6aI6wI2hoC-ckQAvD_BwE.

OpenAI, often known as ChatGPT, was created in 2020 and is the model many think of when it comes to modern AI.² But the question of what powers these machines is seldom asked. Programs like ChatGPT are powered by data centers, which are physical computing facilities that require constant supplies of substantial amounts of power to operate.³ In 2023, the Department of Energy reported that data centers account for roughly 4.4 percent of total U.S. electricity, but it is projected that by 2030 data centers will utilize around 12 percent, tripling the total amount demanded by these centers.⁴ The benefit of this bargain is the advancements in technology, which will hopefully streamline many of our daily processes; however, the amount of energy required to power these data centers is astounding, since one query on ChatGPT uses ten times more electricity than a Google search.⁵ When used in the right way, a researcher might be able to accomplish what 10 Google searches takes them with one ChatGPT query, but we must consider the implications of such a demanding type of technology.

It has been estimated that AI will drive an increase in data center power demand by 165% by the end of the decade.⁶ The current global market capacity of data centers is 59 Gigawatts (GW), which is expected to jump to capacities of 122 GW by 2030.⁷ At any given time, data centers worldwide collectively consumes about 59 GW of power.⁸ Relevant numbers to also consider are the amount of power per unit volume that data centers require, which currently operate at 162 kW per square foot and are expected to increase to 176 kW per square foot by 2027 due to the

2. *What Is the History of Artificial Intelligence (AI)?*, TABLEAU FROM SALESFORCE, <https://www.tableau.com/data-insights/ai/history> (last visited Mar. 28, 2025).

3. *AI to Drive 165% Increase in Data Center Power Demand by 2030*, GOLDMAN SACHS, (Feb. 4, 2025), <https://www.goldmansachs.com/insights/articles/ai-to-drive-165-increase-in-data-center-power-demand-by-2030>; *What Is a Data Center?*, CISCO, <https://www.cisco.com/c/en/us/solutions/data-center-virtualization/what-is-a-data-center.html> (last visited Mar. 28, 2025).

4. *DOE Releases New Report Evaluating Increase in Electricity Demand from Data Centers*, U.S. DEP'T OF ENERGY (Dec. 20, 2024), <https://www.energy.gov/articles/doe-releases-new-report-evaluating-increase-electricity-demand-data-centers#:~:text=The%20report%20finds%20that%20data,total%20U.S.%20electricity%20by%202028>; *AI's Power Binge*, MCKINSEY & COMPANY (Nov. 6, 2024), <https://www.mckinsey.com/featured-insights/sustainable-inclusive-growth/charts/ais-power-binge>.

5. Dara Kerr, *AI Brings Soaring Emissions for Google and Microsoft, a Major Contributor to Climate Change*, NPR (July 12, 2024, 5:13 AM), <https://www.npr.org/2024/07/12/g-s1-9545/ai-brings-soaring-emissions-for-google-and-microsoft-a-major-contributor-to-climate-change#:~:text=According%20to%20a%20report%20by,primary%20drivers%20of%20climate%20change>.

6. *AI to Drive 165% Increase in Data Center Power Demand by 2030*, *supra* note 3.

7. *Id.*

8. *Id.*

rise in AI performance and its computing growth.⁹ In order to have electricity to run these centers, data centers will utilize various forms of energy, typically syphoning from the utility grid.¹⁰ Utilizing utility grids brings up the pressing issue of impacts to public health and welfare from increased pricing and increased emissions due to the increase in power needed to supply these centers through the grid.

The ability to supply power to these data centers will become a limiting factor in their expansion.¹¹ A boom in AI growth in the world sets the stage for President Trump's national energy emergency declaration.¹² Trump's declaration comes with additional powers to fast-track the building of new power plants through the use of coal and natural resources.¹³ Beyond electricity, these data centers also consume massive amounts of water for cooling, further straining local resources.¹⁴ Since AI data centers consume immense amounts of energy and water, their sustainability and regulatory compliance raise pressing concerns, particularly regarding the balance between powering AI and serving the public interest.

II. BACKGROUND

A. *Natural Resource Law*

Natural resource law, specifically water use regulations under the Clean Water Act (CWA), will be a possible hurdle to these new AI data centers which use large volumes of water in the cooling processes

9. *Id.*

10. David Chernicoff, *Meta Sees \$10B AI Data Center in Louisiana Using Combo of Clean Energy, Nuclear Power*, DATA CTR. FRONTIER (Dec. 12, 2024), <https://www.datacenterfrontier.com/hyperscale/article/55248311/meta-sees-10b-ai-data-center-in-louisiana-using-combo-of-clean-energy-nuclear-power>.

11. *Id.*

12. Camilla Domonoske, *Trump Has Declared a 'National Energy Emergency.' What Does That Mean?*, NPR (Jan. 22, 2025), <https://www.npr.org/2025/01/20/nx-s1-5268653/energy-emergency-trump-oil-evs>.

13. *Id.*

14. Matt Vincent, *How AI's Transformative Impact on Data Centers Is Driving Unprecedented Industry Growth, Innovation, and Global Expansion*, DATA CTR. FRONTIER (Feb. 5, 2025), <https://www.datacenterfrontier.com/machine-learning/article/55265866/how-ais-transformative-impact-on-data-centers-is-driving-unprecedented-industry-growth-innovation-and-global-expansion>; Julia Borgini, *Data Center Cooling Systems and Technologies and How They Work*, TECHTARGET (Nov. 8, 2024), <https://www.techtargget.com/searchdatacenter/tip/Data-center-cooling-systems-and-technologies-and-how-they-work#:~:text=Hot%20and%20cold%20aisle%20layouts,levels%20in%20the%20data%20center>.

necessary to run the centers.¹⁵ For perspective, a mid-sized data center uses roughly 300,000 gallons of water daily, which equates to the daily water use of roughly 1,000 households.¹⁶ When large projects are started in states and are not major federal actions that trigger the National Environmental Policy Act (NEPA), they typically do not evaluate where they are going to get their water from; they just happen upon it. In Louisiana, state law gives landowners ultimate dominion over groundwater use beneath their property.¹⁷ If a conflict between a data center's and a city's water use were to arise, Louisiana legislation suggests that groundwater use in the state must serve the public interest and be managed equitably among users, with the state reserving exclusive jurisdiction over such management.¹⁸ However, there is no current management system in the state to facilitate this. The lack of regulation of aquifers may become concerning when aquifers like the Chicot Aquifer System, accounting for forty-eight percent of the groundwater usage in the state, lose water too quickly.¹⁹ Regulation of groundwater has also become a concern of the federal court system in the case *Mississippi v. City of Memphis*, where use of an interstate aquifer became the subject of a lawsuit of wrongful appropriation of interstate groundwater.²⁰ The state of Mississippi brought this action, due to the City of Memphis's significant water use of the Memphis Sands Aquifer, located underneath Mississippi, Tennessee, and Arkansas.²¹ Mississippi asserts that the water use by the City of Memphis created a cone of depression which pulled water from the aquifer, that would have been accessed elsewhere in Mississippi, into Memphis, causing the water levels to drop.²² Cones of depression can occur when water from an aquifer is drawn at faster rates

15. 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>; <https://www.joycefdn.org/news/data-centers-and-groundwater-usage>.

16. Elizabeth Cisar, *Data Centers and Groundwater Usage*, THE JOYCE FOUND. (Aug. 6, 2024), <https://www.joycefdn.org/news/data-centers-and-groundwater-usage>.

17. Tegan Wendland, *Louisiana's Biggest Source of Groundwater Is Losing Water Fast*, WWNO (Mar. 9, 2021, 6:00 AM), <https://www.wwno.org/coastal-desk/2021-03-09/louisianas-biggest-source-of-groundwater-is-losing-water-fast>.

18. La. R.S. § 38:3097.6 (2024).

19. *Id.*; Water Science School, *Map of U.S. Showing Groundwater Level Trends*, U.S. GEOLOGICAL SURV., <https://www.usgs.gov/media/images/map-us-showing-groundwater-levels-trends-1900-2008>.

20. *Hood ex rel. Miss. v. City of Memphis*, Tenn., 570 F.3d 625 (5th Cir. 2009).

21. *Id.* at 627.

22. *Id.*

than it is replenished.²³ A more recent case was decided by the Supreme Court in 2024 regarding a dispute the United States intervened in between Texas and New Mexico over excessive groundwater pumping in New Mexico from the Rio Grande.²⁴ The Court ultimately held that although the states wished to enter into a mutual decision that would resolve the case and contractually determine the state's allocation of Rio Grande's water, the argument is rejected because it would dispose United States' compact claims without its consent.²⁵ As water use in the United States come into view, cases like *Mississippi* and *Texas* highlight the challenges facing the United States regulation of water use. The decision in *Mississippi* underscores the importance of interstate cooperation for groundwater regulation.²⁶ As water regulations and law emerge as issues, *Texas* exemplifies the involvement the federal government may have in intervening in these future issues as they arise.²⁷

B. Jurisdictional Authority over Data Centers

Federal law applicable to potential projects regarding data centers may possibly fall under the jurisdiction of the Federal Energy Regulatory Commission (FERC) if it requires proposals to build "liquified natural gas terminals and interstate natural gas pipelines as well as licensing hydropower projects."²⁸ However, FERC does not regulate the approval of physical construction of electric generation facilities.²⁹ NEPA may potentially be triggered if it is determined to be a major federal action.³⁰ However, more likely than not, these projects will fall under the jurisdiction of the state the project is located. In the state of Louisiana, the Louisiana Public Service Commission (hereinafter the "Commission," or LPSC) has jurisdiction over approving the types of projects necessary to

23. *Id.*

24. *Texas v. New Mexico*, 602 U.S. 943, at 947 (2024).

25. *Id.* at 965.

26. 570 F.3d 625 (5th Cir. 2009).

27. *Texas v. New Mexico and Colorado: US Supreme Court Weighs in on Federal Interstate River Management*, O'MELVENY & MEYERS, LLP (July 2, 2024), <https://www.omm.com/insights/alerts-publications/texas-v-new-mexico-and-colorado-us-supreme-court-weighs-in-on-federal-interstate-river-management/#:~:text=Texas%20v.,Interstate%20River%20Management%20%2D%20O'Melveny>.

28. *What FERC Does*, FED. ENERGY REGUL. COMM'N, <https://www.ferc.gov/what-ferc-does> (last visited Mar. 29, 2025).

29. *Id.*

30. *National Environmental Policy Act Review Process*, ENV'T PROT. AGENCY, <https://www.epa.gov/nepa/national-environmental-policy-act-review-process> (last visited Mar. 29, 2025).

build the infrastructure required by such data centers.³¹ The demand for energy in a project occurring in Louisiana likely falls under the sole jurisdiction of Louisiana.³²

It is enumerated in the Louisiana Constitution that jurisdiction is granted to the Commission and that they “shall regulate all common carriers and public utilities and have such other regulatory authority as provided by law. It shall adopt and enforce reasonable rules, regulations, and procedures necessary for the discharge of its duties, and shall have other powers and perform other duties as provided by law.” The creation of data centers and their massive power consumption needs will certainly drive the creation of new power infrastructure across the United States. Such power delegated to the Commission allows for authority to be exercised over all public utilities due to the need for fixing and regulating rates charged or to be charged by such public utilities and investigate the justness of utility agreements.³³

C. *Meta’s Louisiana Data Center*

Demand for progress in technology goes hand in hand with the increase in data centers.³⁴ Meta Platforms, Inc. is in the process of developing a data center in Richland Parish, Louisiana, having submitted the necessary applications and documents with the LPSC.³⁵ Attention was first drawn to the project in fall of 2024 as the LPSC took their first steps to consider Entergy Louisiana, LLC’s request for the construction of power plants necessary to power the new data center.³⁶ In order for Meta to service this data center, it will require cooperation from Louisiana’s largest power supplier, Entergy.³⁷ Entergy’s current power generation capacity is 24,000 MW which is spread amongst their three million

31. In re Entergy Louisiana, LLC, No. U-37425, at 4 (La. Pub. Serv. Comm’n 2025), <https://lpscpubvalence.lpsc.louisiana.gov/portal/PSC/ViewFile?fileId=rxlwamnnu4k%3D>.

32. LA Rev. Stat. § 45:1163; LA CONST. art. IV § 21.

33. LA Rev. Stat. § 45:1163; LA Rev. Stat. § 45: 1176.

34. DOE Releases New Report Evaluating Increase in Electricity Demand from Data Centers, *supra* note 4.

35. Application of Entergy Louisiana, L.L.C. for Approval of Generation & Transmission Resources Proposed in Connection with Service to a Significant Customer Project in North Louisiana, Including Proposed Rider, and Request for Timely Treatment, No. U-37425 (La. Pub. Serv. Comm’n 2024), <https://lpscpubvalence.lpsc.louisiana.gov/portal/PSC/ViewFile?fileId=hPlql%2FXSHEU%3D>.

36. Amanda Cook, *La. PSC Reviewing Entergy Request to Power \$5B Data Center with Gas Gen*, RTO INSIDER (Nov. 21, 2024), <https://www.rtoinsider.com/92650-la-psc-entergy-request-data-center-gas-gen/>.

37. *About Entergy*, ENTERGY, <https://www.entergy.com/about/> (last visited Mar. 29, 2025).

customers throughout Louisiana, Texas, Mississippi, and Arkansas.³⁸ As outlined in the application by Entergy, the company anticipates that the new data center will require 2.262 MW of new baseload generation, requiring the construction of three new gas-fired combined cycle combustion turbine generators, the subject of one of the applications.³⁹ Constructing these new power plants brings concern to Entergy consumers as well as the Counsel for the Alliance for Affordable Energy and Union of Concerned Scientists (hereinafter the “intervenors”) who filed through Earthjustice a motion to declare Laidley, LLC (hereinafter “Laidley” or “the Customer”) and Meta as the parties necessary for the Commission to approve application for the construction of these plants.⁴⁰ It is of concern for these parties, because, as it stands, Laidley, a subsidiary of Meta, is listed as the only customer for the transaction between the party and Entergy for the construction and use of the needed power.⁴¹ The oral argument on this issue was conducted on March 25, 2025, to which the LPSC determined Laidley is the only necessary party to the contract.⁴²

The Meta data center will consume as much power as a significant portion of Manhattan, New York, as stated by CEO Mark Zuckerberg.⁴³ Although this data center will consume unprecedented amounts of power, in their application they have committed to offset their consumption by purchasing 1,5000 MW of solar power and investing in carbon capture.⁴⁴ The center will also bolster northeastern Louisiana’s economy through the creation of jobs and expansion in infrastructure that is absent in the area of the state.⁴⁵ It is set to directly employ 300 to 500 employees, averaging a salary of \$82,000, with a planned investment from Laidley of \$5 billion.⁴⁶ It was decided that Laidley would be the sole face of the

38. *Id.*

39. In re Entergy Louisiana, LLC, No. U-37425, at 2 (La. Pub. Serv. Comm’n 2025), <https://lpscpubvalence.lpsc.louisiana.gov/portal/PSC/ViewFile?fileId=rxlwamnnu4k%3D>.

40. *Id.*

41. *Id.*

42. In re Entergy Louisiana, LLC, No. U-37425, at 15 (La. Pub. Serv. Comm’n 2025), <https://lpscpubvalence.lpsc.louisiana.gov/portal/PSC/ViewFile?fileId=SAO38y%2BNOmo%3D>.

43. Matt Vincent, *supra* note 14.

44. Press Release, Entergy Louisiana to Power Meta’s Data Center in Richland Parish, (Dec. 5, 2024), <https://www.entergynewsroom.com/news/entergy-louisiana-power-meta-s-data-center-in-richland-parish/>.

45. *Id.*

46. Application of Entergy Louisiana, L.L.C. for Approval of Generation & Transmission Resources Proposed in Connection with Service to a Significant Customer Project in North Louisiana, Including Proposed Rider, and Request for Timely Treatment, No. U-37425, at 1 (La.

customer to the contract on March 25, 2025.⁴⁷ If the project is approved, Entergy will build three new combined cycle combustion turbine generators, which are gas-fired power plants that use gas and steam to create electricity.⁴⁸

D. xAI Data Center

xAI's data facility in Memphis was approved by the Tennessee Valley Authority (TVA) Board of Directors in 2024.⁴⁹ Originally, the site had access to just 8 MW of power from a nearby substation.⁵⁰ However, the plan subsequently approved the supply of 150 MW of power to center located in South Memphis which powers X's AI chatbot known as Grok.⁵¹ CEO Elon Musk has recently planned to double the center's initial power consumption, which effects on the local power grid and consumer costs have not been weighed.⁵² TVA raised concerns about power grid reliability and suggested building a new gas plant in South Memphis.⁵³ The board members are voicing concerns over how large industrial energy users impact electricity costs across the Tennessee Valley, emphasizing that the TVA should prioritize families over data centers like xAI.⁵⁴ TVA is taking a different approach when contracting with these data centers.⁵⁵ They plan to develop a separate electricity rate class for data centers given their high consumption rate due to AI.⁵⁶ The xAI data center's need for water will be trucked in and put on a closed-loop system

Pub. Serv. Comm'n 2024), <https://lpscpubvalence.lpsc.louisiana.gov/portal/PSC/ViewFile?fileId=hUMIP%2BmbAzk%3D>.

47. In re Entergy Louisiana, LLC, No. U-37425, at 15 (La. Pub. Serv. Comm'n 2025), <https://lpscpubvalence.lpsc.louisiana.gov/portal/PSC/ViewFile?fileId=SAO38y%2BNOmo%3D>.

48. *Most Combined-Cycle Power Plants Employ Two Combustion Turbines with One Steam Turbine*, U.S. ENERGY INFO. ADMIN. (April 25, 2022), <https://www.eia.gov/todayinenergy/detail.php?id=52158>.

49. Sean Wolfe, *TVA Approves Elon Musk's Controversial Data Center Plan for More Power*, FACTOR THIS (Nov. 7, 2024), https://www.renewableenergyworld.com/energy-business/policy-and-regulation/tva-approves-elon-musks-controversial-data-center-plan-for-more-power/?related=post_cards.

50. *Id.*

51. *Id.*

52. *Id.*

53. *Id.*

54. *Id.*

55. Dancil Dassow, *TVA Develops Separate Electric Rate Class for Data Centers, Which Suck up Power to Train AI*, KNOXVILLE NEWS SENTINEL (Feb. 20, 2025, 5:12 AM), <https://www.knoxnews.com/story/news/environment/2025/02/20/tva-considering-separate-electric-rate-for-power-hungry-data-centers/79099631007/>.

56. *Id.*

used for cooling the computers, but it is not specified where the water will come from.⁵⁷ The Southern Environmental Law Center has raised concerns over the facilities impact on Memphians air and health, due to xAI operating methane gas turbines.⁵⁸ It has been estimated that they have at least eighteen working turbines, but community members have reported seeing more at the site.⁵⁹ Although TVA has approved xAI's request for more power, there has not been confirmation of turning off the methane gas turbines, which emit formaldehyde and smog.⁶⁰

III. ANALYSIS

A. *Balancing Progress with Natural Resource Conservation*

Mankind has long grappled with the rise of machines in the struggle to find the balance between innovation and the preservation of natural resources, striving to advance technology while preserving the environment and public welfare. History has shown that industrial progress often goes hand in hand with unforeseen environmental consequences, which are suffered before they are solved. The Industrial Revolution, for example, marked by the invention of the steam engine and assembly line, launched the United States into the powerful producer it is today, but was accompanied with unchecked pollution. As the new era continued, there were no regulations on pollutants being released into the atmosphere from these new inventions.⁶¹ The continued industry growth eventually led to the Clean Air Act in 1970.⁶² Similarly, the rise in data centers across the United States will likely be the test subject for forthcoming and state laws regulating the use of energy and water resources by the technology industry. Federal and state laws must adapt to balance innovation with environmental responsibility.

Water use and water scarcity have recently gained traction as popular topics of legal discourse. Water is not an infinite resource and is

57. *xAI Marks Its Spot in Memphis*, GREATER MEMPHIS CHAMBER, <https://memphischamber.com/economic-development/xai/> (last visited Mar. 29, 2025).

58. *Elon Musk's xAI Facility Is Polluting South Memphis*, (Nov. 15, 2024), S. ENV'T L. CTR., <https://www.selc.org/news/elon-musks-xai-facility-is-polluting-south-memphis/>.

59. *Id.*

60. *Id.*

61. *Rise of Industrial America*, LIBR. OF CONG., <https://www.loc.gov/classroom-materials/united-states-history-primary-source-timeline/rise-of-industrial-america-1876-1900/overview/> (last visited Mar. 29, 2025).

62. *Evolution of the Clean Air Act*, U.S. ENV'T PROT. AGENCY, <https://www.epa.gov/clean-air-act-overview/evolution-clean-air-act#:~:text=The%20Air%20Quality%20Act%20of,requirements%20included%20in%20these%20Acts> (last visited Mar. 29, 2025).

often overlooked in the planning and construction of major projects that do not require environmental impact statements (EIS).⁶³ It is a requirement of the CWA that regulated facilities obtain permits, meet pollutant limits, use control technology, monitor discharges, and protect overall water quality.⁶⁴ However, data centers are not listed as regulated facilities under the CWA despite their large consumption of water per day for cooling processes.⁶⁵ There is no flowing water next to the site of the Meta data center project, so it is likely that water needs for the cooling processes for the data center will be taken from local water sources such as the Mississippi River alluvial aquifer, used by Arkansas, Illinois, Tennessee, Kentucky, Louisiana, Mississippi, and Missouri.⁶⁶ It is notable that the Mississippi River aquifer is vulnerable to over-pumping, which has led to significant declines in water levels, threatening future water availability, and is currently being evaluated by the United States Geological Survey to better understand and manage this critical resource.⁶⁷ Studies have also been conducted by Louisiana State University's Water Resources Research Institute, which has observed a declining trend of groundwater in recent years due to increased pumping, making it necessary to support a more sustainable usage of the water resources in the area in the future.⁶⁸

1. Analysis Under Louisiana Law

If LPSC approved the application for building the necessary electrical plants to power the new Meta data center in Richland Parish, without requiring it to minimize adverse environmental impacts, it would be a regulatory oversight. The requirements set forth by Article 9 of the Louisiana Constitution were enacted with the intent to protect the natural

63. *National Environmental Policy Act Review Process*, U.S. ENV'T PROT. AGENCY, <https://www.epa.gov/nepa/national-environmental-policy-act-review-process> (last visited Mar. 29, 2024) ("Federal agencies prepare an Environmental Impact Statement (EIS) if a proposed major federal action is determined to significantly affect the quality of the human environment.").

64. 33 U.S.C. § 1316(b); *Cooling Water Intakes*, U.S. ENV'T PROT. AGENCY, <https://www.epa.gov/cooling-water-intakes> (last visited Mar. 29, 2024); Gary Aydele et al., *Water Permits 101: Understanding the Process*, LA. DEP'T. OF ENV'T QUALITY, https://www.deq.louisiana.gov/assets/docs/About_LDEQ/enviroschool/Enviroschool-Water-Permits-Feb-09.pdf.

65. 33 U.S.C. § 1316(b).

66. Vincent E. White, *Water Resources of Richland Parish, Louisiana*, U.S. GEOLOGICAL SURV., <https://pubs.usgs.gov/fs/2019/3005/fs20193005.pdf> (last visited Mar. 29, 2025).

67. *Mississippi Alluvial Plain (MAP) Regional Water Availability Study*, U.S. GEOLOGICAL SURV. (Apr. 8, 2024), <https://apps.usgs.gov/lmg/map/budget.html>.

68. Frank Tsai et al., *Mississippi River Alluvial Aquifer Groundwater Availability Study*, LA. WATER RES. RSCH INST., https://www.lsu.edu/lwrri/research/mississippi_alluvial.php.

resources of the state, which has been held consistent through case law.⁶⁹ The Louisiana Supreme Court has upheld that the power of Article 9 applies to state agencies.⁷⁰ The LPSC is the state agency reviewing Entergy's application for the three new gas-fired combined cycle combustion turbine generators.⁷¹ State agencies that regulate the conservation and management of natural resources are the Louisiana Department of Conservation and Energy (LDCE) and the Louisiana Department of Environmental Quality (LDEQ).⁷² The duties of Article 9 apply to all state agencies, not just agencies of environmental purpose; thus they apply to agencies like the LPSC.⁷³ The LPSC is required by Article 9 to protect, conserve, and replenish insofar as possible the natural resources of the state for the benefit of the health, safety, and welfare of the people.⁷⁴ There should be a more robust system in place for the confirmation of data centers throughout the states on a local and federal level.

As enumerated by Article 9, the LPSC is further responsible for ensuring the contracts with the Customer, Laidley LLC, which are tied to Meta's commitments to Entergy, are compliant with regulatory requirements.⁷⁵ Meta has expressly committed to purchase the power generated by these new power plants, match its electricity use with 100% clean and renewable energy, and contribute up to \$1 million a year to Entergy's low-income ratepayer support program.⁷⁶ However, Meta is currently a non-party in this proceeding.⁷⁷ The interested parties assert that

69. CV Land, LLC v. Millers Lake, LLC, 373 So.3d 529, 535 (La.App. 3 Cir. 11/2/23).

70. Save Ourselves, Inc. v. Louisiana Environmental Control Com'n, 452 So.2d 1152 (La. 05/14/84).

71. Application of Entergy Louisiana, L.L.C. for Approval of Generation & Transmission Resources Proposed in Connection with Service to a Significant Customer Project in North Louisiana, Including Proposed Rider, and Request for Timely Treatment, No. U-37425, (La. Pub. Serv. Comm'n 2024), [https://lpscpubvalence.lpsc.louisiana.gov/portal/PSC/ViewFile?fileId=4y5xTw%2F15do%3D](https://lpscpubvalence.lpsc.louisiana.gov/portal/PSC/ViewFile?fileId=4y5xTw%2F15do%3D;); Louisiana Government Agency Directory, <https://www.louisiana.gov/government/agency-directory/> (last visited Mar. 29, 2025).

72. STATE OF LA. DEP'T OF ENERGY AND NAT. RES., <https://www.dnr.louisiana.gov/>; LA DEP'T OF ENV'T QUALITY, <https://www.deq.louisiana.gov/> (last visited Mar. 29, 2025).

73. LA. CONST. art. IX § 1; LA. CONST. art. IX § 21(B); La. R.S. 45:1163(A)(1).

74. LA. CONST. art. IX § 1; LA. CONST. art. IX § 21(B); La. R.S. 45:1163(A)(1) (explaining the authority of the Commission).

75. *Id.*

76. Press Release, Meta selects Entergy, Northeast Louisiana as site of \$10B data center, (Dec. 4, 2024), <https://www.entergynewsroom.com/news/meta-selects-northeast-louisiana-as-site-10-billion-data-center/>.

77. In re Entergy Louisiana, LLC, No. U-37425, at 6 (La. Pub. Serv. Comm'n 2025), <https://ucs-documents.s3.us-east-1.amazonaws.com/clean-energy/ELL-Data-Center-Case-Joinder-Motion-Final-3-4-25.pdf>.

Meta and Laidley should be joined because Entergy is unable to provide information on aspects of the application that are vital to finding that the application is in the public interest.⁷⁸ The amount at risk in this contract is well over \$3 billion of generation and transmission resources that will become a part of Entergy's rate base.⁷⁹ The position of the parties interested in joining Laidley and Meta assert that the approval of Entergy's application is in the public interest and without their joinder, the application should be dismissed.⁸⁰ The reliance on Meta's commitments to Entergy under the contract with the Customer creates a substantial risk if the project is commenced and Laidley breaches.

Under the Louisiana's Public Trust Doctrine, enshrined within Article 9 of the Louisiana Constitution, Louisiana owes a duty to the public to protect the state's natural resources. Allowing companies' projects to be approved without any assessment of the project's impact on the natural resources of the state should not be considered constitutional.⁸¹ Since these data center projects throughout the United States may not trigger NEPA through any major federal actions, it should be up to the states to step in and implement a framework for these emerging types of projects.⁸² The rapid increase in demand for data centers to keep up with the demand for improvements in technology warrants responsibility from Louisiana under the public trust doctrine.⁸³ Data centers will continue to utilize unprecedented amounts of electricity and water compared to their industrial counterparts.⁸⁴ Comparatively, emerging data centers supporting the rise of AI are seeing increased power demands, currently operating at 162 kW per square foot, with projections reaching 176 kW per square foot by 2027 due to advancements in AI performance and computing growth.⁸⁵

78. *Id.* at 7.

79. *Id.* at 2.

80. *Id.* at 1.

81. *See* LA. CONST. art. IX § 1.

82. National Environmental Policy Act Review Process, *supra* note 60.

83. *See* LA. CONST. art. IX § 1.

84. Spencer Kimball, *Data Centers Powering Artificial Intelligence Could Use More Electricity than Entire Cities*, CNBC (Nov. 23, 2024, 7:46 AM), <https://www.cnbc.com/2024/11/23/data-centers-powering-ai-could-use-more-electricity-than-entire-cities.html>.

85. *AI to Drive 165% Increase in Data Center Power Demand by 2030*, GOLDMAN SACHS (Feb. 4, 2025), <https://www.goldmansachs.com/insights/articles/ai-to-drive-165-increase-in-data-center-power-demand-by-2030>.

Currently, the LDCE and LDEQ do not have rules and regulations specifically regarding the creation of new data centers in Louisiana.⁸⁶ The LDEQ has outlined their process for rulemaking, which certainly could be utilized to the extent Article 9 assigns a duty to Louisiana to the public to protect the state's natural resources.⁸⁷ The recent increase in demand for data centers raises the question of how the state government will regulate these projects. It is important to observe how other states in the union address these concerns. California is a present example of pushing for legislation regulating data centers specifically.⁸⁸ Three bills have been introduced that are targeting the expected rapid growth of these centers and their potential for adverse effects on the state's natural resources, especially water and energy.⁸⁹ The bills utilize tax incentives, protection of ratepayers, and reporting systems to advance their objectives.⁹⁰ The first Senate bill will require the California Public Utilities Commission to establish special rates for data centers which is supposed to shield residential ratepayers from the increased electrical costs resulting from grid improvements and new power plants.⁹¹ The second Senate bill will create a partial exemption from state sales and use taxes for data center equipment used in certified data center facilities that meet specific job creation, investment, and renewable energy requirements.⁹² The third bill, an assembly bill, will require data centers to estimate their total energy use and report the information as specified by the bill and the Energy Commission to release biennial reports that are accessible to state, local, and federal entities and the general public.⁹³ Although Louisiana does not have water scarcity concerns as imminent as California's, it does not mean that water usage should be ignored by law and rule makers when considering enacting regulatory legislation for data centers.

The Louisiana legislature could use CA Senate Bill 57 as a model and require the LPSC to establish fixed special electrical corporation

86. *Regulations*, DEPT. OF ENV'T QUALITY, <https://www.deq.louisiana.gov/resources/category/regulations-lac-title-33>; see also La. Admin. Code tit. 33, §726 ____ (2021), <https://www.doa.la.gov/media/lejcybbg/43v01-06.pdf>.

87. See LA. CONST. art. IX § 1.

88. Eduardo Martinez & Thomas McMorrow, *California Legislation Introduced Impacting Data Centers amid Concerns over Resource Use*, MANATT, PHELPS & PHILLIPS, LLC (Feb. 4, 2025), <https://www.manatt.com/insights/newsletters/california-legislation-introduced-impacting-data-centers-amid-concerns-over-resource-use>.

89. *Id.*

90. *Id.*

91. Cal. S.B. 57, 2025-2026 Reg. Sess. (Cal. 2025).

92. Cal. S.B. 58, 2025-2026 Reg. Sess. (Cal. 2025).

93. Cal. A.B. 222, 2025-2026 Reg. Sess. (Cal. 2025).

tariffs for the transmission and distribution of service to data centers to prevent the shift of costs to consumers.⁹⁴ According to Entergy's application with the LPSC, Laidley has reached contractual agreements with Entergy—an electric service agreement and a contribution in aid of construction agreement—which allegedly will shield Entergy's other customers from adverse rate effects from Meta's project.⁹⁵ The agreements also state that the Customer will be contributing a large percentage of the costs that would otherwise fall to Entergy customers.⁹⁶ Although Meta claims there will be no increased cost for residential ratepayers from the data center project, there are concerns that there is no way to shield Louisiana residents with certainty from the potential of an increase in consumer costs.⁹⁷ It is beneficial that private companies are making commitments to offset issues that may arise with utility rates for consumers from data centers, but the Louisiana legislature also has a duty to protect consumers from unreasonable rates.⁹⁸ In the Revised Statutes of Louisiana Law, it states that the LPSC shall ensure that costs borne by consumers are just and reasonable, and the Commission is about to exercise its control and rate-fixing authority to do so.⁹⁹ A bill modeled after CA Senate Bill 57 would advance the duties set forth already by the Louisiana Legislature for the Commission.¹⁰⁰ The intent of this bill is also applicable to the LPSC itself, giving it the authority to develop separate electricity rate classes for data centers as the TVA, Tennessee's equivalent to the LPSC, has done in the context of the xAI datacenter.¹⁰¹

The Louisiana Legislature could also model a bill after the CA Senate Bill 58, which seeks to create a partial tax exemption for data center equipment in certified facilities.¹⁰² Louisiana has already taken steps to incentivize the construction of data centers by offering state and

94. Cal. S.B. 57, 2025-2026 Reg. Sess. (Cal. 2025).

95. Application of Entergy Louisiana, L.L.C. for Approval of Generation & Transmission Resources Proposed in Connection with Service to a Significant Customer Project in North Louisiana, Including Proposed Rider, and Request for Timely Treatment, No. U-37425, at 4-5 (La. Pub. Serv. Comm'n 2024), <https://lpscpubvalence.lpsc.louisiana.gov/portal/PSC/ViewFile?fileId=4y5xTw%2F15do%3D>.

96. *Id.* at 7.

97. *Id.* at 6; Pam Radtke, *Power for Data Centers Could Come at 'Staggering' Cost to Consumers*, FLOODLIGHT (Mar. 5, 2025), [https://floodlightnews.org/power-for-data-centers-could-come-at-staggering-cost-to-consumers/#:~:text=Using%20its%20access%20to%20the,\\$200%20million%20in%20new%20capital](https://floodlightnews.org/power-for-data-centers-could-come-at-staggering-cost-to-consumers/#:~:text=Using%20its%20access%20to%20the,$200%20million%20in%20new%20capital).

98. La. R.S. 45:1163.

99. *Id.*

100. Cal. S.B. 57, 2025-2026 Reg. Sess. (Cal. 2025); La. R.S. 45:1163.

101. Daneil Dassow, *supra* note 55.

102. Cal. S.B. 58, 2025-2026 Reg. Sess. (Cal. 2025).

local sales and use tax rebates for privately funded projects.¹⁰³ Louisiana could augment these incentives by requiring evidence of job creation, investment, and renewable energy requirements. Legislation like the CA Senate Bill 58 will drive infrastructure and job creation in Louisiana while also ensuring these data centers are meeting requirements that will be for the public good of the state.

Assembly Bill 222 also serves as a model the Louisiana Legislature should look to during this time when data centers are becoming increasingly prevalent. It is through Article 9 and the public trust doctrine that Louisiana owes a duty to its citizens to ensure environmental protection “insofar as possible and consistent with the health, safety, and welfare of the people.”¹⁰⁴ Assembly Bill 222 addresses the need for energy use reporting and modeling in the data center regulatory space. Annual reports can be used by local governments, utility companies, and the state government to inform decisions aimed at promoting efficiency and sustainability. Kentucky follows a model of regulation that stems from robust guidelines within their Public Service Commission.¹⁰⁵ While this method has proven fruitful for Kentucky’s continued manufacturing base, it is important to consider the new frontier that is presenting itself with the rise in data centers. Data centers are coming with many uncertainties that the areas these centers develop in must face. For Louisiana to remain in compliance with its own state constitution, it is best to begin the push for such regulations on the state level. By doing so, Louisiana can structure regulations to anticipate future challenges that may emerge in the new technology frontier, while also promoting economic prosperity in the state.

2. Resource Conflicts and Energy Demand Considerations

The rise in data centers leaves one to consider their impacts on finite natural resources, such as water, as well as how they may strain the power grid.¹⁰⁶ Through recent world events, the availability of water has been a

103. Commercial Real Estate Development Association, *Louisiana Provides Incentives for Data Center Development*, NAIOP (Oct. 23, 2024), <https://www.naiop.org/chapters/find-a-local-chapter/united-states-chapters/louisiana/gulf-coast/news/louisiana-provides-incentives-for-data-center-development/>.

104. *Save Ourselves, Inc. v. La. Env’tl Control Com’n*, 452 So. 2d 1152, 1156 (La. 1984).

105. Radtke, *supra* note 97.

106. *Engineers Often Need a Lot of Water to Keep Data Centers Cool*, AM. SOC’Y OF CIV. ENG’R (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>; Kimball, *supra* note 84.

growing concern. It is a major concern that may not come to fruition in most readers' lifetimes; however, it is not a concern to be overlooked. When faced with the conflict of improving technology and the human condition, the scale cannot tip too much towards improving technology without the possibility of irreparable harm.

The CWA grants states the right to regulate their waters.¹⁰⁷ Federal law does preempt state law, except in cases of states interfering with the United States' federal riparian rights.¹⁰⁸ In upholding federal authority, the Supreme Court established two key limitations on state power.¹⁰⁹ First, in the absence of specific authority from congress, a state cannot destroy the rights of the United States in a way that affects the use of the government property.¹¹⁰ Second, waters' navigability cannot be limited by actions of states.¹¹¹ In *Sackett v. the Environmental Protection Agency*, Justice Alito clarified that although federal law has been defined more narrowly, waters are not left legally unprotected; states retain the sovereign authority to regulate them as part of their own policy powers.¹¹² Recently, Congress has become interested in the groundwater of the United States, specifically in the areas of aquifer storage, recharge, and recovery; groundwater rights; and groundwater supply monitoring and assessment.¹¹³ Federal interest in states water use can already be seen, for example, in President Trump's executive orders regarding California's water use and policies in the midst of the Los Angeles wildfires.¹¹⁴ Data centers are not listed as regulated facilities under the Clean Water Act for now, escaping the oversight of federal regulatory agencies.¹¹⁵ However, since groundwater has come up on Congress's radar, it is not far-fetched to say that data centers will as well.

Both the Meta and xAI data centers are intended to be sited in locations where they will pull water from the Mississippi River alluvial aquifer.¹¹⁶ If these data centers are not being evaluated, or if they are not

107. 33 U.S.C. §1251 et seq. (1972).

108. JAMES RASBAND ET AL., NATURAL RESOURCE LAW AND POLICY 926 (3rd ed. 2016).

109. *United States v. Rio Grande Dam & Irrig. Co.*, 174 U.S. 690, 703 (1899).

110. *Id.*

111. *Id.*

112. 598 U.S. 651, 683-84 (2023).

113. Nicole Carter et al., *The Federal Role in Groundwater Supply*, CONG. RSCH. SERV. (May 22, 2020), <https://www.congress.gov/crs-product/R45259>.

114. *Emergency Measures to Provide Water Resources in California and Impose Disaster Response in Certain Areas*, THE WHITE HOUSE (Jan. 24, 2025), <https://www.whitehouse.gov/presidential-actions/2025/01/emergency-measures-to-provide-water-resources-in-california-and-improve-disaster-response-in-certain-areas/>.

115. 33 U.S.C. § 1316(b).

116. U.S. GEOLOGICAL SURVEY, *supra* note 67.

evaluating their own water usage, this could potentially lead to a situation similar to those in *Mississippi v. City of Memphis* or *Texas v. New Mexico*, requiring federal courts to solve matters between states, and which could have been prevented if a situation were to arise between companies competing in the same industry.¹¹⁷ The commissions approving projects such as Meta and xAI should be evaluating these centers' water use so as to best advise other agencies on how to best proceed with water resource management. This could be accomplished by state legislatures' implementing of laws requiring mandatory reporting to agencies which monitor and regulate water uses in their respective states.¹¹⁸ With a lack of regulation, there is potential for data centers to grow unchecked by local government, resulting in the depletion of water resources due to their high-volume consumption of water for operations such as cooling.¹¹⁹

A similar strategy can be applied to the issues facing power grids in the United States. It is estimated that power demand in the United States is expected to grow by almost sixteen percent in the next five years, compared to a steady one percent growth that has been observed annually over the past twenty years.¹²⁰ Data centers as an industry are set to increase their current power usage by 165% by the end of the decade.¹²¹ A huge surge in the demand for power has been cited by President Trump as a push for the United States to become more reliant on fossil fuels.¹²² Although data centers will drive up power demand, some suspect it is not as dire as the president is making it out to be and is just a ploy to fuel the fossil fuel agenda in the United States.¹²³ A path forward in the time of uncertainty is for state and federal governments to implement measures that equip policymakers with the necessary data to adapt and manage natural resources effectively.

117. *Mississippi v. City of Memphis*, 570 F.3d 625 (5th Cir. 2009); *Texas v. New Mexico*, 602 U.S. 943 (2024).

118. *Water Enforcement*, DEPT. OF ENV'T QUALITY, <https://www.deq.louisiana.gov/page/water-enforcement> (last visited Mar. 20, 2025) (explaining that Louisiana water management is done by the DEQ).

119. Ahmad, *supra* note 15; Cisar *supra* note 16.

120. Michael Copley, *U.S. Electricity Demand Is Set to Explode. That Will Make It Harder to Cut Climate Pollution*, NPR (Jan. 17, 2025, 4:01 AM) <https://www.npr.org/2025/01/16/nx-s1-5251454/electricity-demand-data-centers-climate-change-natural-gas-fossil-fuel>.

121. *AI to Drive 165% Increase in Data Center Power Demand by 2030*, *supra* note 3.

122. Matteo Wong, *The False AI Energy Crisis*, THE ATLANTIC, (Feb. 11, 2025), <https://www.theatlantic.com/technology/archive/2025/02/ai-energy-crisis-fossil-fuels/681653/>.

123. *Id.*

IV. CONCLUSION

Article 9 of the Louisiana Constitution enshrines the public trust doctrine, requiring the state's responsibility to safeguard natural resources for the public. The creation of the public trust doctrine requires state agencies to carry out this duty. The data center surge presents legislatures with the opportunity to adapt legislation to the new age. Making legislation compatible with modern technology can include regulating special utility rates for data centers, the creation of partial exemptions to regulate and drive infrastructure growth, and required reporting for both energy and water use. Federal action classifying data centers as regulated facilities under the Clean Water Act will help regulate the very uncertain future of data centers in the United States. It is essential to the practice of law that Congress and state legislatures adopt laws and policies to reflect the rapid growth in technology the world will be experiencing.