JOULE

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Dana Neacsu, Foreword – JOULE – May 5, 2025

This is the third year I have the honor and pleasure of writing the Foreword to JOULE: Duquesne Energy and Environmental Law Journal. The six pieces authored by graduating and rising 3Ls from Thomas R. Kline School of Law of Duquesne University, share a common conviction: that environmental regulation is not an obstacle, but a necessary vehicle for advancing sound environmental policy to protect our commons and preserve them for future generations.

Together, these articles explore the legal tools available to respond to complex environmental and energy challenges—from personhood rights for the Great Lakes to reforms in waste recycling, land-use planning, and energy policy. Cameron Gallentine proposes a federal rights-based framework to safeguard ecosystems through legal standing, while Thane Zeeh calls for overhauling Pennsylvania's waste management regime to incentivize residual recycling. Matthew Kertesz critiques Florida's SB 540 for weakening local environmental oversight, and Mark Schaeffer weighs regulatory paths for mitigating AI's carbon footprint. Jacob Zimmerman urges modernization of nuclear energy regulations and reconsideration of U.S. waste policy to reflect technological advancements. Finally, Dayen Wilson assesses the fate of the SEC's Climate Rule under the Major Questions Doctrine, questioning whether courts will allow agencies to act in the public interest without clearer congressional mandates. Collectively, these forward-looking articles affirm that the future of environmental law lies in adaptive, democratically accountable regulation.

Cameron Gallentine's article, *Should Lakes Have Standing?*, proposes a federal legal framework granting personhood rights to the Great Lakes to address environmental threats inadequately tackled by current U.S. environmental laws. The paper critiques the failure of the Lake Erie Bill of Rights (LEBOR), a 2019 Toledo ordinance rooted in the Rights of Nature movement, which granted "Toledoans [the right] to act as guardians of the rights of the Lake and enforce them by bringing suit in its name" (p. 9), as well as the limits of the Clean Water Act, which largely exempts agricultural runoff—a major source of phosphorus pollution causing toxic algae blooms in Lake Erie.

The article discusses various other legal alternatives, while endorsing the framework first proposed by Professor Christopher Stone in *Should Trees Have Standing?*. [1] There, Stone advocated for environmental personhood through federal legislation, much like corporate personhood. This would involve statutorily defined substantive and procedural rights for ecosystems, enforced by court-appointed guardians. Such a structure would allow environmental entities to sue for damages, with funds placed into a dedicated trust for ecological restoration.

[1] Christopher D. Stone, Should Trees Have Standing? Law, Morality, and the Environment (3rd ed. Oxford Univ. Press 2010) (expanding on his groundbreaking article Christopher D. Stone, Should Trees Have Standing?—Toward Legal Rights for Natural Objects, 45 S. Cal. L. Rev. 450 (1972).)

Ultimately, Gallentine's vision redefines environmental protection as a structural democratic imperative.

In *From Trash to Cash,* Thane Zeeh proposes legislative and regulatory reforms to Pennsylvania's Solid Waste Management Act (SWMA)[2] to expand the recycling of residual waste and address climate change. In a well-documented article, Zeeh outlines the current state of recycling in Pennsylvania and addresses the constraints reinforced by the Pennsylvania Supreme Court in *Tire Jockey Serv. v. Commonwealth,*[3] whose narrow interpretation of residual waste hampers effective recycling.

As a solution, Zeeh proposes a statutory amendment granting the Environmental Quality Board (EQB) expanded authority to develop a regulatory framework for residual waste recycling. This includes redefining recyclable residual waste to include materials subject to authorized processing, establishing a permit system, and creating economic incentives similar to those in the Municipal Waste Planning Act. The EQB would oversee facility planning, environmental monitoring, and compliance inspections, with the Department of Environmental Protection (DEP) empowered to enforce regulations through penalties and permit revocations. By modernizing recycling laws and incentivizing industry compliance, the proposed amendments aim to transform residual waste from an environmental burden into an economic and ecological asset.

Matthew Kertesz's article, *Development in the Sunshine State: The Chilling Effect That Florida's SB 540 Will Have on Local Community Input,* critiques Florida's Senate Bill 540 (SB 540), which Governor Ron DeSantis signed into law on May 24, 2023, and which took effect on July 1, 2023[4].
Titled *"Local Government Comprehensive Plans,"* the law significantly alters the framework for public challenges to local land-use decisions and severely limits community participation in such processes. Historically, Floridians were empowered to challenge inconsistent or harmful land developments, especially after the state reduced its own oversight. However, Kertesz argues that SB 540 codifies a restrictive interpretation of legal standing, among other legal obstacles to citizen action. Moreover, critics—including conservationists and legal experts—argue that these changes, which silence local voices advocating for biodiversity, ultimately favor land developers. Kertesz also highlights that SB 540 contradicts Florida's constitutional duty to conserve natural resources and defies public participation principles recognized in both state and federal environmental frameworks. He concludes that the statute does little more than weaken public oversight while exposing Florida's environment to exploitation.

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[2] Solid Waste Management Act, 35 Pa. Stat. Ann. §§ 6018.101–6018.1003 (West 2024).
[3] Tire Jockey Serv., Inc. v. Commonwealth, Dep't of Env't Prot., 591 Pa. 73 (2007).
[4] Chapter No. 2023-115 available at https://fastdemocracy.com/bill-search/fl/2023/bills/FLB00028187/?report-bill-view=1#billtexts.

Mark Schaeffer's article, *Reducing AI's Carbon Footprint: Why Certification Beats Data Sharing, For Now*, argues that while both mandatory data sharing and green certification could help reduce AI's carbon footprint, certification is the more practical short-term solution. Large language models (LLMs) like ChatGPT require immense computing power and energy for training and deployment, contributing significantly to carbon emissions. Despite pledges from major tech companies, there is little regulatory oversight to ensure environmental accountability. Schaeffer presents two options: (1) mandating data sharing to reduce redundant training and optimize energy use, and (2) certifying AI tools that meet environmental standards.

The author supports data sharing to "effectively minimize the environmental cost of AI by reducing the need for redundant data processing and training efforts across different organizations. By pooling data resources, companies could limit duplicative energy usage and optimize AI training processes" (p. 20). Furthermore, Schaeffer is correct when he states that "such pooling could spur innovation while reducing the construction of redundant and unnecessary energy-hungry data centers" (p. 21), especially in light of efforts such as the Artificial Intelligence Environmental Impacts Act of 2024[5] or New York State's Sustainable Data Centers Act.[6]

Additionally, Schaeffer offers a thorough perspective on certification. While he admits that it risks "greenwashing," he contends that proper oversight can ensure credibility. Given the urgency of climate concerns and current regulatory constraints, in addition to data sharing, certification offers an immediate, scalable way to foster greener AI development while laying the groundwork for more robust future regulations.

Jacob Zimmerman's article, *Performing Fission on the Nuclear Stigma: An Analysis of Nuclear Energy's Regulatory Future,* examines the regulatory challenges and future prospects of nuclear energy in the U.S., with a focus on Pennsylvania. Originally developed for warfare, nuclear energy gained commercial traction in the mid-20th century, but public fears—intensified by the Three Mile Island accident—have slowed its growth. The article argues that nuclear power is among the most reliable and cleanest energy sources, and it deplores the obstacles raised by outdated regulatory frameworks and environmental concerns. One such obstacle seems to be the National Environmental Policy Act (NEPA), which the Supreme Court has viewed mostly as a toothless impediment, and not as the legislative means "which has led to wiser decisions and prevented hundreds, if not thousands, of actions that would have unnecessarily caused environmental degradation."[7] Zimmerman appears to agree with Chief Justice Rehnquist's opinion in *Vermont Yankee Nuclear Power Corp. v. NRDC*, 435 U.S. 519 (1978), that NEPA's

[5] S. 3732, 118th Cong. (2024).
[6] S.9960, 2023–2024 Leg., Reg. Sess. (N.Y. 2024).
[7] Richard J. Lazarus, *The Power of Persuasion Before and Within the Supreme Court: Reflections on NEPA's Zero for Seventeen Record at the High Court*, 2012 U. Ill. L. Rev. 231, 235: ("… benefits have stemmed not so much from the NEPA documents themselves as from the fact that the process of their preparation can change agency decisions.")

limited and thus, perhaps unnecessary role, because all it does is to require agencies to take a "hard look" at the environmental consequences of their actions.

Zimmerman also advocates modernizing the regulatory system to accommodate emerging technologies like small modular reactors, which are safer, more efficient, and environmentally friendlier. He also proposes reconsidering U.S. nuclear waste policy by adopting France's recycling model, which reduces waste volume and optimizes energy output. The article emphasizes the role of public sentiment and national security in shaping policy and recommends creating incentives—such as tax credits and streamlined licensing—to stimulate investment in nuclear infrastructure. Ultimately, Zimmerman argues that for nuclear energy to reach its full potential, U.S. regulations must evolve too.

Dayen Wilson's article, *The Climate Rule Conundrum*, examines the SEC's regulation titled "The Enhancement and Standardization of Climate-Related Disclosures for Investors," commonly known as "The Climate Rule." [8] It requires public companies to disclose climate-related financial risks, governance practices, and greenhouse gas (GHG) emissions. Developed after extensive public comment, the rule aimed to provide standardized information to investors but was quickly stayed pending judicial review. However, the rule has had its legal challenges, as Liberty Energy, Inc., et al. v. SEC (No. 24-1624), currently pending in the Eighth Circuit, shows. The Liberty petitioners argue that the SEC overstepped by regulating environmental matters, an area traditionally within the EPA's domain, while the SEC maintains that it acted within its statutory mandate to protect investors.

Informatively for the reader, the author reviews the historical expansion of SEC disclosure authority and precedent-setting cases shaping the Major Questions Doctrine, one of the legal challenges raised by the rules' opponents. Wilson concludes that courts are likely to invalidate the rule under this doctrine, in light of such precedent as West Virginia v. EPA, 597 U.S. 697 (2022). However, he is quick to note the irony of this legal kerfuffle. The Court demands clear congressional authorization for agency action on urgent national issues—such as the SEC's Climate Rule—but the Major Questions Doctrine offers no clear definition of what constitutes a "major question," yet requires legislative clarity that agencies cannot realistically obtain.

[8] 89 FR 21668 (March 28, 2024).

ARTICLES

SHOULD LAKES HAVE STANDING? A FRAMEWORK FOR AN EFFECTIVE SCHEME TO PROTECT THE GREAT LAKES ECOSYSTEM BASED ON PERSONHOOD RIGHTS

Cameron Gallentine[1]

Table of Contents

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I. INTRODUCTION

The Great Lakes (hereinafter also "Lakes") make up the largest freshwater lake system in the world.[2] They straddle eight states and two countries, and provide life and livelihoods for millions of people and innumerable flora and fauna.[3] The Lakes were heavily polluted during the age of industrialization, but their health has recovered thanks in large part to statutes and treaties that took effect in the 1970s. Yet, in the 21st Century, the Lakes face novel challenges that threaten their health and that of the people and ecosystems that relies on them. Existing protective structures have been unable to respond to these challenges, and the Lakes need new protections to ensure their health.

Rights of Nature laws, first theorized in mainstream legal circles in the 1970s, grant substantive rights to environmental features and are in effect around the globe.[4] The United States has yet to adopt these laws on a large scale, but some municipalities have adopted a version of these laws. Such local efforts have been largely unsuccessful in the face of legal challenges.

The Lake Erie Bill of Rights ("LEBOR") is one example that was passed by Toledo, Ohio in response to frustration over legislative refusal to remedy harmful algal blooms in Lake Erie. This article will argue that the drafters of the LEBOR were correct in their advocacy for a grant of substantive rights to the Lake, but the specificities of the ordinance are what led to its failure.

Section II will introduce the past, present, and significance of the Great Lakes, focusing on the contemporary threats to the Lakes' health. Section III will examine the history and contents of the LEBOR, looking carefully at its constitutional inadequacies and other causes of its failure. Section IV will provide an overview of the governance structure of the Lakes that remains

[2] *About the Lakes*, GREAT LAKES COMM. https://www.glc.org/lakes/ (last visited Jan. 5, 2024).
[3] *See Great Lakes Facts and Figures*, UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (Jan. 27, 2023), https://www.epa.gov/greatlakes/great-lakes-facts-and-figures.
[4] *See e.g. infra* notes 174-179.

after the fall of the LEBOR. Section V will consider three possible approaches to future Great Lakes protection. Section VI will conclude that a federal grant of rights to the Lakes implemented through Professor Christopher Stone's guardianship and trust framework is the most effective possible solution.

II. AN OVERVIEW OF THE GREAT LAKES

The importance of the Great Lakes to the past, present, and future of North America is commensurate to the Lakes' grandiosity. The Lakes contain approximately 84% of North America's supply of fresh surface water, and 21% of the world's supply.[5] The Lakes themselves and the surrounding land account for 7% of American and 25% of Canadian agricultural production.[6] Over 30 million people live in the Great Lakes Basin.[7] A comprehensive chronicle of the economic impact the Lakes have on the development and industrialization of the region is outside the scope of this Article. However: North America would be unrecognizable in more than merely a geographic sense without the Lakes.[8] The Lakes served as more than merely a conduit for industrialization: they were indispensable to the first instances of human habitation of North America.[9] Despite the era of industrialization in North America being well passed, the U.S. Great Lakes maritime economy still supports 311,000 jobs across a range of economic sectors, yielding approximately $8.8 billion in wages.[10] The history of the Lakes in inseparable from the history of North America itself, and the same is true of their future.

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[5] *Id.*
[6] *Id.*
[7] *Id.*
[8] *See, e.g.*, David R. Allardice & Steve Thorp, *A Changing Great Lakes Economy: Economic and Environmental Linkages*, ENV'T CANADA & U.S. ENV'T PROTECTION AGENCY (1995). The Lakes served a vital role in distributing raw materials and manufactured goods efficiently over water that gave the region a massive advantage in the market. *Id.* at 5-6.
[9] *See, e.g.*, *Native Americans in the Great Lakes Region*, MICH. STATE UNIV., https://project.geo.msu.edu/geogmich/paleo-indian.html (last visited Oct. 22, 2023).
[10] *Great Lakes*, NOAA OFFICE FOR COASTAL MGMT., https://coast.noaa.gov/states/fast-facts/great-lakes.html (last updated Oct 20, 2023).

Despite this, environmental protection of the Lakes was historically, though perhaps unsurprisingly, a consideration secondary to their economic exploitation.[11] One such example is mercury: a byproduct of industrialization, and thus a major pollutant of the Lakes since industry cropped up on their shores.[12] Mercury permeates the bodies of the Lakes' marine inhabitants and increases in concentration as it moves up the food chain, ending up in the fish consumed by humans, leading to serious health effects.[13] Anthropogenic mercury is released most prominently by the burning of fossil fuels, but also by waste incineration, cremation, and improper disposal of mercury cell batteries, to name a few.[14]

Leading up to the 1970s, untreated municipal sewage was pumped directly into the Lakes, contaminating the water so severely as to cause typhoid outbreaks in populations reliant on Lake water for drinking.[15] The pollution was so severe that Lake Erie was famously declared "dead" due to its lack of oxygen and excessive nutrient content.[16] Pursuant to each country's respective legislation, namely the Clean Water Act[17] of the United States, and the Canada Water Act[18] of Canada, both countries finally committed to protecting the Lakes' water quality, in part by controlling sewage effusion, in the 1970s.[19] These pieces of national legislation were supplemented by the Great Lakes Water Quality Agreement,[20] a treaty between the two nations. This is not the end of the story however: sewage infrastructure in lakeside

11. *See infra* notes 29-30.
12. *Mercury Contamination in the Great Lakes Basin*, GREAT LAKES COMM'N, Oct. 2021, at 3.
13. *Id.* at 5.
14. *Id.* at 2.
15. Kevin Bunch, *The Great Lakes Before the 1972 Water Quality Agreement*, INT'L JOINT COMM'N (Apr. 19, 2022), https://www.ijc.org/en/great-lakes-1972-water-quality-agreement.
16. *Id.*
17. Clean Water Act, Pub. L. No. 92-500, 86 Stat. 816 (1972).
18. Canada Water Act, R.S.C. 1985 c 11 (Can.).
19. Bunch, *supra* note 15.
20. Great Lakes Water Quality Agreement, Ca.-U.S., Apr. 15, 1972, T.I.A.S. No. 7312; The agreement was amended multiple times throughout its history, most recently in 2012; entering into force in 2013. *See* Agreement Protocol on Great Lakes Water Quality, Ca.-U.S., Feb. 12, 2013, T.I.A.S. No. 13-212.

cities is proving unable to cope with the perfect storm of growing populations that continually increase sewage production, an outdated infrastructure that combines rain runoff and raw sewage, and stronger climate change-fueled storms.[21] In total, twenty cities that border the Great Lakes released 92 billion gallons of untreated sewage into the Lakes as a result of sewage overflow in 2016.[22] Given that climate change, population growth, and infrastructure degradation are ever increasing, this quantity will only grow without intervention.

The greatest present threat to the Lakes is phosphorous pollution. In the past, municipal sewage was the largest contributor to phosphorus pollution in the Great Lakes, but today, it accounts for only about 9%.[23] Now, agricultural storm water runoff has supplanted sewage overflow.[24] This is thanks in part to a quirk of the Clean Water Act: the Act requires permits that restrict pollutant effusion only for pollution discharged from point sources (such as sewage plants),[25] but not for pollution discharged from non-point sources (such as agricultural runoff).[26]

Phosphorus does not harm humans or aquatic fauna directly, but its presence does cause Harmful Algae Blooms ("HABs").[27] These blooms yield a green scum of algae that detrimentally affects drinking water quality, fishing,

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[21] Dave Rosenthal, *Single Systems: The Great Lakes Cities' Sewer Designs Mean Waste in the Waters*, GREAT LAKES NOW (Apr. 27, 2020), https://www.greatlakesnow.org/2020/04/rust-resilience-sewer-wastewater-infrastructure/.
[22] *Id.*
[23] Kristen Fussell et al., Summary of Findings and Strategies to Move Toward a 40% Phosphorus Reduction, OHIO SEA GRANT COLLEGE PROGRAM, at 3 (2017).
[24] *Phosphorous Loading to Lake Erie*, ENV'T AND CLIMATE CHANGE CANADA, https://www.canada.ca/en/environment-climate-change/services/environmental-indicators/phosphorus-loading-lake-erie.html (last modified Dec. 15, 2021).
[25] 33 U.S.C. § 1311(b)(1)(A) (1972).
[26] *See* 33 U.S.C. § 1362(14) (1972).
[27] Jeffrey Reutter et al., *Lake Erie Nutrient Loading and Harmful Algal Blooms: Research Findings and Management Implications*, at 2 (2011), https://legacyfiles.ijc.org/publications/June2011LakeErieNutrientLoadingAndHABSfinal.pdf.

and recreational use of the lake.[28] Moreover, HABs produce substances that are toxic to humans and other animal life, which lead to illness and death.[29]

Because the drafters of the Clean Water Act declined to regulate nonpoint sources, such regulation is within the purview of state governments.[30] Despite being the last line of defense, Ohio lawmakers have chosen merely to adopt voluntary and aspirational measures to curb agricultural runoff,[31] favoring economic protection of the state's agricultural sector over the health of the lake.[32]

As a result, HABs are most prevalent in the warm shallow waters of Western Lake Erie—near Toledo, Ohio.[33] In early August of 2014, tests detected dangerous amounts of myostatin in Toledo's water supply, produced by an ongoing HAB in that area of the Lake.[34] Around 400,000 people were left without drinkable water for days.[35] Some vulnerable groups were even warned against bathing in the water.[36] In total, 60 people were hospitalized with gastrointestinal issues from drinking the contaminated water, but thankfully, no deaths were reported.[37]

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[28] *A Balanced Died for Lake Erie: Reducing Phosphorous Loadings and Harmful Algae Blooms*, INT'L JOINT COMM., at 2 (2014), https://www.ijc.org/sites/default-/files/2014%20IJC%20LEEP%20REPORT .pdf.
[29] *Id.* at 38.
[30] *See* 33 U.S.C. § 1362(14) (excluding "agricultural stormwater discharges" from the reach of the statute); *see also* Kenneth Kilbert, *Distressed Watershed: A Designation to Ease the Algae Crisis in Lake Erie and Beyond*, 124 DICK. L. REV. 1, 10-15 (2019).
[31] *See* OHIO REV. CODE § 939.02(E)(3); *see also* Shaun Hegarty, *Ohio EPA Takes the Next Steps to Protect Lake Erie Water Quality; Advocates Have Concerns*, WTVG-13, https://www.13abc.com/2023/06/30/ohio-epa-takes-next-steps-protect-lake-erie-water-quality/ (Jun. 30, 2023, at 3:55 PM).
[32] Kenneth Kilbert, *Lake Erie Bill of Rights: Stifled by All Three Branches Yet Still Significant*, 81 OHIO ST. L.J. 227, 230 (2020).
[33] Reutter et al., *supra* note 27.
[34] *5 Years Since the Toledo Water Crisis: A Timeline of What Happened*, WTOL-11 (Aug. 5, 2015) (Updated Aug. 2, 2019).
[35] *Id.*
[36] *Id.*
[37] *Id.*

III. THE LAKE ERIE BILL OF RIGHTS

In early 2019, Toledo's frustrated residents resoundingly passed a ballot measure called the Lake Erie Bill of Rights.[38] The LEBOR grew out of the Rights of Nature Movement, a legislative philosophy that strives to protect environmental features by granting them substantive rights that are rooted in their own existence, not the rights of humans.[39] Though not the first piece of legislation of its type, the LEBOR is perhaps the most prominent, receiving national media attention.[40]

The LEBOR, in its preamble, vocalizes the fear of Toledoans that Lake Erie is in "imminent danger of irreversible devastation due to continued abuse by people and corporations enabled by reckless government policies."[41] It asserts that Toledoans' right to live healthy lives is intimately intertwined with the health of the Lake, and existing governmental policy has been unable to protect either, so the only way to do so is to extend the substantive rights of Toledo residents to the Lake itself.[42] Specifically, it gives the Lake Ecosystem the "right to exist, flourish, and naturally evolve."[43] It also recognizes that Toledoans hold a "right to a clean and healthy environment,"[44] and to "self-governance in their local community."[45]

To enforce these rights, the LEBOR empowers Toledoans to act as guardians of the rights of the Lake and enforce them by bringing suit in its

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[38] James Proffitt, *Toledoans Pass the Lake Erie Bill of Rights, Granting Legal Standing for the Waterway*, GREAT LAKES NOW (Feb. 27, 2019) https://www.greatlakesnow.org/2019/02/great-lake-gets-great-rights/. The measure passed 61% to 39%, however turnout was only 9% of eligible voters. *Id.*

[39] *See id.*

[40] *See, e.g.*, Ryan Prior, *An Ohio City Has Voted to Grant Lake Erie the Same Rights as a Person*, CNN (Feb. 27, 2019) https://www.cnn.com/2019/02/21/us/ohio-city-lake-erie-rights-trnd/index.html.

[41] TOLEDO, OH., MUN. CODE ch. XVII, § 253 (2019).

[42] *Id.*

[43] § 254(a). The LEBOR defines the "Lake Erie Ecosystem" as "all natural water features, communities of organisms, soil as well as terrestrial and aquatic sub ecosystems that are part of Lake Erie and its watershed". *Id.*

[44] MUN. CODE § 254(b).

[45] § 254(c).

name.[46] The LEBOR declares invalid within the City of Toledo any permit, license, or similar authorization issued to a corporation by *any* governmental entity that would violate any of the specific prohibitions within the LEBOR or the rights it secures.[47] It further creates fines for violations that are the maximum permitted by the State,[48] and a strict liability scheme for harms and rights violations.[49] Finally, it attempts to deprive corporations of any rights that conflict or interfere with the rights recognized in the LEBOR, including the rights to assert preemption of the LEBOR or claim that the City lacks the right to adopt the ordinance.[50]

Such a radical upheaval of the existing scheme of enforcing environmental protection garnered immediate scrutiny. In an outcome that was unsurprising to some Toledoans,[51] the LEBOR was challenged by a farmer after its adoption, seeking to invalidate the ordinance.[52] The State of Ohio later joined the suit against Toledo.[53] The LEBOR was subsequently invalidated by the United States District Court for the Northern District of Ohio.[54]

The District Court's decision was based on two primary findings: the rights that the LEBOR attempts to confer are impermissibly vague, and the City of Toledo exceeded its authority by attempting to implement some provisions of the legislation.[55]

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[46] § 256(d).
[47] § 255(b).
[48] § 256(a).
[49] § 256(c).
[50] MUN. CODE § 257(a).
[51] "'If not enforceable, it is very important symbolic messaging,' said Toledo attorney Terry Lodge. 'Even if there's not a result of a law we can immediately use, we look at it as a sign post [sic] of the only logical way we can approach the continued deterioration of the environment.'" Laura Johnston, *Toledo's Lake Erie Bill of Rights is Stuck in Court – But Inspiring Environmentalists Nationwide*, CLEVELAND.COM (Dec. 16, 2019) https://www.cleveland.com/news/2019/12/toledos-lake-erie-bill-of-rights-is-stuck-in-court-but-inspiring-environmentalists-nationwide.html.
[52] Nicole Pallotta, *Federal Judge Strikes Down 'Lake Erie Bill of Rights'*, ANIMAL LEGAL DEFENSE FUND (May 4, 2020) https://aldf.org/article/federal-judge-strikes-down-lake-erie-bill-of-rights/.
[53] Drewes Farms P'Ship v. City of Toledo, 441 F.Supp. 3d 551, 554 (N. D. Ohio 2020).
[54] Pallotta, *supra* note 52; *see id.* at 558.
[55] *Drewes Farms*, 411 F.Supp. at 558.

The court noted, first, that vagueness in a statute is a violation of the right to due process contained in the Fourteenth Amendment.[56] A law is unconstitutionally vague if "persons of common intelligence must necessarily guess at its meaning."[57] Generally speaking, this means that if a law leaves an important element of its application without definition, or with a definition under which there is no basis for applying an objective standard to the conduct of party against whom it is enforced, then it is unconstitutional.[58] Vague laws violate the Fourteen Amendment because "they may trap the innocent by not providing fair warning, and they invite arbitrary enforcement by prosecutors, judges, and juries."[59]

Here, the court singled out the three substantive rights granted in the LEBOR as impermissibly vague.[60] First, the legislation offers "no guidance" to help a prosecutor, judge, or jury decide where the bounds of the Lake's right to "exist, flourish, and naturally evolve" lie.[61] The same is true of the citizens' right to a "clean and healthy environment," since "the line between clean and unclean, and between healthy and unhealthy, depends on who you ask."[62] The LEBOR's fines provision falls for a similar but distinct reason: § 256(a) sets the maximum fine for violating Toledoans right to "self-governance in their local community" at "the maximum . . . allowable under State law for that violation," but the drafters of the LEBOR failed to note that Ohio does not identify any such fine for violating this right at all.[63] As a result, it provides no guidance on the size of a fine that a judge should levy on a violator, and this provision is also unconstitutional.[64]

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[56] *Id.* at 555-56 (citing Roberts v. United States Jaycees, 468 U.S. 609, 629 (1984)).
[57] *Id.* at 556 (quoting *Roberts*, 468 U.S. at 629).
[58] *See, e.g.*, *id.* (citing Coates v. City of Cincinnati, 402 U.S. 611 (1971); Belle Maer Harbor v. Charter Twp. of Harrison, 170 F.3d 553, 555 (6th Cir. 1999)).
[59] *Id.* (quoting Grayned v. City of Rockford, 408 U.S. 104, 108-09 (1972)) (internal quotations omitted).
[60] *Drewes Farms*, 411 F.Supp. at 556-67.
[61] *Id.* at 556.
[62] *Drewes Farms*, 411 F.Supp. at 556.
[63] *Id.*
[64] *See id.*

Furthermore, the court took issue with provisions of the LEBOR that overstepped Toledo's powers as a municipal government.[65] It voided the LEBOR's stripping of the rights of violative corporations[66] because municipal laws are generally preempted (and thus unenforceable) when in conflict with state law.[67] This is a "textbook example of what municipal government cannot do."[68] Because the LEBOR was preempted by state law and because it was unconstitutionally vague, it was not able to survive a challenge in federal court.

IV. THE PRESENT STATE OF GREAT LAKES ENVIRONMENTAL REGULATION

The LEBOR is well and truly dead, but there remains a complex web of interlocking regulations that govern the Lakes thanks to their grand size and importance to neighboring communities. The many layers of regulation are made necessary – and further complicated – by the sometimes-competing interests of the many jurisdictions that rely on the lakes.[69] This section will be limited to a discussion of regulation by United States jurisdictions, but Canada maintains its own domestic Lakes protection policies.[70]

Perhaps the most powerful piece of legislation protecting the Lakes is the 1972 Clean Water Act.[71] The Act is a complex piece of legislation with many functional mechanisms, but concisely speaking: it empowers the U.S. Environmental Protection Agency ("EPA") to set "effluent limitations" that restricts the release and composition of pollutants.[72] It then delegates to the

[65] *Id.* at 557.
[66] *See* § 257(a).
[67] *Drewes Farms*, 411 F.Supp. at 557 (citing In re Complaint of Reynoldsburg, 979 N.E.2d 1229 (Ohio 2012); Pa. Gen. Energy Co. v. Grant Twp., 139 F.Supp. 3d 706, 720 (W.D. Pa. 2015)).
[68] *Id.*
[69] Noah D. Hall and Benjamin C. Houston, *Law and Governance of the Great Lakes*, 63 DEPAUL L. REV. 723, 724 (2014).
[70] *See generally* Great Lakes Protection Act, 2015, S.O. 2015, c 24 (Can.).
[71] Federal Water Pollution Control Act Amendments of 1972 (Clean Water Act), Pub. L. No. 92-500, 86 Stat. 816 (codified as amended at 33 U.S.C. §§ 1251–1387 (2006)).
[72] *Id.* §§ 1311, 1314.

states authority[73] to set "water quality standards" that control the flip side of effluent limitations, overall pollutant quantity.[74] It also grants to states the authority over those areas the effluent limitations cannot reach, namely "the cumulative impact of nonpoint sources, such as agricultural run-off and erosion from timber harvesting."[75] The effluent limitations are enforced only on "point sources,"[76] which the Act defines as "any discernable, confined, and discrete conveyance" that discharges pollution "including . . . [a] pipe, ditch, [or] channel . . . ."[77] It specifically excludes "agricultural stormwater discharges and return flows from irrigated agriculture" from this definition.[78]

The Lakes are also governed by international treaties, namely The Boundary Waters Treaty[79] and subsequent Great Lakes Water Quality Agreement.[80] The 1909 Boundary Waters Treaty created the International Joint Commission ("IJC"), which is made up of three appointees from each the United States and Canada.[81] The IJC has broad investigative powers and exercises them to great effect,[82] but its adjudicative power is limited such that each party would be required to agree beforehand for the IJC's judgment to be binding.[83] The binding dispute resolution provision of the treaty has never been utilized.[84]

The Great Lakes Water Quality Agreement ("GLWQA") is a 1972 executive agreement entered into in response to a troubling report of the health

[73] The EPA may step in if state water quality standards are insufficient. Hall and Houston, *supra* note 69 at 736 n. 75.
[74] Hall and Houston, *supra* note 69 at 736.
[75] *Id.*
[76] *Id.*
[77] 33 U.S.C. § 1362(14).
[78] *Id.*
[79] Treaty Relating to Boundary Waters Between the United States and Canada, U.S.-Gr. Brit., Jan 11, 1909, 36 Stat. 2448 [hereinafter Boundary Waters Treaty].
[80] Great Lakes Water Quality Agreement, U.S.-Can., Apr. 15, 1972, 23 U.S.T. 301.
[81] *Id.* art. VII.
[82] Hall and Houston, *supra* note 69 at 731.
[83] *Id.* (citing Boundary Waters Treaty, *supra* note 92, art. X, 36 Stat. at 2453).
[84] Hall and Houston, *supra* note 69 at 731.

of the Lakes submitted by the IJC.[85] Unlike the Boundary Waters Treaty, the GLWQA exists primarily to address pollution.[86] Its primary concern was phosphorous pollution, and it set specific water quality standards, restrictions on effluence of sewage and industrial waste, and expanded the investigative role of the IJC.[87] The GLWQA was amended in 1978 "to restore and maintain the chemical, physical, and biological integrity of the waters of the Great Lakes Basin Ecosystem".[88] It took a more holistic approach to water quality assurance by not just limiting pollutants, but "restor[ing] the ecological integrity of the Great Lakes."[89] The GLWQA was amended most recently in 2012, when it incorporated protections against invasive species and addressed concerns related to climate change.[90] Despite its promising goals, the GLWQA lacks enforcement provisions[91] and its terms are not enforceable on private parties.[92]

V. ALTERNATIVE APPROACHES

Three potential solutions to the Great Lakes problem are readily identifiable: an expanded Public Trust Doctrine, State Constitutional Environmental Rights Amendments, and Rights of Nature Laws. Each claim to provide a solution to current inadequacies in Great Lakes protections and be more adaptable to changing circumstances, avoiding the holes in the protection provided by the Clean Water Act. Each will be considered in turn.

[85] *Id.* at 732.
[86] *Id.*
[87] *Id.* at 733.
[88] 1978 Great Lakes Water Quality Agreement, art. II, 30 U.S.T. at 1387.
[89] Hall and Houston, *supra* note 69 at 734.
[90] Protocol Amending the Agreement Between Canada and the United States of America on Great Lakes Water Quality, U.S.-Can., at annex 4–8, Sept. 7, 2012, available at www.ijc.org/sites/default/files/2018-07/GLWQA_2012.pdf.
[91] Hall and Houston, *supra* note 69 at 734-35.
[92] *Id.* at 735 (citing Lake Erie Alliance for the Prot. of the Coastal Corridor v. U.S. Army Corps of Eng'rs, 526 F. Supp. 1063, 1077 (W.D. Pa. 1981)).

A. The Public Trust Doctrine

The Public Trust Doctrine ("Doctrine") is an oft studied and indeed promising legal framework through which enhanced Lakes protection could be achieved. The Doctrine is rooted in the common law[93] and protects navigable waterways first and foremost,[94] but is frequently (though nonuniformly) applied to other natural features.[95] Under the Doctrine, a state holds its navigable waterways in trust for the benefit of its citizens, and has the concurrent fiduciary duty to protect the trust resources.[96] The Doctrine is not an absolute guard against deterioration of the trust resources, as the fiduciary duty imposed on the state often means balancing the benefits of incidental destruction from development against interests in preservation.[97] Unsurprisingly, development and destruction sometimes prevail in the state's balancing calculation.[98] Safeguards provided by the Doctrine are nonuniform between jurisdictions and sometimes toothless.[99] Further, its basis in the common law leaves it with some inefficacies in this context.[100]

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[93] *See* Camilla Brandfield-Harvey, *The Public Trust Doctrine: A Cracked Foundation*, GEO. ENVR. L. REV. (Apr. 15, 2021) https://www.law.georgetown.edu/ environmental-law-review/blog/the-public-trust-doctrine-a-cracked-foundation/; Jordan Farrell*, Offshore Wind Development in the Great Lakes: Accessing Untapped Energy Potential Through International and Interstate Agreement to Overcome Public Trust Concerns*, 42 NW. J. INT'L L. & BUS. 117, 127 (2021) (noting "there are 51 public trust doctrines" include each state and the federal government); *but see* Erin Ryan et al, *Environmental Rights for the 21st Century: A Comprehensive Analysis of the Public Trust Doctrine and Rights of Nature Movement*, 42 CARDOZO L. REV. 2447, 2498 (2021) (writing that SCOTUS seemed to indicate in dicta that there was no federal Public Trust Doctrine, though this would not make a meaningful difference in application).

[94] *See generally* Ill. Cent. R.R. Co. v. Ill., 146 U.S. 387 (1892).

[95] *See, e.g.*, Ryan et al., *supra* note 93 at 2461. "Some states apply the doctrine to only waterways, while others expand the resources protected by the trust to include wildlife, beach access, other natural and cultural resources, and perhaps even atmospheric resources. Different trust values are protected in different states, some of which protect only the traditional fishing, swimming, and navigational values, while others add environmental, recreational, and cultural values." *Id.*

[96] *Ill. Cent. R.R.*, 146 U.S. at 457.

[97] Ryan et al, *supra* note 93 at 2542.

[98] *Id.* at 2556.

[99] *See, e.g.*, Farrell, *supra* note 93 at 130-44; Ryan et al, *supra* note 93 at 2474.

[100] This assertion stands so far as one assumes that only one of the solutions suggested in this section is possible. However, some scholars believe that a peaceful coexistence of the

The Doctrine itself is a product of Roman and English law: the Corpus Iuris Civilis and Magna Carta, respectively.[101] It first appeared (and was applied to the land beneath navigable waterways) in an 1821 New Jersey Supreme Court decision.[102] The Doctrine was then formally adopted by the United States Supreme Court in 1894.[103]

The Court's opinion in *Illinois Central Railroad* has been criticized as vague,[104] and has led to wide variance in its application between jurisdictions.[105] For example, California takes a broad approach to the Public Trust Doctrine.[106] In *National Audubon Society v. Superior Court*, the California Supreme Court held that the wellbeing of the trust resources must be considered before the state can take action that could damage it. The court ultimately held that, in this instance, the wellbeing of Lake Mono outweighed Los Angeles' legitimate need for drinking water.[107]

Conversely, Colorado, is generally accepted to be the state with the most restricted Public Trust Doctrine. Though the state has title to navigable waterways under *Illinois Central Railroad*, the Colorado Supreme Court declared that there are no navigable waterways in the state,[108] and held that insofar as the Doctrine would apply in any circumstance, it would "not protect recreational values associated with waterways."[109]

Public Trust Doctrine and Rights of Nature laws is possible. This is a compelling thought, but beyond the scope of this article. *See* Ryan et al, *supra* note 93 at 2556-57.

[101] Brandfield-Harvey, *supra* note 93.

[102] Arnold v Mundy, 6 N.J.L 1, 78 (N.J. 1821). "The sovereign power itself, therefore, cannot, consistently with the principles of the law of nature and the constitution of a well ordered society, make a direct and absolute grant of the waters of the state, divesting all the citizens of their common right. It would be a grievance which never could be long borne by a free people." *Id.* at 78.

[103] Shively v. Bowlby, 152 U.S. 1, 22 (1894) (holding that "submerged lands of the navigable waters of the State" are held by the state in trust for the benefit of the public.)

[104] *See* Farrell, *supra* note 93 at 133-34.

[105] *See, e.g.*, *id.* at 130-44.

[106] Nat'l Audubon Soc'y v. Super. Ct., 658 P.2d 709, 728-29 (Ca. 1983).

[107] *Id.* at 728-729.

[108] Ryan et al, *supra* note 93 at 2469 (citing In re German Ditch & Reservoir Co., 139 P. 2, 9 (Co. 1913)).

[109] Ryan et al, *supra* note 93 at 2470 (citing People v. Emmert, 597 P.2d 1025, 1027 (Co. 1979)).

The Public Trust Doctrine, even in its most protective interpretation, is still inherently anthropocentric and as such fails to fully address present threats to the Lakes. It considers the needs of "future generations" of humans as opposed to fundamental needs of the environment itself.[110] Thus, the only costs that it captures are those that are directly injurious to humans and it may miss costs associated with destruction that lacks a clear link to human injury.[111] This in turn substantially increases the likelihood that a balancing test would favor environmentally destructive but economically profitable human development.[112]

In sum, the Public Trust Doctrine is a useful tool in the arsenal of environmentalists that seek to conserve waterways, but it has limits. It has had meaningful impact in protecting waterways in California, but its fractured nature, anthropocentrism, and jurisprudential vulnerabilities mean that it is an imperfect solution to protect the Great Lakes.[113]

B. State Constitutional Protections

One possible solution to protection of the Lakes is through state constitutional amendments. Three states have, at the time of writing,[114] amended their constitutions to include an Environmental Rights Amendment ("ERA") that protects "the inalienable right to clean air, clean water, and a healthy environment".[115] Pennsylvania's ERA reads in its entirety:

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[110] *See* Ryan et al, *supra* note 93 at 2542.
[111] *See id.* at 2545.
[112] *Id.* at 2555-56. "For example, the public trust doctrine might protect river flows that are sufficient to protect kayakers and anglers, but it might balk at the anthropocentric flows needed to maintain the integrity of an ecosystem supporting endangered mussels." *Id.* at 2570.
[113] *But see* supra note 100.
[114] Early 2025 has seen a flurry of activity on this front: ERAs have been introduced in each of Nebraska, Hawaii, New Mexico, and Connecticut. *January 2025 Newsletter*, GREEN AMENDMENTS FOR THE GENERATIONS (Jan. 31, 2025) https://forthegenerations.org/blog/2025/01/31/january-2025-newsletter/; *see also* Robinson Twp. v. Commonwealth, 83 A.3d 901, 963 (Pa. 2013) for a more robust discussion of the ways in which environmental and political rights are protected constitutionally across the Union.
[115] *Green Amendments in 2023: States Continue Efforts to Make a Healthy Environment a Legal Right*, NAT'L CAUCUS OF ENV. LEGIS., https://www.ncelenviro.org/articles/green-amendments-in-2023-states-continue-efforts-to-make-a-healthy-environment-a-legal-right/

> The people have a right to clean air, pure water, and to the preservation of the natural, scenic, historic and esthetic values of the environment. Pennsylvania's public natural resources are the common property of all the people, including generations yet to come. As trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all the people.[116]

ERA legislation tends to come about in times of perceived environmental crisis.[117] In 1969, Representative Franklin Kury introduced Pennsylvania's ERA to the General Assembly in response to the era's reimagining of how the environment fit into the Commonwealth's constitutionally protected rights and freedoms.[118] Specifically, Representative Kury voiced concern that political and civil freedoms were meaningless if Pennsylvanians' health was compromised by an impure environment, such that they could no longer live fruitful lives, nevertheless exercise political freedoms.[119] This reasoning clearly resonated with Pennsylvanians, as they voted to ratify the amendment in 1971 by a 3-to-1 margin.[120]

Despite their noble purposes and popular support, state ERAs are impeded by their vagueness.[121] The history of judicial interpretation of Pennsylvania's ERA provides a representative case study of this phenomenon. In its first test, the Pennsylvania Supreme Court was divided on whether the amendment was self-executing and failed to articulate an actionable rule to

(last visited Dec. 31, 2023); *see* PA CONST. Art. I § 27; MT CONST. Art. IX § 1; NY CONST. Art. I § 19.

[116] PA CONST. Art. I § 27. Readers may notice that this language functions as a codification of the common law Public Trust Doctrine. Therefore, this section will focus only on the challenges unique to these codifications, not issues with the Doctrine itself.

[117] *See, e.g.*, *The People's Right to a Clean Environment*, PA. DEPT. OF CONSERVATION AND NAT. RES. (May 12, 2021) https://www.dcnr.pa.gov/GoodNatured/pages/Article.aspx?post=171.

[118] *See* John C. Dernbach and Edmund J. Sonnenberg, *A Legislative History of Article 1, Section 27 of the Constitution of the Commonwealth of Pennsylvania, Showing Source Documents*, WIDENER L. SCH. LEGAL STUD. RSCH. PAPER SERIES NO. 14-18 at 7 (2014).

[119] *Id.*

[120] *The People's Right to a Clean Environment*, *supra* note 117.

[121] To its credit, § 27 did directly lead to the creation of the PA Department of the Conversation of Environmental Resources. *The People's Right to a Clean Environment*, *supra* note 117.

this end.[122] In a subsequent case, *Payne v. Kassab*, the Pennsylvania Supreme Court held that the ERA mandated only a balancing of interests in conservation and a challenged development project, and that this balancing was already completed as part of the normal regulatory process.[123] The Court further held that "the Commonwealth (via agency action) had an obligation to avoid any environmental harm if possible but, absent a feasible alternative to the proposed development, had to permit the land use."[124]

In a 2012 plurality decision, *Robinson Township. v. Commonwealth*, the court attempted to reverse course.[125] In *Robinson Township*, the court held that a Pennsylvanian can bring an action under the ERA under either a theory that the Commonwealth infringed on the citizen's environmental rights or that the Commonwealth breached its duties as a trustee.[126] As the trustee, it has a duty "to prevent and remedy the degradation, diminution, or depletion of our public natural resources . . . with prudence, loyalty, and impartiality," stemming either from its own official action or private destruction.[127] Yet, after *Robinson Township*, Pennsylvania trial and appellate courts have simply ignored this new framework and have proceeded under *Payne*.[128]

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[122] Robinson Twp. v Commonwealth, 83 A.3d 901, 964 (Pa. 2013) (citing Commonwealth v. Nat'l Gettysburg Battlefield Tower, Inc., 311 A.2d 588, 595-99 (Pa.1973)).
[123] *Robinson Twp.*, 83 A.3d at 965 (citing Payne v. Kassab, 312 A.2d 86, 94 (Pa. Cmwlth. 1973)). The court adopted a factor test for challenges under § 27 that demonstrates its powerlessness without concurrent legislation: "(1) Was there compliance with all applicable statutes and regulations relevant to the protection of the Commonwealth's public natural resources? (2) Does the record demonstrate a reasonable effort to reduce the environmental incursion to a minimum? (3) Does the environmental harm which will result from the challenged decision or action so clearly outweigh the benefits to be derived therefrom that to proceed further would be an abuse of discretion?" *Id.* at 966 (quoting *Payne*, 312 A.2d at 94).
[124] *Id.* (citing Payne v. Kassab, 361 A.2d 226,272-73 (Pa. 1976)).
[125] *Robinson Twp.*, 83 A.3d 901.
[126] *Id.* at 913.
[127] *Id.* at 957.
[128] *See, e.g.*, Pa. Envtl. Def. Fund v. Commonwealth, 161 A.3d 911 (Pa. 2017) (observing that "The Commonwealth Court . . . determined that its prior decision in Payne v. Kassab, (Payne I), controlled the questions presented in the case at bar, even though the plurality in *Robinson Township* criticized the test announced in *Payne I* as 'lack[ing] foundation' in Section 27."]) (internal citations omitted).

Montana's ERA is approximately the same age as Pennsylvania's and has followed a similar path. Montana's ERA, however, was interpreted for the first time in 2023.[129] In that case, a Montana court invalidated a state law as violating the ERA.[130] In December of 2024, the Supreme Court of Montana affirmed in *Held v. State* the trial court's ruling that state statutes that prohibited consideration of greenhouses gas emissions in environmental reviews violated citizens' constitutional right to a "clean and healthful environment."[131] Though the outcome in *Held* is encouraging, it is difficult to declare Montana's ERA effective after 50 years of dormancy and one legal success.

Finally, New York's ERA is still in its infancy.[132] Some challenges brought under it are pending,[133] but even questions as to whose actions may be challenged under the ERA are unresolved,[134] so it is not yet ripe for an academic analysis.

In sum, ERAs are hindered by their attempt to codify a broad and poorly defined right to a clean environment without specific procedural rights. Moreover, in the context of Lakes protection specifically, the efficacy of state-based measures is hindered by the very nature of Federalism: because of their massive size, the Lakes require uniform measures to prevent damage by every one of the states and countries that border them.[135] Furthermore, states are

[129] Jeff Neal, *Big (Sky) Climate Win*, HARV. L. TODAY (Aug. 22, 2023), https://hls.harvard.edu/today/young-climate-activists-land-tentative-win-in-montana-constitutional-case/; *see* Held v. State, CDV-2020-307 (Mont. 1st Jud. Dist. 2023).
[130] *Held v. State*, CDV-2020-307 at 102.
[131] Held v. State, 560 P.3d 1235, 1260-61 (Mont. 2024).
[132] Michael Murphy et al, *Decisions Expansively Interpreting New York's Green Amendment Create Uncertainty*, BEVERIDGE & DIAMOND (Jan. 4, 2023), https://www.bdlaw.com/publications/decisions-expansively-interpreting-new-yorks-green-amendment-create-uncertainty/.
[133] *See e.g.*, Fresh Air For the East Side, Inc. v. N. Y., Index No. E2022-000699 (Sup. Ct. Monroe Cty. 2022); Michael B. Gerrard and Edward McTiernan, *New York's Green Amendment: The First Decisions*, N.Y.L.J. (Mar. 8, 2023).
[134] *See* Murphy et al, *supra* note 132.
[135] *See supra* Part II.

expressly forbidden from engaging in foreign policy,[136] so cooperation with Canada to achieve a truly comprehensive scheme is impossible if left to the states. Even if state ERAs were to function perfectly as intended by their well-meaning drafters, they would still be ineffective in ensuring the health of the Lakes.

C. Rights of Nature Laws

Professor Christopher D. Stone proposed in 1972 a novel and promising formula for environmental protection: the granting of substantive rights to environmental features that are distinct from those of humans and other legal entities.[137] Though seemingly radical, Stone sees this proposition as nearly inevitable.[138] After all, our conception of who (or what) is deserving of rights has been expanding steadily as history moves inexorably forward.[139] Rights are not limited to persons, as decided by the law, but the inverse: the concept of a person is defined by the holding of rights and is thus ripe for reform.[140]

Professor Stone's thesis is not nearly as shocking as it may first seem. Rights are not currently, nor have they been for quite some time, held exclusively by natural persons.[141] For example, the United States Supreme Court held in 1809 that a bank may bring suit in its own name, enforcing its rights without a named human plaintiff.[142]

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[136] *See, e.g.*, U.S. v. Curtiss-Wright Export Co., 299 U.S. 304, 316 (1936) (noting that federal powers over foreign affairs are innate, and the colonies never had these powers even before the formation of the United States).
[137] Christopher D. Stone, *Should Trees Have Standing? Towards Legal Rights for Natural Objects*, 45 S. CALIF. LAW REV. 450, 456 (1972).
[138] *Id.* at 450.
[139] Prof. Stone notes, for instance, that for most of history, a "child was less than a person: an object, a thing". The child's destiny was inextricably linked with the will of his or her parents. *Id.* at 451.
[140] *See, e.g.*, Stone, *supra* note 137 at 454 (observing that Jews were once governed as "men ferae naturae", subject to "a quasi-forest law"). Furthermore, despite refusing to extend substantive rights to Black people and woman, for instance, the Founding Fathers of the United States indeed guaranteed, at least in their own minds, the "inalienable rights of all men" because "emotionally, no one felt that [Black people and members of other excluded groups] were men". *Id.* at 455, n. 24.
[141] Examples include "trusts, corporations, joint ventures, municipalities, Subchapter R partnerships, and nation states." *Id.* at 452.
[142] Bank of U.S. v. Deveaux, 9 U.S. 61, 91 (1809).

Such a proposition naturally begs the question: what are rights that an environmental feature can hold in the first place? No entity, human or otherwise, holds absolute rights—any human may be imprisoned after a fair trial, for instance—so conferring rights to natural features should elicit in the reader no fear that cutting down a tree will be prohibited.[143] Legal efforts at environmental protection are consistently stymied by their anthropocentrism: judgments are limited to injury to humans that are cognizable under existing tort schemes.[144] However, reliance on this facet of tort law often allows polluters to escape fully paying for their destruction as the complexity of environmental systems makes causation challenging for a plaintiff to prove.[145] Furthermore, there are often no damages attributed to pollution that decimates animal populations, DDT killing eagles for example, as courts fail to recognize this as a loss to a legal entity, regardless of the actual harm it may do, both to humans and the environment writ large.[146] Thus, Stone proposes a piece of legislation that designates environmental destruction as an invasion of a property interest, in the same mold as intellectual property and privacy.[147]

Asserted substantive rights are meaningless without procedural rights that allow the holder to enforce them. One must confront the fact that an environmental rightsholder is unable to speak for itself. Yet, many existing legal entities (corporations, infants, incompetent adults), are also unable to speak for themselves, and still hold enforceable rights.[148] Stone posits that the best solution is to statutorily[149] treat the environment like an incompetent

[143] Stone, *supra* note 137 at 457.
[144] *Id.* at 474; *see, e.g.*, Lujan v. Defenders of Wildlife, 504 U.S. 555 (1992); Sierra Club v. Morton, 405 U.S. 727 (1972).
[145] Stone, *supra* note 137 at 474.
[146] *Id.* at 475.
[147] *Id.* at 476.
[148] *Id.* at 464.
[149] *Id.* at 465. A legislative action to appoint a guardian is the most foolproof: though some courts have in the past declared that certain nonhumans met the requirements for guardianship, legislation implementing it directly would eliminate the need for "bold and imaginative" lawyering. *Id.*

adult: through the judicial appointment of a guardian.[150] An appointed guardian would of course be empowered to bring suit either for injunctive relief or damages in the environmental feature's name, but a long-term guardian may serve the additional function of representing the feature at a legislative hearing that may impact it, or exercising a right of inspection "to bring to the court's attention a fuller finding on the land [or feature's] condition."[151]

Uncaptured damages to the environment still present a long term cost to humanity, since "the survival of any part of the biosphere is dependent on the wellbeing of the entirety"[152] yet this cost is uncompensated in an anthropocentric scheme.[153] Capturing and compensating these damages require courts to go beyond costs that are "presently cognizable"—something they are often hesitant to do.[154] Yet, there are still instances of judicial willingness that can provide a model: pain and suffering damages in personal injury suits.[155] Awards for pain and suffering are a clear example of courts making "implicit normative judgments" as to the value of a thing that inherently lacks a price that can be determined by the market.[156] Stone

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[150] Stone, *supra* note 137 at 464. In his view, "when a friend of a natural object perceives it to be endangered, he [would] apply to a court for the creation of a guardianship". *Id.* These "friends" would most likely be environmental groups such as the Sierra Club, as they have both the interest and access to legal counsel to be effective guardians. *Id.* at 466.

[151] *Id.* at 466. This advantage is in contrast with the proposition of other scholars and activists who advocate for a loosening of standing requirements, which would not confer such benefits. *Id.*

[152] Ryan et al, *supra* note 93 at 2551. This is perhaps most obvious in an example like the extermination of wolves in Yellowstone National Park, which led to an overpopulation of their prey that wrought havoc on flora and water systems in the park. Darryl Fears*, Decline of Predators Such as Wolves Throws Food Chains out of Whack, Report Says*, WASH. POST (July 14, 2011). One way that Stone conceptualizes the function of the guardian is by viewing him as the "guardian of unborn generations, as well as the otherwise unrepresented, but distantly injured, contemporary humans." Stone, *supra* note 137 at 475.

[153] *See supra* notes 143-146.

[154] Stone, *supra* note 137 at 475.

[155] *Id.* at 478-79.

[156] *Id.* at 479 (observing that pain and suffering present an odd legal and moral quandary: whether the pain and suffering to non-human life forms should be considered in the damage amount, particularly given ever growing scientific understanding of how non-human life forms experience consciousness).; *See, e.g.*, Robert W. Elwood, *Pain and Suffering in Invertebrates?*, 52 INST. OF LAB'Y ANIMAL RES. J. 175, 175 (2012). Stone demurs on this

advocates for courts setting these normative damages "on the high side," but allowing for adjustments downward in the case of "immediate human interests."[157]

Were an environmental entity to be awarded damages, Stone would have the moneys placed into a trust to be administered by the entity's guardian as opposed to government treasuries.[158] Success on claims for injunctive relief in every instance one is brought is an unrealistic proposition. Therefore, a mechanism whereby an entity may be awarded monetary damages, even if its destruction is not entirely prevented, is a useful half measure.[159] The funds in the trust would be distributed to cover guardianship and legal fees, as well as costs associated with "preserv[ing] the natural object as close as possible to its condition at the time the environment was made a rights holder."[160]

However, the value in the guardianship scheme would not lay solely in the right to bring claims and collect damages, as the procedural rights that accompany it would be of similar utility. Even in circumstances where environmental damage lays outside the scope of rights granted to the natural feature, and litigation is merely delaying the inevitable, the accompanying factfinding during discovery can steer future policy decisions toward environmental protection.[161] The credible threat of litigation and an unfavorable judgment, even if ultimately fruitless, "may encourage the institution whose actions threaten the environment to really *think about* what it is doing . . . ."[162]

Some skeptical readers may ask why humanity would ever leverage its own legal systems and institutions to protect environmental features, thus

specific subject but does say that he is "prepared to [consider nonhumans' pain] in principle" if not necessarily execution. Stone, *supra* note 137 at 479.

[157] Stone, *supra* note 137 at 479.

[158] *Id.* at 480.

[159] *Id.* at 481.

[160] *Id.* at 480. It also solves the thorny issue of how to pay out damages caused by the environment. *Id.* at 481.

[161] *Id.* at 484.

[162] Stone, *supra* note 137 at 484 (emphasis original).

knowingly abdicating some of its own autonomy. As Stone puts it: "What's in it for us?"[163] The same logic would naturally apply to the 19th Century grant of personhood rights to African slaves, yet one who objects to environmental personhood is unlikely to object to extending personhood rights to the enslaved.[164] Furthermore, environmental issues that face humanity—both in Stone's time and the 21st Century—are larger than can be encompassed by anthropocentric schemes: oceans are warming and aquatic species are dying, sea levels continue to rise and wreak havoc on maritime cities, and severe weather events grow more frequent, to name just a miserable few.[165] The far-reaching social changes needed to reverse, or at least pause these worrying trends will involve "a serious reconsideration of our consciousness towards the environment".[166] In a roundabout way, Stone's scheme that would see humanity shed some of its dominance is perhaps the only way that the rights and livelihoods we so value can be protected for future generations.[167]

Prof. Stone's philosophy gained widespread attention remarkably quickly after its publishing[168] and has demonstrated considerable staying power within environmental legal circles.[169] Its influence is seen no more clearly than in Justice Douglas' famous dissent in *Sierra Club v. Morton*, which

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[163] *Id.* at 491.
[164] *Id.*
[165] *Id.* at 492-93.
[166] *Id.* at 493.
[167] *See* Stone, *supra* note 137 at 499. Since Stone's time, an even more robust understanding has come to light about the interrelatedness of all terrestrial environmental systems—and humanity is of course not exempt from this system. *See, e.g.*, Wolfgang Cramer et al, Climate Change and Interconnected Risks to Sustainable Development in the Mediterranean, 8 Nature Climate Change 972, 972 (2018) (observing that climate change is exacerbated by more than merely air pollution, but also "changes in land use . . . and declining biodiversity").
[168] Emily Langer, *Christopher Stone, Environmental Scholar who Championed Fundamental Rights of Nature, Dies at 83,* WASH. POST (May 19, 2021. 6:07 P.M.), https://www.legalbluebook.com/bluebook/v21/rules/16-periodical-materials/16-6-newspapers.
[169] "'Few law professors write anything of interest to the general public. And those [who] do might, if they are lucky, capture the public's attention for a year or maybe two. Chris[topher Stone] is the unicorn in the legal academy who at the beginning of his legal career wrote [a] law review article that remains a classic' half a century later, Richard J. Lazarus, a Harvard Law School professor, wrote in an email." *Id.*

heavily cited Stone's article.[170] *Morton* deals with an action brought by the Sierra Club seeking to enjoin the building of a ski resort and highway in the pristine Mineral King Valley, California.[171] The Court found that Sierra Club lacked standing to bring suit under the Administrative Procedure Act since there was "no allegation in the complaint that members of the Sierra Club would be affected by the actions of [the developer] other than the fact that the actions are personally displeasing or distasteful to them".[172] Echoing Stone, Justice Douglas would have found standing for Sierra Club to assert the Valley's rights, which he seemed to understand as inherent,[173] because "those people who have a meaningful relation to that [environmental feature]—whether it be a fisherman, a canoeist, a zoologist, or a logger—must be able to speak for the values which the [feature] represents and which are threatened with destruction."[174] The interconnectedness of natural systems and human destiny was not lost on Douglas either.[175]

Rights of Nature Laws gradually shifted from the pages of academic journals to reality as the 21st Century progressed. For instance, in 2021, the municipality of Mingaine and the Innu Council of Ekuanitshit each passed congruent resolutions that grant legal rights to the Magpie River, which flows

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[170] *See Sierra Club v. Morton*, 405 U.S. at 742 (1972) (Douglas, J., dissenting). Justice Douglas was a lifelong outdoorsman and staunch defender of America's wild spaces. One anecdote tells of a time he, as a sitting Supreme Court justice, successfully persuaded the Washington Post editorial board to reverse its support of the creation of a highway that would destroy a hiking path along the C&O canal by inviting reporters out for a hike of the entire trail with him. *Justice William O. Douglas,* NAT'L PARKS SERV., https://www.nps.gov/people/justice-william-o-douglas.htm (last updated June 9, 2022).
[171] *Morton*, 405 U.S. at 729-30 (majority opinion).
[172] *Id.* at 730 (quoting Sierra Club v. Hickel 433 F.2d 24, 33 (9th Cir. 1970)).
[173] *See id.* at 742-43 (Douglas, J., dissenting).
[174] *Id.* at 743. Douglas did not, however, seem to embrace Prof. Stone's guardianship concept: "Those who hike it, fish it, hunt it, camp in it, frequent it, or visit it merely to sit in solitude and wonder are legitimate spokesmen for it, whether they be few or many". *Id.* at 744-45. Later in the dissent, he tempered this somewhat by saying, "those who merely are caught up in environmental news or propaganda and flock to defend these waters or areas may be treated differently [when deciding whether to confer standing]". *Id.* at 752.
[175] Douglas wrote: "the river as plaintiff speaks for the ecological unit of life that is part of it." *Id.* at 743.

through Côte-Nord, Quebec, Canada.[176] The resolutions adopt Stone's guardianship structure that permits advocacy for the river's interest, particularly in the face of dam building.[177] Similarly, New Zealand enacted the Te Urewera Act of 2014 that vests Te Urewera National Park with "all the rights, powers, duties, and liabilities of a legal person."[178] The Rights must be exercised by an appointed "Te Urewera Board".[179] Some board members are appointed by the Tūhoe Te Uru Taumatua tribal authorities and another bloc are appointed by the Wellington government.[180] Internationally, Rights of Nature Laws often serve to codify indigenous conceptions of environmental protection.[181]

In the United States, some rights of nature law exist on the municipal level—like the LEBOR—but often they are invalidated when they are tested in court due to shoddy drafting and a faulty strategy focusing on legislation at the municipal level, robbing them of their potential. At the forefront of the Rights of Nature movement in the United States is the Community Environmental Legal Defense Fund ("CELDF").[182] The organization partners with municipalities and interest groups to draft and advocate for Rights of Nature Laws.[183] In addition to the LEBOR,[184] CELDF has had its ordinances successfully enacted across the country, largely in Rust Belt municipalities.[185] Its ordinances tend to lean toward anthropocentrism, framing the rights of the

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[176] Morgan Lowrie*, Quebec River Granted Legal Rights as Part of Global 'Personhood' Movement*, CAN. BROAD. CORP. https://www.cbc.ca/news/canada/montreal/magpie-river-quebec-canada-personhood-1.5931067 (last updated Feb. 28, 2021).
[177] *Id.*
[178] Te Urewera Act 2014 s 11(1) (NZ).
[179] *Id.* s 11(2)(a)
[180] *Id.* s 21(1).
[181] *See, e.g.*, *id.*; Lowrie, *supra* note 176; Ryan et al, *supra* note 93 at 2515 (discussing Bolivia's codification of indigenous environmental values.).
[182] *See About CELDF*, CMTY. ENV'T LEGAL DEF. FUND https://celdf.org/about-celdf/ (last visited Dec. 31, 2023).
[183] *Id.*
[184] *Lake Erie Bill of Rights*!, CMTY. ENV'T LEGAL DEF. FUND (Jan. 27, 2019) https://celdf.org/2019/01/lake-erie-bill-of-rights/.
[185] *See Where we Work*, CMTY. ENV'T LEGAL DEF. FUND https://celdf.org/where-we-work/ (last visited Dec. 31, 2023).

environment within the context of the citizen's "Right to Local Self Government."[186] Grant Township, Pennsylvania enacted one such ordinance, which was unsuccessful in its attempt to allow a local environmental group to intervene in a lawsuit on behalf of a threatened local watershed.[187] The ordinance was invalidated by a federal court on similar grounds as the LEBOR.[188] It later enacted a substantially similar home rule charter that confers on "natural communities and ecosystems within Grant Township . . . the right to exist, flourish, and naturally evolve."[189] It creates both a criminal offense enforceable by the Township and a cause of action by private citizens.[190] The Township did see a temporary legal victory when the DEP rescinded the fracking permit in 2020 citing prohibitions in the Charter.[191] This victory was ultimately pyrrhic, because even though PGE permanently plugged the controversial well, the Charter was ultimately ruled unconstitutional for similar reasons to the LEBOR.[192] In sum, Stone's promising framework has been consistently let down by the CELDF's formulaic strategy that pairs ineffectual drafting of right of nature ordinances with a strategy centered on municipalities that lack the authority the enact them to begin with.

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[186] HOME RULE CHARTER OF THE TWP. OF GRANT, IND. CNTY., Pa., Art. I § 102. (hereinafter "Grant Home Rule Charter").
[187] Pa. Gen. Energy Co. v. Grant Twp. E. Run Hellbenders Soc'y, Inc., 658 F. App'x. 37, 42 (3d Cir. 2016).
[188] *See* Pa. Gen. Energy, 2017 WL 1215444, at *37.; Grant Home Rule Charter Art. IV.; *Drewes Farm,* 411 F.Supp at 557.
[189] Grant Home Rule Charter Art. I § 106.
[190] *Id.* Art. III § 303.
[191] Laura Legere, *Pa. DEP Revokes Permit for Grant Twp. Oil and Gas Waste Well*, PITT. POST-GAZETTE (Mar. 27, 2020, 7:15 AM), https://www.post-gazette.com/business/powersource/2020/03/27/ Pennsylvania-DEP-revokes-permitoil-gas-waste-well-Grant-home-rule-charter/stories /202003260151 [https://perma.cc/3VKD-6ZY2].
[192] PGE, the fracking company, discovered a gas leak in the well and plugged it in 2023. Patrick Varine, *Injection Rejection: Indiana County Community Pushes Back Against Fracking Residue Well*, PITT. TRIBUNE-REV. (June 22, 2023 5:01 a.m.) https://triblive.com/local/regional/injection-rejection-indiana-county-community-appeals-presence-of-fracking-residue-well/.

VI. A FEDERAL STATUTORY GRANT OF RIGHTS TO THE LAKES

A different strategy to implement Rights of Nature laws holds more promise: federal legislation that grants substantive right to the Lakes in a way that more closely follows Stone's vision than CELDF legislation. This article in no way attempts to argue that *Drewes Farms*, which invalidated the LEBOR, was wrongly decided—quite the contrary. The LEBOR's inadequacies are both numerous and glaringly fatal, and as the court noted, "[it] is not a close call".[193] Instead, the philosophy and policy motivations behind the LEBOR provide a compelling framework for federal legislation that would be able to overcome the failings of the LEBOR and adequately protect the Lakes. If subsequent drafters at the federal level can do so more carefully than the drafters of the LEBOR, and more in line with the principals enumerated in Stone's article, such legislation is the best tool to preserve the vitality of the Lakes.

First, judicially appointed guardians with the power to procedural rights—consistently missing from CELDF legislation[194]—would serve a broad investigative function to monitor the health of the Lakes even without litigation.[195] Despite its near inability to actually enforce the terms of the Great Lakes Water Quality Agreement,[196] the IJC's investigative role has repeatedly led to shifts in public opinion and policy toward increased protections as a result of its findings.[197] A similarly well-funded party like the guardian,[198] particularly one that was not rendered powerless, holds similar if not greater potential. And because the grant would not be so narrow as to limit its reach to the discharge of specific substances like Clean Water Act, a substantive grant will be more capable of responding to as of yet unknown threats to the

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[193] *Drewes Farms*, 411 F.Supp. at 558.
[194] *See generally* TOLEDO, OH., MUN. CODE ch. XVII, § 253 (2019).; HOME RULE CHARTER OF THE TWP. OF GRANT, IND. CNTY., Pa., Art. I § 102.
[195] Stone, *supra* note 137 at 484; *see also* Desmond Nichols, *After LEBOR: Can the Rights of Nature Movement Stand Back Up?*, 74 FLA. L. REV. 699, 727 (2022).
[196] Hall and Houston, *supra* note 69 at 734-35
[197] *See id.* at 732.
[198] *See* Stone, *supra* note 137 at 466.

Lakes without additional legislative wrangling. It is also worth noting that the adoption of such a statute does not mean the displacement of extant measures like the Clean Water Act, merely an additional tool in the arsenal of those concerned for the Lakes.

Further, the creation of a Great Lakes Trust would function as a mechanism by which polluters can directly bear the cost of remedying their destruction.[199] The enforcement provisions of the Clean Water Act are disconnected from the actual costs of environmental destruction: the EPA is empowered to bring suit only for injunctive relief and impose penalties based on the *mens rea* of the polluter.[200] The trust structure creates a neat closed loop where damages collected would be reinvested in the Lakes[201] as opposed to deposited in the U.S. Treasury with an unclear final destination. Thus, polluters are not only deterred, but the resultant environmental damage can be at least partially remedied.

Because of the grandiosity and economic importance of the Lakes, their protection by a grant of substantive rights could also be viewed as a merely a first step (albeit a significant one) in humanity's reorientation toward governance with an increased focus on how humans fit into grand environmental systems.[202] The sheer number of entities that interact with the Lakes,[203] and who would now be forced to consider their rights and how human interactions impact them, would be a strong mental primer for how to view their interactions with other environmental features.[204] Such a reformulation is vital for effective policy choices to reverse climate change and similar impending disasters.[205]

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[199] *But see* Stone, *supra* note 137 at 478-79 (discussing the challenges of estimating the monetary value of injuries).
[200] Clean Water Act, Pub. L. No. 92-500, 86 Stat. 816 § 309(a) (1972); *but see* § 309(d) (providing additional factors to determine civil penalties in addition to mens rea).
[201] *See* Stone, *supra* note 137 at 480.
[202] *See id.* at 499.
[203] *See supra* Part II.
[204] *See* Stone, *supra* note 137 at 499.
[205] *See id.*

The LEBOR's implementation at a local level left it with virtually no chance of standing up to legal scrutiny.[206] Legislation passed at the federal level is the most promising manner of implementing Stone's framework.[207]

The federal government exercises significant power over the Lakes through its Commerce Clause power.[208] Congressional power to regulate influences on interstate commerce includes preventing environmental destruction.[209] Such environmental regulation is among Congress's most expansive subsets of the Commerce Clause, and the United States Supreme Court has yet to delineate an upper bound to it.[210] Further, federal preemption of conflicting state law allows a piece of federal legislation to apply equally to the geographic area of the lakes,[211] which would ameliorate instances like Ohio's refusal to adequately regulate pollution from nonpoint sources.[212]

The Commerce Clause also grants the federal government exclusive right to regulate commerce with Native American tribes[213] and to execute treaties.[214] Since the 1980s, the Federal Government has dealt with the tribes on a "government to government basis,"[215] delegating primary environmental policymaking to the tribes within their territories, but with the EPA continuing

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[206] *Drewes Farms*, 411 F.Supp. at 557.
[207] *But see* Nichols, *supra* note 195 at 724 (arguing that a state constitutional implementation is most favorable because of the "difficulty of changing federal law"). Nichols' concerns are ultimately valid but given the massive potential benefits of a federal statute, I am unable to acquiesce to lesser.
[208] "[The Congress shall have Power] To regulate Commerce with foreign Nations, and among the several States, and with the Indian Tribes". U.S. CONST. ART. I, § 8, cl. 3.
[209] Hall and Houston, *supra* note 69 at 735 (citing Hodel v. Va. Surface Mining & Reclamation Ass'n, Inc., 452 U.S. 264 (1981)).
[210] *Id.*
[211] *See* U.S. Const. Art. VI, cl. 2 (The Supremacy Clause). "This Constitution, and the Laws of the United States which shall be made in Pursuance thereof; and all Treaties made, or which shall be made, under the Authority of the United States, shall be the Supreme law of the land; and the Judges in every State shall be bound thereby, any Thing in the Constitution or Laws of any State to the Contrary notwithstanding." *Id.*
[212] *See* 33 U.S.C. § 1362(14); text accompanying *supra* note 31.
[213] U.S. CONST. ART. I, § 8, cl. 3.
[214] U.S. CONST. ART. II, § 2.
[215] Hall and Houston, *supra* note 69 at 759 (citing Jacqueline Phelan Hand, Protecting the World's Largest Body of Fresh Water: The Often Overlooked Role of Indian Tribes' Co-Management of the Great Lakes, 47 NAT. RESOURCES J. 815, 817-18 (2007)).

to assist and manage their implementation.[216] One such program is the Chippewa Ottawa Resource Authority, which manages fisheries, protects water qualities, and fights invasive species through promulgation and enforcement of its own regulations.[217] Treaties and executive agreements both preempt conflicting state law.[218] Municipal and state government's lack of treaty power also prevents cooperation with Canada that would ideally expand the LEBOR to an international scale or a strengthening of the IJC into an effective regulatory body.[219] Federal treaty power also allows implementation into American Indian territories, [220] and across international borders, which would be impossible otherwise.

Another fatal flaw of the LEBOR was in its drafting: it is unconstitutionally vague.[221] Specifically, it lacks any measure which a judge could use to determine if a defendant had indeed violated the Lake's right to "exist, flourish, and evolve naturally" or what size fine to levy against a guilty defendant.[222] Thus, any subsequent statute that defined its contents based on objective measurements would necessarily overcome this challenge.[223] A successful statute could, for example, create a civil cause of action to recover damages for injury to its property interest in itself in the case of release of a toxin detrimental to eagles that feed on fish in its waters, so long as the statute defines the "property interest" protected to explicitly include said bird populations.[224] Similarly, if the statute included "clean water" with the

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[216] *Id.*
[217] *Id.* at 760 (citing Hand, *supra* note 215 at 822).
[218] *See, e.g.,* Mo. v. Holland, 252 U.S. 416 (1920).
[219] *See* U.S. CONST. ART. II, § 2; Hall and Houston, *supra* note 69 at 731.
[220] *See* U.S. CONST. ART. II, § 2. This is likely to be a compelling proposition, as Rights of Nature Laws are more familiar conceptualizations of many traditional indigenous culture's relation to the natural world. *See, e.g.,* , Julian Brave Noisecat, *The Western Idea of Private Property is Flawed. Indigenous Peoples Have it Right*, THE GUARDIAN (Mar. 27, 2017) https://www.theguardian.com/ commentisfree/2017/mar/27/western-idea-private-property-flawed-indigenous-peoples-have-it-right.
[221] *Drewes Farms*, 411 F.Supp. at 558.
[222] *Id.* at 556.
[223] *See generally* FCC v Fox TV Stations, Inc., 567 U.S. 239 (2012).
[224] *See* Stone, *supra* note 137 at 476.

protected property interest, it could define the bounds of that interest based on the list of harmful pollutants defined by the IJC in a given period.

Opponents of Rights of Nature laws often cite fears of a "flood of litigation" resulting from the passage of such statutes as a reason to oppose them.[225] This fear is valid in an expanded standing approach that lacks a de jure guardian,[226] but not so under Stone's guardianship approach. Given that only the guardian can bring suit in the Lake's name,[227] he has an incentive to only bring suit against the most egregious polluters in order to conserve trust resources, as opposed to expending them on low value cases, or when the stakes are otherwise low. Furthermore, a credible threat of litigation is often sufficient to scare potential defendants to change their actions, avoiding judicial involvement in the first place.[228]

VII. CONCLUSION

Professor Stone's philosophy articulated in *Should Trees Have Standing?* constructs a promising foundation on which to build the future of the environmental movement. However, in the United States, this promise has so far been squandered by activist groups that embrace only the broad strokes of Stone's philosophy, ignoring the vital procedural aspects and executory institutions like de jure guardianship and trust structures. Nor is their case helped by sloppy drafting.

The Lake Erie Bill of Rights is perhaps the most frustrating example: its structure and legislative acknowledges the need for comprehensive reform that complements the size and outsized importance of the Great Lakes and fills vital gaps in the nation's current regulatory structure.

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[225] *See, e.g.*, *Morton*, 405 U.S. at 740.
[226] *See* Stone, *supra* note 137 at 470-71.
[227] *Id.*
[228] *See id.* at 481.

Without a shift toward advocacy on the federal level, the generally popular[229] movement is in real danger of being snuffed out. The movement should advocate for a federal statute that creates a guardianship structure, trust, and procedural rights like inspection during discovery to empower the Lakes, as a newly minted legal entity, to collect and utilize remote damages that would not be captured in a homocentric scheme.

Implementation at the federal level also provides an opportunity to use Constitutional treaty power to further empower the IJC, which can continue its investigative function and resolve international disputes that arise because of the novel regulatory scheme. Further, federal implementation would provide an opportunity to incorporate American Indian tribes into the novel scheme.

Considering the ever more ominous threat posed by anthropogenic climate change, a scheme such as this would be adaptable to future challenges without needing explicit modification, merely adept lawyering. In the long run, it would not only foster a brighter future for the Lakes but help humanity in return by providing a pivot point to change how we mentally position ourselves in relation to our environment, perhaps playing a part to being to reverse course of Earth's destruction.

[229] *See, e.g.*, Michael Lee, *Movement to Give 'Nature' Same Rights as Humans Gains Steam in US*, Fox News (Dec. 10, 2023) https://www.foxnews.com/us/movement-give-nature-same-rights-humans-gains-steam.

DEVELOPMENT IN THE SUNSHINE STATE: THE CHILLING EFFECT THAT FLORIDA'S SB 540 WILL HAVE ON LOCAL COMMUNITY INPUT

Matthew Kertesz[1]

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I. INTRODUCTION

Uncontrolled urban expansion, otherwise known as sprawl,[2] is pushing Florida's ecosystems to the breaking point.[3] Home to four of the five fastest growing metropolitan areas in the nation,[4] Florida is set to experience unprecedented urban sprawl.[5] This growth, which consumes critical natural habitats and farmland essential to Florida's agriculture economy[6] threatens the State's unique biodiversity and the way of life for millions of residents.[7]

The need to guard against urban sprawl was emphasized by President Harry S. Truman's Address on Conservation at the Dedication of Everglades National Park, where he described Florida's unique and precious nature:

> "Here are no lofty peaks seeking the sky, no mighty glaciers or rushing streams wearing away the uplifted land. Here is land, tranquil in its quiet beauty, serving not as the source of water, but as the last receiver of it. To its natural abundance we owe the spectacular plant and animal life that distinguishes this place from all others in our country."[8]

[2] David B. Resnik, *Urban Sprawl, Smart Growth, and Deliberative Democracy*, NAT'L LIBRARY OF MEDICINE, https://pmc.ncbi.nlm.nih.gov/articles/PMC2936977/ (last visited Apr. 14, 2025).
[3] Univ. of Fla. ctr. for Landscape Conservation Plan. & 1000 Friends of Fla., *Fla. Agriculture 2040/2070*, at 4 (Apr. 2024), https://1000fof.org/wp-content/uploads/2024/01/FOF-1306-Ag-2040-2070-Report-v4-WEB.pdf.
[4] Kristie Wilder & Paul Mackun, *Sunshine State Home to Metro Areas Among Top 10 U.S. Population Gainers From 2022 to 2023*, U.S. CENSUS BUREAU, https://www.census.gov/library/stories/2024/03/florida-and-fast-growing-metros.html (last visited Oct. 11, 2024).
[5] Fla. Stat. Ann. § 163.3164(54) (Defining "urban sprawl" as "a development pattern characterized by low density, automobile-dependent development with either a single use or multiple uses that are not functionally related, requiring the extension of public facilities and services in an inefficient manner, and failing to provide a clear separation between urban and rural uses").
[6] Univ. of Fla. ctr. for Landscape Conservation Plan. & 1000 Friends of Fla., *supra* note 3, at 4.
[7] *Id.*
[8] Harry S. Truman, *Address on Conservation at the Dedication of Everglades National Park* [hereinafter *Address on Conservation]* (Dec. 6, 1947), https://www.presidency.ucsb.edu/documents/address-conservation-the-dedication-everglades-national-park.

Unfortunately, threats to Florida's "natural abundance"[9] have now been exacerbated by the changes enacted under SB 540,[10] affecting key portions of Florida's Community Planning Act ("CPA"), which establishes the requirements for growth policy, county and municipal planning, and land development regulation.[11]

In 2023, the Florida Legislature and Governor Ron DeSantis, through the passage of Senate Bill 540 ("SB 540"), enacted measures that will have a significant chilling effect on the ability for Florida citizens to challenge irresponsible and legally flawed development plans.[12] Described as "the worst environmental bill passed by the Florida Legislature during the 2023 session,"[13] SB 540 will drastically limit a citizen's ability to engage in the comprehensive planning process altogether.[14]

SB 540 will affect a Florida citizen's ability to challenge irresponsible and legally flawed development plans in two major ways: 1) it narrows the legal scope for citizens to challenge the legality of development orders[15] under the CPA;[16] and 2) it assigns attorney fees to the non-prevailing party of any challenge to comprehensive plan amendments.[17] The amendment process under this Act, which has become a means of accommodating otherwise legally insufficient development plans, has resulted in urban sprawl.[18]

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[9] *Id.*
[10] Florida's Right to Clean Water, *Florida's Need for the RTCW in the days of Sackett, SB540*, YOUTUBE (Jun. 1, 2023), https://www.youtube.com/watch?v=WYeNngb6FmY.
[11] Fla. Stat. Ann. § 163.3177.
[12] S.B. 540.
[13] *DeSantis just signed "Sprawl Bill" 540 into law*, FRIENDS OF THE EVERGLADES (May 25, 2023) https://www.everglades.org/desantis-just-signed-sprawl-bill-540-into-law/.
[14] Fla. Stat. Ann. § 163.3177(1) (establishing that the "comprehensive plan shall provide the principles, guidelines, standards, and strategies for the orderly and balanced future economic, social, physical, environmental, and fiscal development of the area that reflects community commitments to implement the plan and its elements"); The Miami Herald Editorial Board, *Gov. DeSantis, SB 540 is poison for the environment and a gift to developers. Veto it | Opinion*, MIAMI HERALD, https://www.miamiherald.com/opinion/editorials/article275428621.html (last updated May 17, 2023).
[15] Fla. Stat. Ann. § 163.3164 (defining "development order" as "any order granting, denying, or granting with conditions an application for a development permit").
[16] S.B. 540.
[17] Fla. Stat. Ann. § 163.3167(1)(b) (establishing that the "several incorporated municipalities and counties shall have power and responsibility: To adopt and amend comprehensive plans, or elements or portions thereof, to guide their future development and growth.").
[18] Florida's Right to Clean Water, *supra* note 10.

The CPA outlines the process through which an aggrieved party may challenge the consistency of a local development order with a comprehensive plan and defines the legal basis for such challenges.[19] Such actions must be within the required scope for challenging a development order.[20] SB 540 revised this portion of the statute, such that it strictly limited the legal basis for bringing a challenge.[21]

Furthermore, SB 540 amended the CPA to require that any party challenging an amendment under a comprehensive plan, if unsuccessful, will be responsible for the prevailing party's attorney's fees and costs without requiring a showing that the non-prevailing party initiated its challenge for an improper purpose.[22]

Part one of this article will explain the history of the CPA. Part two will explore the specific changes to Fla. Stat. §163.3184 and §163.3215 that were approved under SB 540, and will present the arguments both in support of and against the changes. Finally, part three will ultimately argue in strong opposition to the changes. In sum, this article will highlight the importance of robust community engagement in the processes and decision making surrounding comprehensive planning and sustainable growth, and will argue for why the passage of SB 540 may result in the death knell to sustainable growth management in Florida.

II. BACKGROUND

a. *A Brief History of the Community Planning Act*

i. *Shifting Priorities for Growth Management: Diminishing the State's Role*

Even prior to SB 540, growth management in Florida was criticized due to what many considered to be inherent flaws of Florida's Community Planning Act ("CPA").[23] The CPA, which was signed into law by Governor Rick Scott in 2011, replaced the previous Growth Management Act ("GMA") and streamlined the process

[19] Fla. Stat. Ann. § 163.3215(3).
[20] *Id.*
[21] S.B. 540.
[22] *Id.*
[23] Fla. Stat. Ann. § 163.3161.

through which development projects get approved in Florida.[24] When enacted, because Florida was in the midst of significant economic struggles, the State government was highly motivated to change the comprehensive planning process, such that it would incentivize development across the State, rather than act as a roadblock.[25] Therefore, the CPA diminished the State's authority over local comprehensive planning.[26] Instead of requiring strict consistency with the State's growth management criteria, it transferred much of the authority surrounding comprehensive planning to local governments, while maintaining a statutory scheme in place to provide general oversight.[27] Critics of the CPA stated that grounding the need for these types of pro-development changes in short term economic needs was misguided.[28] Opponents thus argued that in the long term, once the economy inevitably stabilized, these extreme changes would become unnecessary and would only work to the benefit of developers, while facilitating a permanent state of urban sprawl.[29]

Although the previous GMA was not perfect, many consider it to have accomplished much in the way of curtailing sprawl and over development.[30] In fact, Florida was once praised for the intensive review process that local comprehensive plans underwent to ensure compliance with State standards.[31] Specific changes under the CPA, as argued by critics, would have a detrimental effect on slowing urban sprawl. These changes center around the State's expedited review process[32] of local comprehensive plans.[33] Whereas under the GMA, the State played a central role in

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[24] Kacie A. Hohnadell, *Community Planning Act: The End of Meaningful Growth Management in Florida*, 42 STETSON L. REV., 715, 728 (2013) [hereinafter *End of Meaningful Growth Management*] (discussing the substantive differences between the Growth Management Act and the Community Planning Act, and the impact these changes will have on growth management in Florida).
[25] *Id.* at 731.
[26] *Id.* at 728.
[27] *Id.* at 723.
[28] *Id.* at 720.
[29] *Id.*
[30] The Miami Herald Editorial Board*, supra* note 15.
[31] *Id.*
[32] Fla. Stat. Ann. § 163.3184(2) (stating that "plan amendments adopted by local governments shall follow the expedited State review process in subsection (3)").
[33] Fla. Stat. Ann. § 163.3177(1).

the comprehensive planning and amendment process undertaken at the local level, the CPA diminished the State's authority and oversight in this respect.[34] Instead of requiring that plans and proposed amendments be submitted for rigorous review and approval by State and regional agencies prior to implementation, the CPA granted local governments much broader authority[35] to make final decisions throughout this process.[36] Although these changes created a more affordable and expedited approval process, they also removed fundamental checks and balances that existed under the GMA, which were intended to ensure that local governments would not approve land use decisions counter to the State's priorities.[37]

ii. The Comprehensive Planning Process

In Florida, the comprehensive planning process, through which all local land use decisions are made, is governed by the CPA. The CPA describes the required elements for local comprehensive plans.[38] Section 163.3177 states that comprehensive plans "shall provide the principles, guidelines, standards, and strategies for the orderly and balanced future economic, social, physical, environmental, and fiscal development of the area that reflects community commitments to implement the plan and its elements."[39] The CPA further states that, upon adopting a comprehensive plan, all actions in furtherance of development projects concerning land encompassed by that plan must be consistent with the plan

[34] *Id.*
[35] *End of Meaningful Growth Management, supra* note 25 at 728 (emphasizing that under the CPA, local governments have the power to make final decisions regarding land use, so long as State resources are not impacted).
[36] Fla. Stat. Ann. § 163.3177(1).
[37] *End of Meaningful Growth Management, supra* note 25 at 723-24 (comparing the State enforcement mechanisms that existed under the GMA with those that exist under the CPA).
[38] Fla. Stat. Ann. § 163.3161(6)-(7) (establishing that it "is the intent of this act that adopted comprehensive plans shall have the legal status set out in this act and that no public or private development shall be permitted except in conformity with comprehensive plans, or elements or portions thereof, prepared and adopted in conformity with this act …[i]t is the intent of this act that the activities of units of local government in the preparation and adoption of comprehensive plans, or elements or portions therefor, shall be conducted in conformity with this act.").
[39] Fla. Stat. Ann. § 163.3177(1).

as adopted.[40] Moreover, the CPA describes the process through which local comprehensive plans are enforced through development orders, which are orders that either grant or deny applications for development permits.[41]

According to Section 163.3161, the intent of the CPA is to center the State's growth management role around "protecting the functions of important State resources and facilities."[42] However, "State resources and facilities" is not defined by any portion of the CPA, rendering the State's role in growth management unclear.[43]

The CPA does describe an intention to limit urban sprawl[44] and establishes several criteria to guide this objective.[45] These include: approving developments that do not impact natural resources, encouraging developments that efficiently extend "public infrastructure and services," fostering communities that facilitate walkability and multimodal transportation, and maintaining open spaces and agricultural areas.[46] Nevertheless, no matter how noble these criteria may be, without a reliable enforcement mechanism, there is no way to ensure they are achieved.

Without a meaningful State review process with the enforcement authority to ensure compliance with the CPA's requirements, the only consequential avenue for ensuring compliance is through legal challenges brought by Florida residents. These include administrative challenges to comprehensive plans or plan amendments,[47] and *de novo* actions challenging local development orders.[48] The established framework

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[40] Fla. Stat. Ann. § 163.3194(1) (establishing the legal status and requirements of comprehensive plans adopted by local governments, and their relationship with local development orders).
[41] Fla. Stat. § 163.3164 (providing definitions for various terms used in the CPA).
[42] Fla. Stat. Ann. § 163.3161 (outlining the intent, purpose, and objectives of the CPA. This includes describing the State's role in the review process for comprehensive plans, as well as emphasizing the key role played by local governments).
[43] *Id.*
[44] Fla. Stat. Ann. § 163.3164(54) (defining urban sprawl as "a development pattern characterized by low density, automobile-dependent development with either a single use or multiple uses that are not functionally related, requiring the extension of public facilities and services in an inefficient manner, and failing to provide a clear separation between urban and rural uses").
[45] Fla. Stat. Ann. § 163.3177(9)(a)-(b).
[46] *Id.*
[47] Fla. Stat. Ann. § 163.3184(5) (establishing that "any affected person…may file a petition with the Division of Administrative Hearings … to request a formal hearing to challenge whether the plan or plan amendments are in compliance").
[48] Fla. Stat. Ann. § 163.3215(3) (establishing that "any aggrieved or adversely affected party may maintain a de novo action … to challenge any decision of such local government granting or denying

for administrative challenges allows an "affected person"[49] to file a petition challenging the plan or plan amendment's compliance with a comprehensive plan or a plan amendment.[50] To be "in compliance," the plan or plan amendment must consist of the required elements of a comprehensive plan, satisfy coastal management priorities, maintain the required amount of rural land stewardship areas, and more.[51] Notably, comprehensive plans or plan amendments will be compliant if the question of compliance is "fairly debatable."[52] The CPA also outlines a system for challenging "the consistency of a *development order* with a comprehensive plan."[53]

This burden of enforcement, which falls squarely on the citizens of Florida[54] has, even prior to SB 540, been a difficult burden to bear, and a complex process to navigate.[55] However, as much as the CPA may have weakened growth management in Florida by largely stripping away State oversight—leaving the voice of the people as the only true enforcement mechanism, SB 540 has delivered a final blow, effectively stripping away even the voice of the people. Therefore, although the CPA creates avenues for enforcement through citizen participation, a new question is raised: how meaningful is the availability for recourse when its very purpose is later undermined by the legislature?

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an application for, or to prevent such local government from taking any action on, a development order").

[49] Fla. Stat. Ann. § 163.3184(1)(a) (defining "affected person" as "persons owning property, residing, or owning or operating a business within the boundaries of the local government whose plan is the subject of the review; owners of real property abutting real property that is the subject of a proposed change to a future land use map").

[50] § 163.3184(5).

[51] Fla. Stat. Ann. § 163.3184(1)(b) (defining "in compliance" as "consistent with the requirements of § 163.3177, § 163.3178, § 163.3180, § 163.3191, § 163.3245, and § 163.3248").

[52] § 163.3184(5)(c)(1); Zoom Interview with Paul Schwiep, Att'y, Coffey Burlington (Oct. 28, 2024) (positing "what isn't fairly debatable?" Attorney Schwiep argued that "fairly debatable" establishes a very low bar for local governments to meet in defending their determination of compliance).

[53] § 163.3215 (emphasis added).

[54] Pinecrest Lakes, Inc. v. Shidel, 795 So. 2d 191, 202 (Fla. Dist. Ct. App. 2001) (holding that "citizen enforcement is the primary tool for insuring consistency of development decisions with the Comprehensive Plan").

[55] Richard Grosso, *A Guide to Development Order "Consistency" Challenges Under Florida Statutes Section 163.3215*, 34 J. ENV'T. L. & LITIG. 130 (2019) [hereinafter *Guide to Development Order Challenges*] (examining the rules for "legal challenges to local government development orders on the basis that they violate adopted comprehensive").

iii. The Scope of Review for Challenges to Development Orders

One key mechanism through which local governments exercise their authority to make land use decisions is through development orders.[56] Since the passage of the CPA in 2011, courts have heard many challenges to development orders, and on many occasions, have found orders to be inconsistent with its corresponding comprehensive plan.[57] However, Florida courts have come to disagree regarding the extent to which a development order may be challenged through Section 163.3215(3).[58] For example, in ruling on the consistency of a development order with a comprehensive plan, some courts have taken a broad view, granting citizens a lot of enforcement authority.[59] However, other courts have taken a much narrower approach, thereby restricting the ability of citizens to enforce the elements of a comprehensive plan.[60] Prior to SB 540, the text of Section 163.3215(3), which defines standing and scope for enforcing comprehensive plans through development orders, read:

> "Any aggrieved or adversely affected party may maintain a de novo action for declaratory, injunctive, or other relief against any local government to challenge any decision of such local government granting or denying an application for, or to prevent such local government from taking any action on, a development order, as defined in §163.3164, ***which materially alters the use or density or intensity*** of use on a particular piece of property ***which is not consistent*** with the comprehensive plan adopted under this part."[61]

Many courts have, upon a plain language reading of the statute, interpreted the statute liberally,[62] applying a scope of review that includes considering all

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[56] Fla. Stat. Ann. § 163.3164(15) (defining "development order" as "any order granting, denying, or granting with conditions an application for a development permit").
[57] *Growth Management Challenges 1989-2023*, 1000 FRIENDS OF FLA. (April 2024), https://1000fof.org/wp-content/uploads/2019/08/cases.pdf.
[58] *Guide to Development Order Challenges, supra* note 57.
[59] Imhof v. Walton County, 328 So. 3d 32, 42 (Fla. 1st DCA 2021) (holding that there is no limitation on the aspects of a development order that the trial court should consider before concluding that the order … is consistent with the comprehensive plan).
[60] *Guide to Development Order Challenges, supra* note 57, at 144.
[61] S.B. 540 (emphasis added).
[62] Educ. Dev. Ctr., Inc. v. Palm Beach Cty., 751 So. 2d 621, 623 (Fla. Dist. Ct. App. 1999) (holding that the statute must "be liberally construed to advance the intended remedy."); *see, e.g.* Stranahan

inconsistencies of a development order with the elements of the comprehensive plan.[63] Some courts, however, have interpreted the statute to limit the scope of review to challenges that specifically address "use, density, or intensity"[64] of the land.[65]

In *Imhof v. Walton County,* the First District Court of Appeal interpreted the statute to establish a broad scope.[66] The court stated that the statute's clause, "which is not consistent with the comprehensive plan adopted under this part," is a modifying phrase that "looks past the noun series 'use or density or intensity of use.'"[67] According to the court, this phrasing requires a trial court to find *complete* consistency between a development order and the local government's comprehensive plan.[68]

The court in *Imhof* was not the only court to come to this conclusion.[69] For example, in *Machado v. Musgrove*, the Third District Court of Appeal considered testimony from concerned residents made in opposition to proposed re-zoning under a development order.[70] Here, the residents feared that the development order would negatively impact traffic and disrupt the area's unique characteristics.[71] Because the court found that the order neither conformed with all elements of the comprehensive plan, nor furthered its objectives, it voided the re-zoning plan.[72] Furthermore, in *Franklin County v. S.G.I. Ltd.*, the court found that a development order was

House, Inc. v. City of Fort Lauderdale, 967 So. 2d 427, 433 (Fla. Dist. Ct. App. 2007); Payne v. City of Miami, 927 So. 2d 904, 907 (Fla. Dist. Ct. App. 2005).

[63] *Guide to Development Order Challenges, supra* note 57 at 144.

[64] Fla. Stat. Ann. § 163.3164(12) (defining "Density" as "an objective measurement of the number of people or residential units allowed per unit of land, such as residents or employees per acre"); § 163.3164(22) (defining "Intensity" as "an objective measurement of the extent to which land may be developed or used, including the consumption or use of the space above, on, or below ground; the measurement of the use of or demand on natural resources; and the measurement of the use of or demand on facilities and services").

[65] *Guide to Development Order Challenges*, *supra* note 57.

[66] Imhof v. Walton County, 328 So. 3d 32, 41 (Fla. 1st DCA 2021).

[67] *Imhof*, 328 So. 3d at 41.

[68] *Id.*

[69] Sw. Ranches Homeowners Assoc. v. Broward Cty., 502 So. 2d 931, 935 (Fla. Dist. Ct. App. 1987) (holding that the CPA "demonstrates a clear legislative policy in favor of the enforcement of comprehensive plans by persons adversely affected by local action."); see also Dunlap v. Orange Cty., 971 So. 2d 171, 175 (Fla. Dist. Ct. App. 2007); *Payne*, 927 So. 2d at 907.

[70] Machado v. Musgrove, 519 So. 2d 629, 632 (Fla. Dist. Ct. App. 1987).

[71] *Id.* at 631.

[72] *Id.* at 636.

inconsistent with the local comprehensive plan's standards regarding negative impacts to the ecological health of Apalachicola Bay.[73] In these cases, the courts did not limit its review to inconsistencies dealing only with use, density, or intensity. Rather, these courts applied a broad scope. They considered all existing inconsistencies between the development order and every element of the comprehensive plan.

However, in *Heine v. Lee County,* the Second District Court of Appeal interpreted the statute narrowly, creating a split regarding its proper interpretation.[74] Here, the court held that the statute in fact did limit the scope of challenges to those addressing "use, density, and intensity."[75] The court reasoned that the statute unambiguously articulated only these three bases "upon which a party could challenge a development order's purported inconsistency with a comprehensive plan."[76] In essence, the court held that, upon review of a development order, other aspects of a comprehensive plan, beyond "use, density, and intensity," including a plan's enumerated elements, are not enforceable.[77] Under this application of the law, many of the cases that previously resulted in a development order being found inconsistent with all elements and objectives of a comprehensive plan would have likely reached a different result.[78]

These cases were, on many occasions, instrumental in protecting against urban sprawl, preserving the environment, and safeguarding the way of life of Florida residents; all priorities enunciated by the CPA.[79] Nonetheless, a significant and tangible difference existed between the two interpretations by Florida courts. It was clear that if this split were to be resolved by the legislature, the resolution would have

[73] Franklin Cty. v. S.G.I. Ltd., 728 So. 2d 1210, 1211 (Fla. Dist. Ct. App. 1999) (holding that development order was inconsistent with comprehensive plan objectives to "support the conservation and protection of ecological communities" and "maintain the estuarine water quality surrounding coastal resources so that there shall be no loss of any approved shellfish harvesting classifications through the year 2000").
[74] Heine v. Lee Cty., 221 So. 3d 1254 (Fla. Dist. Ct. App. 2017).
[75] *Id.* at 1257.
[76] *Id.*
[77] *Guide to Development Order Challenges, supra* note 57, at 148.
[78] *Growth Management Challenges 1989-2023*, *supra* note 59.
[79] Fla. Stat. Ann. § 163.3177.

major impacts on the enforceability of the elements and objectives of comprehensive plans, and by extension, the ability for Florida residents to guard against irresponsible development and urban sprawl.

In 2023, the Florida legislature passed SB 540, thereby restricting the ability for Florida residents to oversee comprehensive planning in two major ways.[80] The new law both resolved the circuit split regarding the scope of review for development orders in favor of a limited scope, and established a fee-shifting provision that would discourage residents from bringing challenges altogether.[81]

b. Senate Bill 540

i. Limiting the Scope of Review for Development Orders

SB 540 resolved the previous split regarding challenges to development orders in favor of the narrow scope of review established by the court in *Heine v. Lee County,* limiting the scope to issues surrounding "the use or density or intensity of use on a property."[82] The new version of the statute reads, in relevant part:

> "Any aggrieved or adversely affected party may maintain a de novo action … ***on the basis that the development order materially alters the use or density or intensity*** of use on a particular piece of property, ***rendering it not consistent*** with the comprehensive plan adopted under this part."[83]

Here, the legislature substituted the phrase "which is not consistent with the comprehensive plan" to "rendering it not consistent with the comprehensive plan."[84] In effect, "the bill clarifies that … courts may not review other elements of the order for consistency with the plan."[85] This change severely limits the ability for individuals to uphold the requirements enunciated by the CPA.

[80] S.B. 540.
[81] *Id.*
[82] *Id.*
[83] Fla. Stat. Ann. § 163.3215(3) (emphasis added).
[84] S.B. 540.
[85] H.R. STAFF FINAL BILL ANALYSIS, SB 540, H.R. 2023 Leg., 2024 Sess., at 7 (2023) [hereinafter FINAL BILL ANALYSIS].

ii. Automatic Assignment of Attorney Fees to the Prevailing Party

Perhaps an even more impactful change under SB 540 is the new requirement authorizing the prevailing party of an administrative challenge to a comprehensive plan or plan amendment to recover attorney fees and costs without having to establish that the non-prevailing party initiated the challenge for an improper purpose.[86] After the passage of SB 540, the new version of Section 163.3184(5)(g), which establishes the process for the adoption of comprehensive plans and comprehensive plan amendments, states:

> "The prevailing party in a challenge filed under this subsection is entitled to recover attorney fees and costs in challenging or defending a plan or plan amendment, including reasonable appellate attorney fees and costs."[87]

This change is notable because generally, Florida law explicitly prohibits the automatic awarding of attorney fees and costs to the prevailing party of an administrative proceeding.[88] Under Section 120.595(1)(b) of the Administrative Procedure Act ("APA"), Florida's umbrella statute for all administrative proceedings, courts will only award attorney fees and costs to the prevailing party of an administrative challenge[89] where "the non-prevailing adverse party has been determined by the administrative law judge to have participated in the proceeding for an improper purpose."[90] However, the APA also states that the "provisions of this subsection are supplemental to, and do not abrogate, other provisions allowing the award of fees or costs in administrative proceedings,"[91] Therefore, SB 540 serves to

[86] S.B. 540.
[87] Fla. Stat. Ann. § 163.3184(5)(g) (emphasis added).
[88] FINAL BILL ANALYSIS, *supra* note 87.
[89] Fla. Stat. Ann. § 120.595(1)(b) (establishing that challenges to comprehensive plans fall within this rule, prohibiting the automatic awarding of attorney fees and costs to the prevailing party of an administrative proceeding).
[90] FINAL BILL ANALYSIS, *supra* note 87 (citing Fla. Stat. Ann. § 120.595(1)(b)).
[91] Fla. Stat. Ann. § 120.595(1)(a).

expand the ability for a prevailing party to collect attorney fees previously provided for under the APA.

c. Arguments on Both Sides

The threat of saddling non-prevailing parties with the other side's attorney fees and costs is biting. Both proponents and critics agree that this new reality will have major impacts on the comprehensive planning process.[92] It will cause substantial reluctance among private citizens in considering challenges to comprehensive plans or plan amendments.[93] Proponents of this change say that this reluctance is a good thing, as it will force people to have "skin in the game," and will prevent them from filing frivolous lawsuits without considering the now very real costs associated with losing.[94] They also argue that the changes under SB 540 will create more predicable outcomes in consistency challenges, allowing developers to more easily assess risk, and adhere to project timelines.[95]

However, critics argue that, because citizen participation in administrative challenges has been the primary means to combat urban sprawl and prevent the adoption of environmentally irresponsible comprehensive plan amendments,[96] the new roadblocks imposed by SB 540 could result in the effective end of sustainable growth management in Florida altogether.[97]

1000 Friends of Florida, a leading advocate for sustainable growth in Florida has, in strong opposition to SB 540, stated that it "threatens citizens with financial ruin for challenging legally flawed comprehensive plan amendments that pave the way for expanded development."[98] The non-profit further emphasizes that

[92] The Miami Herald Editorial Board, *supra* note 15.
[93] 1000 Friends of Fla., *2023 Legislative Session*, [hereinafter *2023 Legislative Session]* https://1000fof.org/legis/2023-legislative-session/ (last visited Oct. 25, 2024).
[94] *Id.*
[95] Jeff Wright, *Understanding the Impact of SB 540 Local Government Comprehensive Plan Changes,* HENDERSON FRANKLIN, https://www.legalscoopswflre.com/land-use/understanding-the-impact-of-sb-540-local-government-comprehensive-plan-changes/ (last visited Oct. 25, 2024).
[96] The Miami Herald Editorial Board, *supra* note 15.
[97] *Id.*
[98] *2023 Legislative Session*, *supra* note 95.

administrative challenges brought by Florida residents are the only true means of ensuring consistency between comprehensive plan amendments and local comprehensive plans, which are the blueprints for sustainable and environmentally resilient growth."[99] *1000 Friends of Florida* stresses the harsh reality that, for citizens to fulfill their role as the CPA's main enforcement mechanism, they must be prepared to take on "the legal costs of a local government and any developers who intervene—a price that can reach six figures."[100]

Attorney Paul Schwiep, well known for his dedicated representation of South Florida environmental non-profit organizations on issues of national importance,[101] argued that, even prior to the passage of SB 540, those bringing administrative challenges to comprehensive plan amendments under the CPA have always been "outgunned and outmanned."[102] In addition, Schwiep noted that in these proceedings, citizens file a challenge to an action by a local government, but the developers themselves almost always then join the action as an intervenor, and with resources to drive the litigation that far exceed those of the aggrieved party.[103] Schwiep explained that by intervening, these applicants essentially invite themselves to the party, yet have all the same rights of a respondent.[104] Therefore, after protracted litigation, if the petitioner loses, it will be responsible for all attorney fees and costs incurred by the respondent as well as any incurred by intervening parties.[105]

Although proponents of SB 540 argue that these changes will force petitioners to have skin in the game and will prevent frivolous lawsuits, Schwiep argued that Section 163.3184 already accomplished this.[106] He noted that, even prior to SB 540,

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[99] *Id.*
[100] *Id.*
[101] *Paul Schwiep*, COFFEY BURLINGTON, ATTORNEYS AT LAW, https://www.coffeyburlington.com/attorneys/paul-schwiep/ (last visited Nov. 15, 2024) (Recognition and experience include: Conservationist of the Year 2008–Everglades Coalition; Chair–Florida Board of Bar Examiners, 2005).
[102] Zoom Interview with Paul Schwiep, Att'y, Coffey Burlington (Oct. 28, 2024).
[103] *Id.*
[104] *Id.*
[105] *Id.*
[106] *Id.*

the statute required good faith filings.[107] Specifically, if any filings in these administrative challenges are made for an "improper purpose, such as to harass or to cause unnecessary delay, or for economic advantage, competitive reasons, or frivolous purposes," the court is required to impose any appropriate sanctions, including requiring the payment of the other party or parties' attorney's fees and costs.[108] Therefore, Schwiep concluded that this new fee-shifting provision "was added for its *in terrorem* effect on potential petitioners."[109]

Hold the Line Coalition ("*HTL*"), another advocacy group dedicated to "protecting green space, limiting sprawl, and encouraging smart development," agrees.[110] *HTL's* director, Laura Reynolds, noted that the passage of SB 540 has forced the advocacy group to consider the feasibility of bringing future challenges to comprehensive plans and plan amendments.[111] Reynolds stated that, even prior to SB 540, *HTL* "had enough of a challenge [bringing] cases, where we had to raise fifty to one hundred thousand dollars."[112] Now, to continue facilitating challenges, non-profit organizations similar to *HTL* will need to secure significantly more funding in advance to ensure their clients are protected.[113] This includes securing enough funding to cover the potential attorney fees of any party that may intervene to defend against the challenge, amounts that can reach millions.[114]

Reynolds also highlighted the expected impact of the new narrowed scope: restricting development order challenges to issues dealing only with use, density, and intensity.[115] She stressed that this new limitation is likely to exclude many of the thirteen elements required by comprehensive plans under the CPA.[116] Specifically, Reynolds is most concerned with the effect that this limited scope will have on the

[107] *Id.*
[108] Fla. Stat. Ann. § 163.3184(9).
[109] Zoom Interview with Paul Schwiep, Attorney, Coffey Burlington (Oct. 28, 2024).
[110] *About Hold the Line Coalition*, HOLD THE LINE COALITION https://holdthelinecoalition.org/about/our-mission/ (last visited Nov. 15, 2024).
[111] Zoom Interview with Laura Reynolds, Director, Hold the Line (Oct. 28, 2024).
[112] *Id.*
[113] *Id.*
[114] *Id.*
[115] *Id.*
[116] *Id.*

ability to challenge development orders that have an adverse impact on environmental interests.[117] She explained that challenging the expansion of the Urban Development Boundary ("UDB"),[118] an objective central to *HTL*'s mission, requires implicating various elements that fall outside of the limited scope of use, density, and intensity such as: coastal management and rural land stewardship.[119] Continued efforts to expand the UDB threaten environmental interests that also have also major implications on quality of life in Florida.[120] For example, Reynolds emphasized the importance of restoring "low lying green space[s]" that are "critical for the restoration of Florida Everglades [National Park] and Biscayne Bay [National Park]," areas that are outside of the current UDB.[121] Vital to this effort, is the restoration of the natural flow of fresh water from Lake Okeechobee south, through the Everglades, to South Florida's estuaries.[122] According to Reynolds, this flow of fresh water, which has been adversely impacted by a long history of harmful development projects, is vital to rehydrating Florida's aquifers, which is the source of Florida's drinking water.[123] Furthermore, this flow is fundamental in preventing key habitat loss, sea grass die offs, and fish kills.[124] Reynolds reasoned that "one of the best ways … to restore [these ecosystems] is to make sure [that] we have functioning wetlands," and that the flow of clean fresh water to those estuaries is unencumbered by irresponsible development outside of the UDB.[125] However, the action necessary

[117] Zoom Interview with Laura Reynolds, Director, Hold the Line (Oct. 28, 2024).
[118] *Urban Development Boundary*, MIAMI-DADE COUNTY, (Jun. 5, 2018), https://gis-mdc.opendata.arcgis.com/datasets/MDC::urban-development-boundary/about (noting that the boundary was adopted by the Board of County Commissioners and "identifies the area where urban development may occur through the year 2030").
[119] Zoom Interview with Laura Reynolds, Director, Hold the Line (Oct. 28, 2024).
[120] *Id.*
[121] *Id.*
[122] Dyllan Furness, *Estuaries in South Florida are warming faster than the Gulf of Mexico and global ocean,* UNIV. OF SOUTH FLA. (Aug. 7, 2024), https://www.usf.edu/marine-science/news/2024/estuaries-in-south-florida-are-warming-faster-than-the-gulf-of-mexico-and-global-ocean.aspx ("South Florida's estuaries are home to critical habitats such as seagrass meadows, and adjacent waters in the Florida Keys are home to world-renowned coral reefs").
[123] Zoom Interview with Laura Reynolds, Director, Hold the Line (Oct. 28, 2024).
[124] *Id.*
[125] *Id.*

to protect these interests through challenges to development orders would likely fall outside of the narrowed scope established by SB 540.[126]

Furthermore, Reynolds emphasized the importance of agriculture in South Florida as a main economic driver.[127] To sustain sufficient levels of production, South Florida must maintain "68,000 acres of [agricultural land]," a threshold that is "dangerously close" to being defeated.[128] This priority has been echoed statewide.[129] *1000 Friends of Florida*, in conjunction with the *University of Florida Center for Landscape Conservation Planning*, published an extensive report highlighting the millions of acres of agricultural land that is under threat.[130] The report forecasts that between now and 2070, Florida's population could increase by more than 12 million residents; paving the way for the development of roughly 3.5 million acres of land, comprising of around 2.2 million acres of agricultural land.[131] Moreover, the report warns that sprawl "leaves remaining agricultural land and the ecosystem services they provide increasingly vulnerable, fragmented, and often degraded."[132] Through its chilling effects, SB 540 will suppress the legal challenges needed to prevent development plans that would contribute to these troubling projections.

Although Reynolds made it clear that their efforts continue, she does emphasize that these new rules have had a chilling effect.[133] Furthermore, Reynolds indicated that these new barriers have underscored the importance of educating the public to ensure that "the right people are in office making the right decisions," thereby preventing the need for these challenges in the first place.[134]

Although some proponents for SB 540 exist, support is mostly limited to the development community.[135] Conversely, opposition to SB 540 is much more

[126] *See supra Section* II (A).
[127] Zoom Interview with Laura Reynolds, Director, Hold the Line (Oct. 28, 2024).
[128] *Id.*
[129] Univ. of Fla. ctr. for Landscape Conservation Plan. & 1000 Friends of Fla., *supra* note 3, at 1.
[130] *Id.*
[131] Univ. of Fla. ctr. for Landscape Conservation Plan. & 1000 Friends of Fla., *supra* note 3, at 3.
[132] *Id.* at 2.
[133] Zoom Interview with Laura Reynolds, Director, Hold the Line (Oct. 28, 2024).
[134] *Id.*
[135] *See supra Section* II(C).

widespread.[136] Whereas support largely centers around a desire to remove roadblocks to development, critics argue that SB 540 will deliver the final blow to sustainable growth management in Florida.[137]

III. ANALYSIS

a. Protecting Florida's Natural Abundance – Fulfilling a Renowned Environmentalist's Vision for Florida's Future

Renowned conservationist, Marjory Stoneman Douglas, has long been quoted for her vision to protect Florida's environment from over-development.[138] In her 1920s Miami Herald column, "The Galley", Stoneman Douglas expressed her views regarding civil rights, environmentalism, urban planning, and more.[139] Here, she stated:

> "We want civilization for south Florida. And when we say that we do not mean electric lights and running hot and cold water, as you know. We want a place where the individual can be as free as possible, where the life of the community is rich and full and beautiful, where all the people, unhandicapped by misery, can go forward together to those ends which man dimly guessed for himself. Because we are pioneers we have dared to dream that south Florida can be that sort of place, if we all want it badly enough."[140]

Although, at this stage of civilization in South Florida, it is not feasible to fulfill some of these words in a literal sense, the spirit of Stoneman Douglas's sentiment remains. These goals, which describe a Florida in which the community works together to facilitate and shepherd an environment "where the life of the community is rich and full and beautiful, where all the people, unhandicapped by misery, can go

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[136] *Id.*
[137] The Miami Herald Editorial Board, *supra* note 15.
[138] *Marjory Stoneman-Douglas*, FLA. DEPT. OF STATE, https://dos.fl.gov/cultural/programs/florida-artists-hall-of-fame/marjory-stoneman-douglas/ (last visited Dec. 18, 2024).
[139] Mary Anne Peine, *Women for the Wild: Douglas, Edge, Murie and the American Conservation Movement,* UNIV. OF MONT. (2009), https://scholarworks.umt.edu/cgi/viewcontent.cgi?article=5792&context=etd (last visited Dec. 18, 2024).
[140] *Id.*

forward together to those ends,"[141] have been expressed through the CPA. However, critics argue that these goals have been deprioritized in the State and Local comprehensive planning process, a shift underscored by the changes introduced under SB 540.[142]

b. The Urgent Need for Responsible Growth Management in Florida

South Florida is a prime example for how unsustainable development can materially alter the essence of an environment such that it becomes altogether unrecognizable. As a result of urban sprawl, Florida's Wildlife Corridor, which consists of 18 million acres of undeveloped land and water, all of which is instrumental in supporting both animal and human life,[143] will see a loss of 1.2 million acres by 2070.[144] In addition to resulting in radical and irreversible aesthetic and cultural changes, unbridled development results in the diminishing capacity for local species to survive due to an over consumption of resources necessary for survival.[145]

Florida faces a unique situation. The preservation of biodiversity and vital natural resources is challenged by both increasing population—resulting in the over-development of critical areas, and by the increasing current and future effects of climate change.[146] Changes to the climate have and will continue to result in "rising temperatures, higher flood and drought risks due to changing precipitation patterns, [and] more coastal erosion linked with sea-level rise."[147] These phenomena, over which Florida residents can affect very little immediate tangible change, exacerbate the impacts that sprawl has on the sustainability of natural resources and the

[141] *Id.*
[142] *See supra Section* II(A)(1).
[143] *The Florida Wildlife Corridor Act,* FLA. WILDLIFE CORRIDOR FOUNDATION, https://floridawildlifecorridor.org/about/about-the-corridor/ (last visited Nov. 15, 2024).
[144] Univ. of Fla. ctr. for Landscape Conservation Plan. & 1000 Friends of Fla., *supra* note 3, at 4.
[145] Florida Wildlife Corridor Foundation, *supra* note 145.
[146] *Id.*
[147] Colin Polsky et al., *The Florida Wildlife Corridor and Climate Change*, FLA. ATLANTIC UNIV.: ARCHBOLD BIOLOGICAL STATION (Apr. 2024), https://archbold-cms.payloadcms.app/media/ClimateReport_FINAL_04152024-1.pdf.

resiliency of critical habitats.[148] Therefore, special attention must be paid to the approval of developments that may negatively impact such interests.

To that end, ensuring that comprehensive planning in Florida remains compliant with the CPA's intent to prevent urban sprawl requires the maintenance of meaningful public participation in growth management. Rather than facilitating this need, SB 540 puts an effective end to it.[149] Both the automatic assignment of attorney fees to prevailing parties and the newly narrowed scope for challenges to development orders will undoubtedly make it exceedingly difficult for Florida residents to oppose environmentally irresponsible development projects.[150]

c. Public Participation as a Check on Undue Influence in Local Government

Public participation in the comprehensive planning process, which largely centers around access to judicial review, must be protected and promoted. Otherwise, the approval of irresponsible development projects will be susceptible to a decision-making process that has long been questioned for its lack of honesty and transparency. South Florida has a well-documented history of corruption among its local government representatives.[151] For example, the City of Miami, which has been dubbed "Shakedown City," has been particularly criticized for rampant allegations of scandal and corrupt practices.[152] Many of these allegations surround questionable relationships existing between real estate developers and some of the City's most prominent leaders.[153] These include accusations of wrongdoing against the City's Mayor, Francis Suarez, who has come under scrutiny for securing a number of employment relationships while in office, including a $10,000 per month consulting

[148] *Id.* at 51.
[149] *See supra* Section II.
[150] *See supra* Section II(C).
[151] Joey Flechas & Tess Riski, *In shakedown city, a 'culture of corruption' prompts calls for competence and reform*, MIAMI HERALD (Dec. 07, 2024, 11:47 AM), https://www.miamiherald.com/news/local/community/miami-dade/article282923473.html.
[152] *Id.*
[153] *Id.*

agreement with Rishi Kapoor, the former CEO of Location Ventures,[154] a now defunct development firm that sought approvals for its development projects from the City.[155]

The City of Miami Mayor's alleged impropriety is only the latest chapter in a long history of questionable practices by local government officials in South Florida, most often surrounding two of South Florida's largest industries, real estate and development.[156] Therefore, the comprehensive planning process in South Florida, which is governed by local representatives, is at a continual risk of being tainted by corruption. As a result, it is vital that public participation in the comprehensive planning process remain accessible and effective. Without sufficient avenues for robust citizen participation acting as a check to potential wrongdoing by local government officials, these very officials may cast aside the true needs of its local constituents and may feel emboldened to engage in misconduct without the threat of citizen oversight. Moreover, the comprehensive planning process may become dominated by the interests of those with the most to gain financially, and those who have the financial means to influence outcomes in their favor.

Citizen challenges to comprehensive plan amendments and development orders have served as a vital check against the decision-making of local governments in Florida.[157] The reality of these challenges being filed after the adoption stage of the comprehensive planning process strongly incentivized local representatives to adopt legally sufficient and environmentally responsible plans that would not result legal hurdles down the road. However, the changes under SB 540 threaten to undermine this vital role that residents have played.[158] By forcing residents to risk being saddled with potentially millions of dollars in attorney fees, and by narrowing

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[154] Joey Flechas et al., *Developer whose payments to Miami Mayor Suarez are caught up in FBI probe has stepped down,* MIAMI HERALD (Sep. 20, 2023, 12:53 PM) https://www.miamiherald.com/news/local/community/miami-dade/article277430873.html.
[155] Francisco Alvarado, *Location Ventures' receiver seeks to sell Miami Beach dev site site for $18M,* THE REAL DEAL (SEP. 13, 2024, 4:42 PM) https://therealdeal.com/miami/2024/09/13/location-ventures-seeking-to-sell-miami-beach-site-for-18m/.
[156] Bureau of Economic Analysis, *Florida*, U.S. DEPT. OF COMMERCE (Sept. 25, 2018), https://web.archive.org/web/20181023034758/https://apps.bea.gov/regional/bearfacts/pdf.cfm?fips=12000&areatype=STATE&geotype=3.
[157] *See supra* Section II(C).
[158] *Id.*

the scope for challenges, SB 540 has dramatically reduced the likelihood of such challenges being brought. Therefore, the changes under SB 540 will significantly diminish access to public participation through judicial review, leaving the comprehensive planning process vulnerable to undue influence by special interests.

d. Even Florida Itself Has Recognized the Importance of Public Participation, And Has Rejected a Fee-Shifting Structure in Other Contexts

Notably, even the Florida Legislature itself recognized the importance of the public participation process and the flaws of fee-shifting. In 2024, the Florida Legislature attempted to pass SB 738, a bill that had significant support, which would have applied the same fee-shifting language contained in SB 540, assigning attorney fees and costs to the prevailing party of legal challenges brought against the Florida Department of Environmental Protection ("DEP").[159] However, the proposal failed before even coming to a vote.[160] Specifically, the Florida Legislature opted to remove the fee-shifting provision from SB 738 to avoid violating federal rules and policies under the federal Clean Water Act, which provides for an opportunity for judicial review that is sufficient to "provide for, encourage, and assist public participation in the permitting process."[161] The Florida Legislature recognized that the "State will not meet this standard if it narrowly restricts the class of persons who may challenge the approval or denial of permits,"[162] and that the type of fee-shifting proposed in SB 738 was an "unacceptable impingement on the accessibility of judicial review."[163]

Similar to the United States Environmental Protection Agency's ("EPA") rule requiring states to "provide for, encourage, and assist public participation" in the environmental permitting process,[164] the CPA expressly requires public participation

[159] BILL ANALYSIS AND FISCAL IMPACT STATEMENT, SB 738, S. 2024 Leg., Reg. Sess. (Fla. 2024).
[160] *Id.*
[161] 40 C.F.R. § 123.30 (1996).
[162] *Id.*
[163] 88 Fed. Reg. 55276, 55300 (Nov. 12, 2024).
[164] 40 C.F.R. § 123.30 (1996).

throughout the comprehensive planning process, positioning it as its main enforcement mechanism.[165] This requirement for public participation includes mandating public hearings throughout the adoption stage of comprehensive plan amendments and development orders, as well as establishing a defined process for citizen legal challenges through access to judicial review.[166] It therefore stands to reason that, because the same principles of facilitating fair opportunities for public participation play such a key role in Florida's comprehensive planning process, the changes implemented under SB 540 are just as inconsistent with these principles as they would have been under SB 738. Nevertheless, the very same fee-shifting language that failed to be adopted under SB 738 due to its "unacceptable impingement on the accessibility of judicial review,"[167] was applied to the comprehensive planning process under SB 540.[168]

After the passage of SB 540, Florida no longer "provide[s] for, encourage[s], and assist[s] public participation" in the comprehensive planning process.[169] Although the CPA creates a comprehensive planning process that is intended to be one through which the community actively participates,[170] if the ability for the public to bring a challenge is undermined by the legislature, then the enforcement mechanism becomes irrelevant. As a result, SB 540, ultimately rendered the CPA's primary enforcement mechanism hollow and ineffective.[171]

e. SB 540 also Contradicts Floridians' Constitutional Right to the "Conservation and Protection of Natural Resources"

Finally, SB 540 contradicts the protections established under Article II, Section 7 of Florida's Constitution. The Florida State Constitution describes Florida

[165] *See supra* Section II(A)(2).
[166] *Id.*
[167] 88 Fed. Reg. 55276, 55300 (Nov. 12, 2024).
[168] S.B. 540.
[169] 40 C.F.R. § 123.30 (1996).
[170] Fla. Stat. Ann. § 163.3184(5).
[171] *See supra* Section II.

residents' right to Florida's "[n]atural resources and scenic beauty."[172] Article II, Section 7 of Florida's Constitution reads in relevant part that:

> "It shall be the policy of the State to ***conserve and protect its natural resources and scenic beauty***. Adequate provision shall be made by law for the abatement of air and water pollution and of excessive and unnecessary noise ***and for the conservation and protection of natural resources***."[173]

Although establishing clear goals to facilitate conservation efforts, the provision is not self-executing.[174] According to the court in *Barley v. S. Fla. Water Mgmt. Dist.*, analyzing whether a constitutional provision is self-executing depends on whether "the provision lays down a sufficient rule by means of which the right or purpose which it gives or is intended to accomplish may be determined, enjoyed, or protected without the aid of legislative enactment."[175] Here, the court in *Barley* concludes that Florida's Environmental Rights Amendment is not self-executing, requiring "the legislature to enact supplementary legislation to make it effective, to carry out its intended purposes, and to define any rights intended to be determined, enjoyed, or protected."[176]

Therefore, the Florida Constitution assigns the duty to carry out Florida's Environmental Rights Amendment to the legislature. However, although the CPA largely fulfilled this duty, SB 540's substantial chilling effect on public participation in the comprehensive planning process[177] demonstrates the legislature's now failure to fulfill its constitutional mandate in this regard. By significantly weakening the CPA's main enforcement mechanism, which comes in the form of public participation through access to judicial review, the purpose of Article II, Section 7 has been frustrated.

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[172] FLA. CONST. art. II, Sec. 7.
[173] *Id.* (emphasis added).
[174] Barley v. S. Fla. Water Mgmt. Dist., 823 So. 2d 73 (Fla. 2002)
[175] *Id.* at 80.
[176] *Id.* at 81.
[177] *See supra* Section II(C).

The legislature has undermined a uniquely important feature to Florida's comprehensive planning process. Public participation, through access to judicial review, served as a Constitutional safeguard to upholding Article II, Section 7. Limiting access to judicial review restricts the judiciary's ability to act as a check on legislative actions that threaten the environment. Whereas other states, such as Pennsylvania, do have self-executing Environmental Rights Amendments,[178] Florida depends on public participation to alleviate the weaknesses created by its legislated requirement. Therefore, the barriers to public participation created by SB 540 undermine, and potentially infringe upon Floridians' right to their "[n]atural resources and scenic beauty."[179]

f. Conclusion

These changes occur at a time when smart growth and sustainable development are perhaps more important than ever.[180] Even Governor DeSantis, who signed this bill into law, recently underscored the urgent need to "improve local government long-term comprehensive planning to encourage successful and sustainable growth while protecting natural resources."[181] By signing SB 540 into law, DeSantis defied the spirit of his own words.

To usher in a future where Florida's environment and natural resources are protected in the long-term, urban sprawl must be restrained. A future of relentless expansion fueled by special interests is untenable. Furthermore, as many Floridians know, history has proven that "the Florida of today is the America of tomorrow." Although no similar laws have emerged in other states, Florida has long been a testing ground for legislation, often influencing state policies nationwide.[182]

[178] PA. CONST. art. I, Sec. 27.
[179] FLA. CONST. art. II, Sec. 7.
[180] Univ. of Fla. ctr. for Landscape Conservation Plan. & 1000 Friends of Fla.*, supra* note 3.
[181] OFFICE OF THE GOVERNOR, STATE OF FLA., Exec. Order No. 23-06, *Achieving Even More Now for Florida's Environment* (2023).
[182] Julia Manchester, *Florida becomes conservative model for other GOP states*, THE HILL (May, 18, 2023, 6:00 AM), https://thehill.com/policy/healthcare/4001655-florida-becomes-conservative-model-for-other-gop-states/.

Consequently, it is important to remain vigilant and prepared to oppose similar efforts elsewhere. To safeguard Florida's environment, biodiversity, and natural resources–and potentially those of other states—laws of these kind, including SB 540, must be struck down.

REDUCING AI'S CARBON FOOTPRINT: WHY CERTIFICATION BEATS DATA SHARING, FOR NOW

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I. INTRODUCTION

On November 30, 2022, the technology company OpenAI released its chatbot, ChatGPT, which was capable of responding to prompts in an uncannily, human-like manner.[2] ChatGPT revolutionized the technology sector by making AI tools more accessible. AI refers broadly to computer systems that can perform tasks typically requiring human intelligence, such as recognizing patterns, making decisions, and generating language.[3] A significant subset of AI is machine learning, where algorithms learn from vast amounts of data to improve their performance over time without being explicitly programmed for every task.[4] One of the most prominent applications of machine learning today is the development of large language models ("LLMs").[5] These models are trained on massive datasets scraped from the internet including books, articles, and websites, to learn patterns in human language.[6] LLMs like ChatGPT process this data to generate human-like responses, answer questions, and simulate conversation.[7] Because they rely on huge volumes of data and complex mathematical computations, developing and deploying LLMs require enormous computing power and energy.[8]

ChatGPT attracted more than one million users in the first five days of operation alone.[9] ChatGPT's popularity prompted a rush across the business sector to either incorporate artificial intelligence ("AI") or be left behind by competitors who had already taken advantage of the new technology.[10] Since ChatGPT's release, other "big tech" companies have either released AI tools of their own or doubled down on

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[2] Marzyeh Ghassemi et al., *ChatGPT one year on: who is using it, how and why?*, 264 NATURE 39, 39-41 (Dec. 7, 2023).
[3] DAN JURAFSKY & JAMES H. MARTIN, SPEECH AND LANGUAGE PROCESSING: AN INTRODUCTION TO NATURAL LANGUAGE PROCESSING, COMPUTATIONAL LINGUISTICS, AND SPEECH RECOGNITION 123, 220 (3d ed. draft Jan. 12, 2025), https://web.stanford.edu/~jurafsky/slp3/.
[4] *Id.*
[5] *Id.*
[6] *Id.* at 327-28.
[7] *Id.*
[8] *Id.*
[9] Ghassemi et al., *supra* note 1, at 1.
[10] Kenrick Cari, *AI 50*, FORBES (April 11, 2024, 6:30 AM), https://www.forbes.com/lists/ai50/.

their existing models.[11] Most recently, on October 4, 2024, Meta announced the release of Movie Gen, a new AI model that can generate realistic video and audio clips in response to user prompts.[12] Movie Gen was built to challenge rival tools from other leading AI tech companies like OpenAI and ElevenLabs.[13] This competition is not limited to the domestic markets: AI companies in the European Union and China have also ramped up their use and production of new AI tools.[14]

Nonetheless, despite the headlong sprint to develop new technology by nations across the globe, little focus has been given to the potential environmental impact that accompany technological advancement, particularly its effect on climate change.[15] This absence is particularly acute, as the United States Ninth Circuit Court stated, "[a]bsent some action, the destabilizing climate will bury cities, spawn life-threatening natural disasters, and jeopardize critical food and water supplies."[16]

While AI has the potential to be positively implemented for the benefit of the environment,[17] it also has enormous costs.[18] The process of training a single AI tool on human language emits more than 626,000 pounds of carbon dioxide—nearly five times the lifetime emissions of the average American car—from manufacture to junkyard.[19] Its carbon footprint has only increased due to the current AI training trends. AI developers now prioritize accuracy instead of efficiency by feeding massive

[11] *Id.*
[12] Katie Paul, *Meta, challenging OpenAI, announces new AI model that can generate video with sound*, REUTERS (October 7, 2024, 4:49 PM), https://www.reuters.com/technology/artificial-intelligence/meta-challenging-openai-announces-new-ai-model-that-can-generate-video-with-2024-10-04/.
[13] *Id.*
[14] Alessandro Parodi & Amir Orusov, *Governments race to regulate AI tools*, REUTERS (October 6, 2023, 7:25 AM), https://www.reuters.com/technology/governments-race-regulate-ai-tools-2023-08-22/.
[15] 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 ENVTL. L. REV. 1, 6 (2023).
[16] Juliana v. U.S., 947 F.3d 1159, 1166 (9th Cir. 2020).
[17] Lin, *supra* note 8, at 6.
[18] *Id.*
[19] Emma Strubel et al., *Energy and Policy Considerations for Deep Learning in NLP*, ARXIV (June 5, 2019), https://arxiv.org/abs/1906.02243.

amounts of data to training models and trial-and-error training tactics—both of which significantly increase the carbon footprint of AI.[20]

Furthermore, the energy cost of AI does not end once the AI technology is trained: once the models are deployed in the real world for user application, they rely on inference simulate language and decisions, which calls for even more energy.[21] Moreover, the current inclination of developing "data-and power-hungry AI" may continue until more and more business sectors rely on AI to solve increasingly complex problems, exacerbating the existing environmental damage.[22] Managing the environmental consequences of AI is therefore a pressing issue.[23]

Urgently, governments must address AI's growing carbon footprint, but have so far failed to do so.[24] The lack of regulations or policies demonstrates a misplaced trust by the federal government that tech companies will voluntarily reduce their own emissions and carbon footprint.[25] However, despite tech companies' pledges to reduce carbon emission[26] there are no enforcement mechanisms or oversight to ensure they fulfill their pledges.[27] Despite the many commitments to reduce its carbon emissions, big-tech companies that employ AI, such as Google, Microsoft, Amazon, and Facebook, are still among the largest consumers of electricity in the United States.[28]

As it currently stands, federal agencies have two possible solutions they can implement to help push the future of AI in a more environmentally responsible direction: One option is promoting data sharing, which would force big tech

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[20] Lin, *supra* note 8, at 6.
[21] *Id.* at 17.
[22] *Id.*
[23] *Id.*
[24] Amy L. Stein, *Artificial Intelligence and Climate Change*, 37 YALE J. ON REG. 890, 920 (2020).
[25] Lin, *supra* note 8, at 7.
[26] Stephen Shankland, *Google, Facebook, Stripe Have a $925M Plan to Capture Carbon Pollution*, CNET, (Apr. 13, 2022) https://www.cnet.com/news/google-facebook-stripe-have-a-925m-plan-to-capture-carbon-pollution/ (noting how parent companies of google and Facebook pledge nearly $1 billion to carbon capture plan).
[27] Charlotte Freitag et al., *The climate impact of ICT: A review of estimates, trends, and regulations*, 16 ENVIRONMENTAL RESEARCH LETTERS 063008 (Sept. 10, 2021). https://pubmed.ncbi.nlm.nih.gov/34553177/.
[28] *Id.* at 17.

companies to share their training data. Another option is implementing certification requirements, which would certify some AI tools as more environmentally friendly to increase consumer awareness.[29] While both of these options have potential, it is more likely that the certification requirement will actually be implemented in the future because it is easier, less intrusive, and could still have a significant impact on reducing the environmental cost of AI.

II. HISTORY

Artificial intelligence technology did not develop overnight in 2022; in fact, the algorithms that serve as the foundations for these modern tools have existed for decades.[30] Researchers have been able to develop AI tools that could beat some of the best players in the world at strategy games like Chess and Go for more than a decade.[31] In recent years, three new factors have enabled such technology to grow by leaps and bounds.[32] These new factors are: 1) the advent of massive amounts of data; 2) the ability to train the preexisting algorithms on that data; and 3) modern computing.[33] The new advances in data collection and computing have allowed the creation of powerful AI tools, which are rapidly becoming ubiquitous in modern life.[34] Beginning with the introduction of LLMs like OpenAI's ChatGPT in late 2022, similar tools were quickly followed by those from other big tech companies.[35]

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[29] Stein, *supra* note 18, at 920.
[30] David R. Martinez et al., *Artificial intelligence: short history, present developments, and future outlook, final report*, MIT LINCOLN LABORATORY REPORT at 8 (2019), https://www.ll.mit.edu/r-d/publications/artificial-intelligence-short-history-present-developments-and-future-outlook.
[31] *Id.* at 17-18.
[32] *Id.* at 8.
[33] *Id.* (estimating that 90% of data in 2019 had been created since 2017).
[34] Forbes Advisor, *22 top AI statistics and trends in 2024*, FORBES (Oct. 16, 2024), https://www.forbes.com/advisor/business/ai-statistics/ (finding that 72% of businesses have adopted AI tools for at least one function).
[35] Ketmanto Wangsa et al., *A Systematic Review and Comprehensive Analysis of Pioneering AI Chatbot Models from Education to Healthcare: ChatGPT, Bard, Llama, Ernie and Grok*, 16 FUTURE INTERNET 219 (2024), https://doi.org/10.3390/fi16070219 (other models from other big tech companies include Google's Bard, Baidu's Ernie, Facebook's Llama, and Xai's Grok); *see also* Rudolph, J.; Tan, S.; Tan, S. *War of the chatbots: Bard, Bing Chat, ChatGPT, Ernie and beyond. The new AI gold rush and its impact on higher education*, J. APPL. LEARN. TEACH. (Jan. 02, 2023) 6, 364–89,

Yet all these tools and the process of training them require a lot of energy.[36] AI development begins with training the language model to operate on a large preexisting dataset that programmers and trainers use to train the system.[37] Some systems take additional feedback from users to improve.[38] By studying the provided data, the language model will begin to recognize patterns and similarities in a continuous feedback loop while it absorbs more data points.[39] The more data the system absorbs, the more its capacity will grow.[40]

A language model continues to develop even after it is released to the public as a "consumer" product.[41] Unlike traditional algorithms, which generate outputs based on fixed weights attached to predetermined input variables, LLMs continuously adjust and adapt their output weights in response to patterns identified from user interactions and other feedback.[42]

Machine learning processes drive adaptability and allow the system to analyze the outcomes selected or preferred by the user, refine its internal parameters, and iteratively optimize its responses.[43] Unlike fixed algorithms, these evolving systems are designed to improve over time, becoming more accurate and contextually aware with each new data point they process.[44] This flexibility allows AI to handle complex, non-linear problems but also introduces challenges in predictability and interpretability, as the shifting nature of these systems makes it difficult to fully understand or trace how specific outputs are derived.[45]

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https://www.researchgate.net/publication/372689357_War_of_the_chatbots_Bard_Bing_Chat_ChatGPT_Ernie_and_beyond_The_new_AI_gold_rush_and_its_impact_on_higher_education.

[36] Tim Yarally et al., *Uncovering Energy-Efficient Practices in Deep Learning Training: Preliminary Steps Towards Green AI*, ARXIV (Mar. 24, 2023), https://arxiv.org/abs/2303.13972.

[37] 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, 438 (2019).

[38] *Id.*

[39] *Id.* at 439.

[40] *Id.*

[41] *Id.*

[42] *Id.*

[43] *Id.*

[44] *Id.*

[45] *Id.*

Because of the constantly shifting nature and complexity of the data, it is often impossible for experts to understand how a language model arrived at a particular output.[46] Datasets are so massive and intricate that it remains unclear why the language model returned the response or produced a certain result.[47] AI language models generate their content by processing vast amounts of information collected from the internet, including websites, articles, books, and other publicly available data.[48] These models identify patterns and relationships within this data, enabling them to generate responses that mimic human language.[49] However, because the training data is so extensive and constantly evolving, tracing how a specific piece of information influenced a particular output is nearly impossible.[50] The environmental impact of these processes is significant, as the demand for electricity to power the servers, cooling systems, and infrastructure supporting AI applications grows exponentially.[51] Without adequate policies or innovations to curb this energy use, LLMs risk becoming one of the most energy-intensive industries in the modern era.[52]

User data is the most important requirement for developing any LLM.[53] These large amounts of data have made LLMs nearly ubiquitous in modern personal home technology in a short amount of time.[54] While the availability of vast datasets has driven rapid advancements in AI applications, the infrastructure required to process and store this data introduces significant environmental and economic challenges.[55]

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[46] *Id.*
[47] *Id.*
[48] Tom B. Brown et al., *Language Models are Few-Shot Learners*, 33 ADVANCES IN NEURAL INFO. PROCESSING SYS. 1877 (2020), https://dl.acm.org/doi/pdf/10.5555/3495724.3495883.
[49] *Id.*
[50] *Id.*
[51] Karen Hao, *Training a Single AI Model Can Emit as Much Carbon as Five Cars in Their Lifetimes*, MIT TECH. REV. (June 6, 2019), https://www.technologyreview.com/2019/06/06/239031/training-a-single-ai-model-can-emit-as-much-carbon-as-five-cars-in-their-lifetimes/.
[52] *Id.*
[53] Yanisky-Ravid & Hallisey, 46 FORDHAM URB. L.J. at 439 (2019).
[54] Rudolph, *supra* note 26.
[55] Carole-Jean Wu et al., *Sustainable AI: Environmental Implications, Challenges and Opportunities*, ARXIV (Oct. 30, 2021), https://arxiv.org/abs/2111.00364.

For LLMs to make accurate inferences, a tremendous amount of processing power is necessary.[56] Particularly, storing large amounts of data requires massive data centers.[57] Each data center consumes a massive amount of energy.[58] Data center energy usage is estimated to be about two percent of the United States' total electricity usage and is expected to grow rapidly as more centers are built.[59] Data centers are one of the most energy-intensive building types, consuming ten to fifty times more energy than a typical commercial building space.[60] The largest data centers require more than 100 megawatts of power capacity—enough to power approximately 80,000 U.S. households.[61]

Nonetheless, large data centers remain a necessary byproduct of the training of these now-conventional AI tools.[62] Unsurprisingly, big tech companies like Amazon, Microsoft, Meta, and Google, which are at the forefront of the AI revolution, are also among the top ten largest data center companies.[63] As more companies seek to compete and develop their own AI tools, data centers will only continue to grow both in number and energy cost.[64] While state regulation of the environmental cost of data centers is possible,[65] federal agency regulation is the best method due to the large-scale and rapidly changing field of AI.[66] As the demand for data centers grows parallel to the expansion of AI technologies, the need for effective regulatory oversight becomes increasingly urgent.

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[56] Lin, *supra* note 8, at 14.
[57] *Id.*
[58] U.S. DEP'T OF ENERGY, *Data Centers and Servers*, (last visited Nov. 16, 2024), https://www.energy.gov/eere/buildings/data-centers-and-servers.
[59] *Id.*
[60] *Id.*
[61] Lin, *supra* note 8, at 14; *see also 2023: These Are the World's 12 Largest Hyperscalers*, DATA CENTER KNOWLEDGE (Feb. 7, 2023), www.datacenterknowledge.com/hyperscalers/2023-these-are-the-world-s-12-largest-hyperscalers (discussing the largest data centers in the world and their electrical cost).
[62] Mary Zhang, *Top 250 Data Center Companies in the World as of 2024*, DGTL INFRA (Jan. 14, 2024), https://dgtlinfra.com/top-data-center-companies/.
[63] *Id.*
[64] *Id.*
[65] *See* Alex Engler, *A comprehensive and distributed approach to AI regulation*, THE BROOKINGS INSTITUTION (Aug. 31, 2023), https://www.brookings.edu/articles/a-comprehensive-and-distributed-approach-to-ai-regulation/.
[66] Stein, *supra* note 18, at 921.

Congress already passed legislation on January 1, 2021: the National Artificial Intelligence Initiative Act (NAIIA) was passed with bipartisan support.[67] The NAIIA provides $10 billion for federal research and development over five years.[68] NAIIA established the National Artificial Intelligence Initiative (NAII), a federal agency tasked with sustaining AI research and development and coordinating with other Federal agencies regarding AI activities.[69] This task force is responsible for investigating the feasibility of creating a national AI research cyberinfrastructure, which would provide accessible computational resources and datasets to support AI research and development.[70] The NAII aims to democratize access to AI resources, fostering innovation and diversity in the AI research community.

Multi-agency cooperation would enable the NAII to work with other Federal agencies, such as the Federal Energy Regulatory Commission (FERC) and the U.S. Department of Energy's Office of Energy Efficiency & Renewable Energy (EERE), to regulate the creation and development of AI tools.[71] This cooperation is necessary to effectively enforce potential regulations of AI tools.[72] Two potential ways in which the NAII could regulate and reduce the environmental impact of AI tools are by first, compelling data sharing between big tech companies, and second, through certification requirements.[73]

a. Mandatory Data Sharing

One potential solution to mitigate the carbon footprint of AI development is through mandatory data sharing, which could reduce the need for excessive computing resources.[74] Large data centers are the drivers of the carbon footprint of

[67] H.R. REP. NO. 116-617, at 1210 (2020).
[68] *Id.*
[69] Lynne Parker**,** *National Artificial Intelligence Initiative*, U.S. DEP'T OF COM., PATENT & TRADEMARK OFF., at 2 (Jun. 29, 2022), https://www.uspto.gov/sites/default/files/documents/National-Artificial-Intelligence-Initiative-Overview.pdf.
[70] *Id.*
[71] *Id.* at 3.
[72] *Id.* at 3.
[73] Stein, *supra* note 18, at 919.
[74] *Id.* at 920.

AI tools; thus, reducing the number of data centers necessary to train new AI tools and allow current AI tools to continue to function would keep the environmental impact in check.[75] The best means to do so would be through federal regulations. Generally, federal regulations are likely to follow trends, and data sharing per federal regulations is not new, especially in the healthcare and financial sectors.[76]

One current area of federal regulation that requires compulsory data sharing is within the healthcare sector.[77] In concert, the 21st Century Cures Act and Cares Act of 2020 enabled the CDC and other federal agencies to compel the sharing of electronic health records, clinical trial data, and administrative claims during the COVID-19 pandemic.[78] Such data sharing meant that both private and public healthcare facilities were required to keep their data in certain standardized forms and communicate it to the CDC along with other federal agencies.[79] The mandatory data-sharing policy permitted the CDC to track how the COVID-19 pandemic was affecting different communities in real-time.[80] The compulsory data sharing to promote public health in the healthcare sector is a natural analogy to compulsory data sharing in the tech sector to reduce carbon emissions.[81] Compulsory data sharing during the COVID-19 pandemic demonstrates that data sharing requirements can increase efficiency and serve the public welfare.[82]

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[75] Stanley M. Besen, *Competition, Privacy, and Big Data*, 28 CATH. U.J.L. & TECH. 63, 77 (2020).
[76] Louis Dron et al., *Data Capture and Sharing in the COVID-19 Pandemic: A Cause for Concern*, 4 LANCET DIGIT. HEALTH 748, 748–56 (Oct. 2022), https://www.thelancet.com/action/showPdf?pii=S2589-7500%2822%2900147-9; *see also* CONSUMER FINANCIAL PROTECTION BUREAU, *Required Rulemaking on Personal Financial Data Rights* (Oct. 22, 2024) (to be codified at 12 C.F.R. pts. 1001 & 1033), https://files.consumerfinance.gov/f/documents/cfpb_personal-financial-data-rights-final-rule_2024-10.pdf.
[77] 45 C.F.R. § 170.205.
[78] Dron et al., *supra* note 76, at 748.
[79] *Id.*
[80] Dron et al., *supra* note 76.
[81] Michelle A. Williams & Gabriel Seidman, *Filling the gaps in U.S. health data*, HARVARD PUBLIC HEALTH (January 17, 2024) https://harvardpublichealth.org/policy-practice/the-u-s-public-health-data-system-is-weak-heres-how-we-fix-it/.
[82] *Id.*

Compulsory data sharing became vital during the COVID-19 pandemic.[83] The pandemic only heightened calls for increased data sharing to combat the risks of future pandemics and promote public health.[84] In the early days of the COVID-19 pandemic, public health officials were focused on addressing the crisis.[85] However, concerns over health data privacy created a barrier to decision-making.[86] The need for more data to inform better decisions was hindered by these privacy issues.[87] Advocates for greater sharing of public health data with agencies further highlight these problems.[88] Such advocates have pushed for state and local agencies to ensure that all health data is collected and stored in ways that make it easily transferable.[89] These efforts have also included making sure that privacy laws are manageable on the communication of vital health data.[90] Privacy laws in America are complicated, piecemeal, and often operate at both state and federal levels.[91] Greater synthesizing of the current data privacy laws could simplify the ability to share data in both the healthcare arena and among big tech companies as interest in AI grows.[92]

There are additional federal regulations that mandate data sharing in the financial sector.[93] The Consumer Financial Protection Bureau issued a requirement under Required Rulemaking on Personal Financial Data Rights (the "Requirement") on October 22, 2024, which mandated all financial institutions to share customers' data with other financial establishments at the request of the consumer.[94] Data

[83] Francis Collins, *Statement on Final NIH Policy for Data Management and Sharing*, NAT'L INSTS. OF HEALTH (Oct. 29, 2020), https://www.nih.gov/about-nih/who-we-are/nih-director/statements/statement-final-nih-policy-data-management-sharing.
[84] Cason Schmit, Brian N. Larson & Hye-Chung Kum, *Data Privacy in the Time of Plague*, 21 YALE J. HEALTH POL'Y L. & ETHICS 152 (Aug. 2022), https://scholarship.law.tamu.edu/facscholar/1661 at 156.
[85] *Id.*
[86] *Id.*
[87] *Id.*
[88] Williams & Seidman, *supra* note 81.
[89] *Id.*
[90] *Id.*
[91] Schmit et al, *supra* note 84 (explaining that there is no blanket privacy law in America and that different states have adopted different laws that cover some kinds of personal data and not others).
[92] Williams & Seidman, *supra* note 81.
[93] CONSUMER FINANCIAL PROTECTION BUREAU, *supra* note 76.
[94] *Id.*

sharing of this nature makes it easier for consumers to switch banks and for new companies to break into the banking market.[95] The Requirement allows customers to switch from established companies to newer ones while keeping their financial information for convenience.[96] Large financial institutions collect large amounts of data on their customers, allowing them to provide better services and products.[97] If such companies were allowed to hoard their data, it would prevent new companies from breaking into the market; failure to data share prohibits products and services from competing with the existing data-driven services and products of established large financial institutions.[98] By allowing customers to compel their banks to share data, new companies also benefit from the large data sets amassed by larger institutions.[99]

The data sharing requirements from the Consumer Financial Protection Bureau provide another compelling analogy for compulsory regulations among big tech companies aimed at reducing the energy costs of large data centers. The data sharing requirements seeks to grant consumers greater control over their data and foster increased competition within the financial sector.[100] While the goals of these data sharing requirements differ from those of regulating AI tool creation, which mandates data sharing to mitigate environmental impacts, the regulatory mechanisms operate in a similar way to those intended to reduce the carbon footprint of AI tools.[101] Nevertheless, the financial data sharing mechanics operate exactly the same as data sharing to reduce AI tools' carbon footprint by compelling private companies to share their data with each other.[102] Moreover, consumer control is emphasized in the proposed framework, which illustrates how the federal

[95] MORGAN LEWIS & BOCKIUS LLP, *CFPB Issues Final Rule on Personal Financial Data Rights* (Oct. 22, 2024), https://www.morganlewis.com/blogs/finreg/2024/10/cfpb-issues-final-rule-on-personal-financial-data-rights.
[96] *Id.*
[97] *Id.*
[98] *Id.*
[99] *Id.*
[100] *Id.*
[101] Stein, *supra* note 18, at 921.
[102] *Id.*

government could regulate and reduce the energy cost associated with training AI.[103] This example also highlights the broader benefits that data sharing could have regardless of the industry.[104]

Data sharing would not only significantly reduce the environmental impact of AI but also enhance competition and serve as an antitrust.[105] The antitrust benefits would assist in building momentum among the federal agencies to promote compulsory data sharing.[106] Exclusive control over large data centers makes it easier to exclude new competitors from emerging markets.[107] While it would obviously be simpler to provide incentives for companies to share data willingly, it may only sometimes be feasible due to the intense, limited competitive space and significant benefits gained by excluding new competitors.[108] Therefore, mandating data sharing as an antitrust measure could be a secondary benefit in addition to any environmental protection, making it easier for federal agencies to implement regulation in this area.[109]

i. Proposed Regulatory Body

An additional benefit of data sharing is that it puts data in the hands of the consumers.[110] A report by the Market Structure and Antitrust subcommittee has suggested that Congress should create a data regulator.[111] This proposed federal regulatory body, referred to as the Digital Authority, would have the power to compel data sharing for antitrust reasons.[112] Furthermore, the Digital Authority could set up

[103] Hossein Rahnama & Alex Pentland, *The New Rules of Data Privacy*, HARV. BUS. REV. (Feb. 25, 2022), https://hbr.org/2022/02/the-new-rules-of-data-privacy?form=MG0AV3.
[104] Besen, *supra* note 75, at 77.
[105] *Id.*
[106] *Id.*
[107] *Id.*
[108] *Id.* (drawing an analogy to the telecommunications industry that was compelled to require intercommunication for new competitors and that "firms with large amounts of data are also likely to be unwilling to share their data with their smaller competitors).
[109] *Id.*
[110] MARKET STRUCTURE & ANTITRUST SUBCOMM., COMM. FOR THE STUDY OF DIG. PLATFORMS, STIGLER CTR. FOR THE STUDY OF THE ECON. & THE STATE, *Report 9*, 88 (2019).
[111] *Id.*
[112] *Id.*

a mechanism that would allow consumers to choose to send their data directly from an existing big tech company to a new entrant in the field.[113]

Changing how data is managed is in line with the way data cultural perception is changing because massive amounts of data are beginning to be seen as a public good, similar to scientific knowledge.[114] The idea gaining traction is that data should not belong to a handful of companies, but instead, data should be freely shared for the common public benefit.[115] The new understanding of data could lend greater weight and momentum to the idea of compulsory data sharing.[116] Public support makes data sharing a promising possibility to curb the energy costs of AI tools.[117]

a. Certifications

A second solution would be to imitate food labeling that certifies certain products as green or environmentally friendly.[118] One such labeling system is the organic food labels organized and run by the Food & Drug Administration (FDA) and the United States Department of Agriculture (USDA).[119] Both the FDA and USDA provide ways for farms or processing facilities to sell and represent their products as organic.[120] To obtain the organic label, organic food companies are required to submit reports to a USDA agent and permit inspections of their facilities to ensure compliance.[121] Many companies go through this process in order to obtain benefits.[122] Some benefits of organic certification include greater marketing power, the ability to

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[113] *Id.*
[114] Dana Dalrymple, *Scientific Knowledge as a Global Public Good: Contributions to Innovation and the Economy,* THE ROLE OF SCIENTIFIC AND TECHNICAL DATA AND INFORMATION IN THE PUBLIC DOMAIN: PROCEEDINGS OF A SYMPOSIUM (2003), https://www.ncbi.nlm.nih.gov/books/NBK221876.
[115] *Id.*
[116] *Id.*
[117] *Id.*
[118] *Id.*
[119] Kyle W. Lathrop, *Pre-Empting Apples with Oranges: Federal Regulation of Organic Food Labeling*, 16 J. CORP. L. 885, 887 (1991).
[120] *Organic Certification and Accreditation,* U.S. DEP'T AGRIC., https://www.ams.usda.gov/services/organic-certification (last visited Nov. 16, 2024).
[121] *Becoming a Certified Operation*, U.S. DEP'T AGRIC., https://www.ams.usda.gov/services/organic-certification/becoming-certified (last visited Nov. 16, 2024).
[122] *Id.*

sell food at higher prices, and access to funding and technical assistance that is not otherwise available.[123]

A similar certification was proposed by the Allen Institute, labeling carbon-neutral AI as "green" and non-carbon-neutral AI as "red."[124] The AI labels would operate by signaling to consumers which products are better for the environment and incentivize companies to develop energy-efficient AI.[125] Requirements for certification include algorithm, hardware, data center optimization, and pragmatic scaling.[126] Algorithm optimization is the design of optimization techniques that reduce the computational resource requirements and minimize energy consumption.[127] Hardware optimization would require AI models to be trained on more computationally efficient hardware.[128] Requiring "green" AI tools to be trained on data that optimize resource allocation, consuming as little energy as possible, could help to reduce the large carbon footprint of these data centers.[129]

Lastly, the fourth requirement for "green" AI would be to either optimize scaling or limit the number of times a LLM runs during its training process.[130] The more a LLM is trained on a data set, the more energy-costly it becomes, and the complexity increases.[131] Despite this, as AI consumes more energy, it improves less from being run through the *same* data set.[132] The result is that the most energy-intensive part of training a LLM is also the one from which the system's usefulness improves the least.[133] Having a more pragmatic approach to scaling the LLM as it gains in complexity produces a reduction in the overall energy cost of developing the

[123] *Benefits of Organic Certification*, U.S. DEP'T AGRIC., https://www.ams.usda.gov/services/organic-certification/benefits (last visited Nov. 16, 2024).
[124] *Id.*
[125] *Id.*
[126] Verónica Bolón-Canedo et al., *A review of green artificial intelligence: Towards a more sustainable future*, 599 NEUROCOMPUTING 128096 (Sept. 28, 2024).
[127] *Id.*
[128] *Id.*
[129] *Id.*
[130] *Id.*
[131] *Id.*
[132] Bolón-Canedo, *supra* note 120.
[133] *Id.*

AI tool.[134] The "green" labeling incentives would greatly reduce the cost of training AI tools and could be imposed similarly to the "organic" food label.[135]

Certification of AI tools as "green" would have a similar impact to organic food labeling.[136] The certification would inform consumers of the environmental costs of the products they are using while incentivizing developers of AI tools to take a more energy-efficient approach in training their LLM.[137] Both organic food labeling and certification of AI tools would have similar goals in that both grant consumers more information about products, allowing them to make environmentally beneficial choices.[138]

Although there is an element of personal safety and health in food consumption, there is also a personal health and safety element in the use of AI tools that are rapidly becoming extensions of us.[139] While both organic food labeling and AI tool certifications aim to empower consumers, there are additional considerations for AI tools that go beyond environmental concerns, particularly regarding safety and the risk of misinformation.[140] AI tools can be trained on "bad" sets of data, resulting in biased outputs, or AI tools can fall into the hands of bad actors who steal personal data and spread misinformation.[141] Using the certification, a "green" certification for an AI tool could offer not only a more environmentally friendly option but also reassurance that a Federal agency oversees the development of the LLM.[142] The

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[134] *Id.*
[135] *Id.*
[136] Jingwen Zhang et al., *Certification Labels for Trustworthy AI: Insights from an Empirical Study*, PROCEEDINGS OF THE 2023 CHI CONFERENCE ON HUMAN FACTORS IN COMPUTING SYSTEMS at 1, 1–12 (2023), https://doi.org/10.1145/3593013.3593994.
[137] U.S. DEP'T AGRIC., *supra* note 97.
[138] *Id.*
[139] Patrick Ross & Kathryn Spates, *Considering the Safety and Quality of Artificial Intelligence in Health Care*, 46 JT. COMM. J. QUAL. PATIENT SAF. 596–599 (Aug. 9, 2020), https://pmc.ncbi.nlm.nih.gov/articles/PMC7415213/pdf/main.pdf,
[140] Scott Monteith et al., *Artificial intelligence and increasing misinformation*, 224 THE BRITISH JOURNAL OF PSYCHIATRY 33-35 (2024), https://www.cambridge.org/core/services/aop-cambridge-core/content/view/DCCE0EB214E3D375A3006AA69FFB210D/S0007125023001368a.pdf/artificial-intelligence-and-increasing-misinformation.pdf.
[141] Katharine Miller, *Privacy in an AI Era: How Do We Protect Our Personal Information?*, STANFORD UNIVERSITY: HUMAN-CENTERED ARTIFICIAL INTELLIGENCE (Mar. 18, 2024), https://hai.stanford.edu/news/privacy-ai-era-how-do-we-protect-our-personal-information.
[142] Zhang, *supra* note 130.

"green" certification can ensure that the AI model has not only met the environmental requirements but that the developers are not bad actors.[143]

III. ANALYSIS

The two methods mentioned above of regulating the environmental cost of AI tools, certification requirements, and compulsory data sharing both have great potential to curb AI's growing carbon footprint by addressing energy-intensive practices inherent to AI training and deployment.[144] In determining the most effective method, it is important to consider that each method has its own strengths and weaknesses.

Overall, the strength of compulsory data sharing is that it is more likely to reduce the carbon footprint of AI tools instantly and effectively if adequately enforced. However, this method would be much more difficult to enforce and may even run afoul of the major questions doctrine, which will be explored in further detail below.

Certifications, on the other hand, are likely to be much easier to enforce but may not decrease emissions enough to be more effective.[145] A "green" certification may even backfire and result in "greenwashing."[146] Greenwashing refers to the practice of making misleading claims about the environmental benefits of a product or service to attract environmentally conscious consumers.[147] In the context of AI, greenwashing could occur if companies falsely label their tools as environmentally friendly to improve their public image without actually making meaningful changes to reduce their carbon footprint.

In the end, it is more likely that federal agencies will introduce a "green" certification for AI tools before adopting a mandatory data-sharing requirement due to the difference in the ease of execution. Mandatory data sharing can effectively minimize the environmental cost of AI by reducing the need for redundant data

[143] Stein, *supra* note 18, at 920.
[144] Lin, *supra* note 8, at 17.
[145] Zhang, *supra* note 130.
[146] *Id.*
[147] *Id.*

processing and training efforts across different organizations. By pooling data resources, companies could limit duplicative energy usage and optimize AI training processes.[148] Such pooling could spur innovation while reducing the construction of redundant and unnecessary energy-hungry data centers.[149]

Enforcing data sharing through a federal regulation could further serve as an antitrust mechanism by limiting the power of large tech companies that have amassed substantial data resources.[150] Data sharing would enable smaller competitors to leverage existing datasets, creating a more inclusive and competitive market and preventing a few large tech companies from monopolizing data-driven advantages.[151] Allowing new entrants and smaller firms to access comparable datasets could foster competition, spur innovation, and potentially reduce the number of data centers required to support AI development.[152] Data sharing's benefit as an antitrust measure would further simplify its implementation.

Mandating data sharing, however, raises significant privacy and security issues.[153] Data is often sensitive, and sharing it across companies increases the risk of breaches and misuse.[154] A number of high-profile data breaches have only decreased trust in the security of data.[155] Developing robust mechanisms to ensure data protection and privacy compliance would be challenging, potentially stalling efforts to implement this regulation.[156]

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[148] Abdulaziz Tabbakh et al., *Towards Sustainable AI: A Comprehensive Framework for Green AI*, Springer Journal of AI Research (2024), https://link.springer.com/article/10.1007/s43621-024-00641-4.
[149] *Id.*
[150] Denise Hearn et al., *Antitrust and Sustainability: A Landscape Analysis*, COLUMBIA LAW SCHOOL: COLUMBIA CENTER ON SUSTAINABLE INVESTMENT (2024), https://ccsi.columbia.edu/sites/default/files/content/docs/Antitrust-Sustainability-Landscape-Analysis.pdf.
[151] *Id.*
[152] *Id.*
[153] Jaspreet Bhatia & Travis D. Breaux, *Privacy Risk in Cybersecurity Data Sharing*, 2018 PROC. ACM WORKSHOP ON PRIVACY IN THE ELEC. SOC'Y 113 (2018), https://dl.acm.org/doi/pdf/10.1145/2994539.2994541.
[154] *Id.*
[155] Svetlana Abramova & Rainer Böhme, *Anatomy of a High-Profile Data Breach: Dissecting the Aftermath of a Crypto-Wallet Case*, ARXIV (2023), https://arxiv.org/abs/2308.00375.
[156] *Id.*

Even more problematic, regulations requiring companies to share proprietary data could be considered excessive government intervention in the tech industry.[157] Compulsory data sharing would likely face stiff resistance from corporations and even privacy advocates.[158] Concerns of government overreach, market disruption, and the unintended consequences of regulatory mandates would likely be difficult to assuage in the early stages of regulation of AI.

Promoting regulations that compel tech companies to share data may face significant legal challenges under the major questions doctrine. This legal principle restricts federal agencies from making decisions that exceed the historical and statutory scope of their authority without explicit congressional authorization.[159] The doctrine applies when an agency's action carries vast "economic and political significance," raising concerns about whether the agency has overstepped its legal bounds.[160]

One critical issue is the immense value associated with American data. Recent estimates place the total worth of U.S. data at approximately three trillion dollars, underscoring the substantial economic impact of any regulation that mandates data sharing among big tech companies.[161] Such a regulation would not only affect the financial structure of the tech industry but would also carry considerable political implications, as it could reshape how personal and public data are controlled and used. Therefore, the regulation would likely implicate the "economic and political significance" threshold under the second step of the major questions doctrine analysis.[162]

For an agency to enforce a mandatory data-sharing rule where the major questions doctrine is implicated, it must demonstrate a clear statutory mandate that

[157] Hearn et al., *supra* note 144.
[158] *Id.*
[159] Nathan Richardson, *The New Major Questions Doctrine*, 109 VA. L. REV. 923 (2023), https://virginialawreview.org/wp-content/uploads/2023/09/Deacon_Litman_Book_Revised.pdf.
[160] W. Va. v. Env't. Prot. Agency, 597 U.S. 697, 700 (2022).
[161] *See* S.O., Mai, JE. *The Ethics of Sharing: Privacy, Data, and Common Goods*, 2 DISO 28 (2023), https://link.springer.com/article/10.1007/s44206-023-00057-z.
[162] *W. Va. v. Env't. Prot. Agency*, 597 U.S. at 700.

authorizes such sweeping action.[163] Moreover, the agency must show a history of implementing similarly significant regulations—especially those involving billions of dollars—to substantiate its authority.[164] Without these elements, the regulation could face judicial scrutiny and potentially be invalidated for exceeding the agency's statutory mandate.[165]

The NAIIO, the agency established by Congress under the NAIIA,[166] would likely be unable to enact such a regulation because its mandate is limited to the following purposes:

1. Provide technical and administrative support to the Select Committee on AI (the senior interagency committee that oversees the NAII) and the National AI Initiative Advisory Committee;
2. Oversee interagency coordination of the NAII;
3. Serve as the central point of contact for technical and programmatic information exchange on activities related to the AI Initiative across federal departments and agencies, industry, academia, nonprofit organizations, professional societies, state and tribal governments, and others;
4. Conduct regular public outreach to diverse stakeholders and
5. Promote access to technologies, innovations, best practices, and expertise derived from Initiative activities to agency missions and systems across the federal government.[167]

The NAIIO's mandate limits the organization's powers to coordination and promotion rather than regulation, and certainly would not be able to regulate mandatory data sharing.

However, other agencies, such as the Federal Trade Commission (FTC), the Department of Energy (DOE), and the Environmental Protection Agency (EPA),

[163] Richardson, *supra* note 153.
[164] *Id.*
[165] *Id.*
[166] H.R. REP. NO. 116-617, *supra* note 67, at 1210.
[167] *Id.*

would be a different story.[168] These agencies have broad statutory mandates and have historically imposed massive regulations that have significantly affected the economy.[169] Because mandatory data sharing implicates significant financial costs and necessarily shifts the legal framework of data, it would, at the very least, trigger a major questions doctrine challenge.[170] Though mandatory data sharing is sure to reduce the carbon footprint of AI tools significantly, it remains a less attractive option to federal regulatory agencies.

On the other hand, a certification program for AI tools would be much more in line with Congress's intent in creation NAIIO of working with environmental and energy regulatory bodies.[171] NAIIO would establish "green" certification criteria, emphasizing energy efficiency, carbon-neutral practices, and transparency.[172] Compliance could be incentivized through consumer labeling, public recognition, and potential tax benefits. This approach is more politically palatable, as it encourages voluntary compliance and public engagement while minimizing regulatory burdens.[173]

Moreover, parallels already exist in other certifications, such as the "organic" food label.[174] The current certification system is minimally intrusive as it does not mandate companies to share sensitive or proprietary data but rather focuses on the output characteristics of AI tools.[175] Such an output provides flexibility and allows companies to choose their own paths to compliance.[176] Certification standards could encourage companies to adopt "best practices" in algorithm optimization, hardware

[168] Ann E. Ferris et al., *The Impacts of Environmental Regulation on the U.S. Economy,* OXFORD RESEARCH ENCYCLOPEDIA OF ENVIRONMENTAL SCIENCE (Sept. 26, 2017), https://oxfordre.com/environmentalscience/view/10.1093/acrefore/9780199389414.001.0001/acrefore-9780199389414-e-396.
[169] *Id.*
[170] Richardson, *supra* note 153.
[171] *Id.*
[172] Lin, *supra* note 8, at 20.
[173] Lin, *supra* note 8, at 21.
[174] *See* Zhang, *supra* 130.
[175] *See* Tabbakh, *supra* note 149.
[176] *Id.*

efficiency, and energy-conscious data management without directly disrupting business models.[177]

A green certification program can drive demand for more environmentally friendly AI products as it signals to consumers which AI tools meet specific environmental standards. Such a market-driven approach leverages consumer power to reward companies that prioritize energy efficiency, therefore creating a competitive advantage for certified products. The expected resulting public pressure and potential profitability from meeting the certification requirements will encourage tech companies to strive for greener solutions and foster a culture of sustainability within the industry.

While there is a concern that certification could lead to "greenwashing"—where companies exaggerate or misrepresent the environmental benefits of their products to meet consumer demand without making substantial changes to their operations, this arises only where there are weak standards, inadequate oversight, or a lack of transparency.[178] Greenwashing undermines the credibility and effectiveness of any certification, limiting its ability to drive genuine environmental improvement.[179] The risk can be minimized with proper oversight and a system for verifying the effectiveness of carbon capture or offset programs for AI training and applications and addressing green-washing concerns.[180]

IV. CONCLUSION

Ultimately, both mandatory data sharing and "green" certification have substantial potential to mitigate the negative environmental impact of AI technologies, but they offer different paths forward. While mandatory data sharing can potentially reduce the carbon footprint of AI tools through immediate

[177] *Id.*
[178] *Id.*
[179] *Id.*
[180] U.S. DEP'T OF COMMERCE: NAT'L INST. OF STANDARDS & TECH., *Artificial Intelligence Risk Management Framework: Generative Artificial Intelligence Profile* 37 (July 2024), https://nvlpubs.nist.gov/nistpubs/ai/NIST.AI.600-1.pdf.

optimization of data usage, it faces significant hurdles in enforcement and legal challenges, such as those posed by the major questions doctrine. The economic and political significance of requiring companies to share proprietary data also raises concerns about the feasibility of such regulations. These challenges highlight the potential difficulties in implementing such a system without clear congressional authorization or a history of similar regulations.

On the other hand, the "green" certification model offers a more politically viable and administratively feasible alternative. Certification would allow for the rapid adoption of environmentally conscious practices without imposing overly burdensome regulatory requirements on companies. Certification aligns with the current legal and market landscape by incentivizing voluntary compliance through consumer labeling, public recognition, and potential tax benefits. It allows companies to maintain flexibility while encouraging them to adopt energy-efficient practices and reduce their carbon footprints in a competitive manner. Moreover, similar certification programs, such as the "organic" food label, suggest that this model can effectively encourage positive environmental behavior without significant disruptions to current business models.

Despite concerns about the risk of "greenwashing," the certification approach provides a viable solution to the challenge of fostering a more sustainable AI industry. The key to minimizing greenwashing lies in developing robust and transparent standards, along with proper oversight to ensure compliance. With consumer demand for environmentally friendly products on the rise, the certification system could create a competitive advantage for companies prioritizing sustainability. This would reduce the environmental costs associated with AI and promote a broader cultural shift towards sustainability in the tech industry.

While data sharing remains an important long-term goal, the political, legal, and practical challenges make it less likely to be implemented in the short term. As the AI industry grows, there may be increasing public and political support for stronger regulatory measures that could address data usage and environmental concerns more comprehensively. However, the likely path forward is through

incremental steps, with certification programs taking precedence due to their ease of implementation, lower political resistance, and the ability to generate immediate consumer-driven outcomes.

THE CLIMATE RULE CONUNDRUM: SEC'S CLIMATE RULE FACES THE MAJOR QUESTIONS DOCTRINE

Dayen Wilson[1]

Table of Contents

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I. INTRODUCTION

The Securities and Exchange Commission ("SEC" or "Commission") has promulgated a final rule which it calls "The Enhancement and Standardization of Climate-Related Disclosures Rule" ("Climate Rule").[2] The Climate Rule was released after an extensive two-year comment period where the SEC received over 4,500 unique comment letters and over 18,000 form letters to the proposed Climate Rule.[3] The Climate Rule's overall purpose is to standardize the materially significant climate-related disclosures made by public companies in their SEC filings.[4] Since the publication of the Final Climate Rule, the SEC has ordered a stay of the Climate Rule, issued on April 4, 2024.[5] The stay was issued as a result of a variety of challenges to the Climate Rule, which were filed in courts around the nation.[6] In issuing the stay, the SEC maintains that the Commission has the authority to promulgate the new Climate Rule and that it is consistent with the applicable law under which it was promulgated.[7] If the Climate Rule was allowed to go into effect, the SEC claims it would provide investors with detailed comparable information about climate-related risks faced by publicly traded companies.[8] Those companies affected by the rule would face major challenges and costs in trying to comply with the Climate Rule.[9]

Following the Great Depression, lawmakers sought to protect the U.S. economy, the capital markets, and investors.[10] As a result, the SEC was created

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[2] The Enhancement and Standardization of Climate-Related Disclosures for Investors, Securities Act Release No. 33-11275, Exchange Act Release No. 34-99678, 89 Fed. Reg. 24668 (Mar. 28, 2024).
[3] *The Enhancement and Standardization of Climate-Related Disclosures: Final Rules Fact Sheet*, U.S. SECURITIES AND EXCHANGE COMM'N (Mar. 6, 2024), https://www.sec.gov/files/33-11275-fact-sheet.pdf; Securities Act Release No. 33-11275, *supra* note 2.
[4] Securities Act Release No. 33-11275, *supra* note 2.
[5] In the matter of the Enhancement and Standardization of Climate-Related Disclosures for Investors, Securities Act Release No. 118280, Exchange Act Release No. 99908, (Apr. 4, 2024).
[6] *Id*.
[7] *Id*.
[8] Securities Act Release No. 33-11275, *supra* note 2.
[9] Complaint, at 19, Liberty Energy, Inc. v. SEC, No. 3:24-cv-739, WL No. 24-60109 (5th Cir. Mar. 28, 2024) (alleging that it would have to spend $4.1 billion for the market to comply, making it unduly difficult to make sense of the definitions in the rule).
[10] *Mission*, U.S. SECURITIES AND EXCHANGE COMM'N, https://www.sec.gov/about/mission (last visited Dec 2, 2024).

through the adoption of the Securities Exchange Act of 1934.[11] In crafting the act, Congress specifically designed mandatory disclosure policies which forced public "companies to disclose information that investors would find pertinent to making investment decisions."[12] It fell on the SEC to decide what was to be included in the required disclosures and to enforce them.[13] As the technologies and the environment that surrounds capital markets continues to evolve, the SEC's mission requires it to continually monitor the market conditions and adapt rules and regulations to effectively fulfill its duty to investors.[14]

The disclosure requirements mandated by the Securities Exchange Act of 1934 span a wide range of topics.[15] The topics are designed to help inform investment decisions, which include but are not limited to, "the company's officers and directors, the company's line of business, audited financial statements, and the management discussion and analysis sections."[16] At the time of the creation of the SEC and accompanying disclosure rules, the focus of Congress was to prevent the securities fraud that resulted in the Great Depression.[17] However, since then, the SEC has broadened the scope of its disclosure rules.

The second part of this article will briefly describe the history of the SEC and the authority that the Commission has to make rules regarding disclosures. The third part will then focus on the Climate Rule promulgated by the SEC. The fourth part will discuss the arguments raised by plaintiffs that have challenged the Climate Rule. Finally, this article will discuss the strengths and weaknesses of the argument that the Climate Rule violates the Major Questions Doctrine.

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[11] *The Laws that Govern the Securities Industry*, INVESTOR.GOV, https://www.investor.gov/introduction-investing/investing-basics/role-sec/laws-govern-securities-industry (last visited Apr. 15, 2025)

[12] *Securities Exchange Act of 1934*, LEGAL INFORMATION INSTITUTE, https://www.law.cornell.edu/wex/securities_exchange_a ct_of_1934 (last visited Dec 2, 2024).

[13] Alexander Thornton & Tyler Gellasch, *The SEC Has Broad Authority to Require Climate and Other ESG Disclosures*, CAP 20 (Jun. 10, 2021), https://www.americanprogress.org/article/sec-broad-authority-require-climate-esg-disclosures/.

[14] Securities Act Release No. 33-11275, *supra* note 2.

[15] Investor.gov, *supra* note 11.

[16] *Id*.

[17] Russell B. Stevenson Jr.*, SEC and the New Disclosure*, 62 CORNELL L. J. 50, 51, 1976 (discussing the importance of the initial creation of disclosure requirements).

II. BACKGROUND

The SEC's authority to create disclosure requirements stems from the mission of the Commission.[18] A cornerstone of the SEC's mission is to protect the investing public.[19] One method of doing this is by requiring the accurate disclosure of information that is either desired or important to investors, specifically, as it relates to risks, creating fairness, transparency and confidence in the capital markets.[20] As such, the Commission has broad authority to promulgate rules to carry out this mission.[21] Furthermore, the 1933 Securities Act and the Securities and Exchange Act of 1934 have provisions which generally state that the SEC may require the disclosure of information that the Commission deems to be "necessary or appropriate in the public interest for the protection of investors."[22] In particular, as far back as the 1970s, courts have recognized that information about public companies' environmental impact may or may not be material to investors in making their investment decisions. [23]

In 1973, the SEC issued guidance, which described how disclosure forms issued by publicly traded companies should disclose the material effects that compliance with state and federal laws would have on the companies' capital expenditure, earnings, and competitive positions of the company.[24] This change is one of the first where the SEC's proposed rules formally attempted to expand the definition of "necessary" and "appropriate" beyond a previously narrow economically focused definition.[25] Following this action by the SEC, there was extensive litigation and public hearings.[26] In 1976, the Commission changed its prior position and withdrew

[18] Thornton & Gellasch, *supra* note 13.
[19] Securities Act Release No. 33-11275, *supra* note 2.
[20] *Id*.
[21] *Id*. at 21683.
[22] Stevenson Jr., *supra* note 17, at 58.
[23] *Id.*, at 53, 59 (discussing the language of the opinion in the case of *NRDC v. SEC* where the court stated that it is "not prepared to say that [ethical investors] are not rational investors and the information they seek is not material information within the meaning of securities laws").
[24] *Id.* at 54.
[25] *Id.* at 58 (describing the narrow definition of "necessary and appropriate" as being limited to economically relevant information that is significant enough to be considered material).
[26] *Id.* at 57.

the proposed changes to the rules.[27] What followed was a limited mandate for the disclosure of "material environmentally-related capital expenditures" which would have had to be disclosed in any event under the previous rules as material expenditures.[28]

In 2010, the SEC released guidance, rather than a rule,[29] on climate-related information as it was to appear in disclosures.[30] The guidance stated that it served as a reminder to publicly traded companies of their obligations under securities laws and regulations to consider the climate and its consequences when they prepared documents filed with the SEC.[31] Additionally, in the very same guidance document, the Commission stated that it would monitor the change in disclosures by publicly traded companies to determine whether "further guidance or rule making relating to climate change disclosure is necessary or appropriate in the public interest or for the protection of investors."[32] Since the 2010 guidance, the SEC has monitored a growing recognition that the risks related to climate change are affecting public companies and their finances which ultimately has an impact on investors. [33]

Twelve years later, in 2022, the SEC proposed a rule ("proposed Climate Rule"), which would have required publicly traded companies to disclose enhanced climate-related information in their registration statements and annual reports.[34] The proposed Climate Rule included information about climate-related financial risks and climate-related financial metrics in a company's financial statements.[35] In the

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[27] *Id*.
[28] *Id*.
[29] Commission Guidance Regarding Disclosure Related to Climate Change, 17 C.F.R. § 211, 231, 241 (2010).
[30] *General Policy Statements: Legal Overview*, CONGRESSIONAL RESEARCH SERVICE, https://crsreports.congress.gov/product/pdf/R/R44468 (last updated Apr. 14, 2016), (explaining that "set regulatory policy" and are exempt from APA rule making protocols, however, legislative rules are the actual laws promulgated by agencies which follow the APA rule making procedures).
[31] Commission Guidance, *supra* note 29.
[32] *Id*. at 28.
[33] Securities Act Release No. 33-11275, *supra* note 2.
[34] The Enhancement and Standardization of Climate-Related Disclosures for Investors, Securities Act Release No. 33-11042, Exchange Act Release No. 34-94478, 87 Fed. Reg. 21334 (proposed Apr. 11, 2022).
[35] *Id*.

proposed Climate Rule, the Commission stated a wide variety of stakeholders wanted this information and, in proposing the Climate Rule, the Commission stated that it had the authority to require disclosure of climate-related risks.[36] In its support of the proposed Climate Rule, the SEC cited a number of factors.[37]First, severe weather events damaged assets, disrupted operations and increased costs.[38] Second, evolving regulations and changes in consumer preference called for disclosure.[39] For example, the proposed Rule cited to a number of articles that expressed the evolution and rise of the electric car market, how Wall Street has made bets on carbon removal and how Blackrock was managing the NetZero transition.[40] The proposed Climate Rule attempted to standardize reporting on climate risks, by requiring the specific facts and circumstances of the disclosing company and how the company addressed or planned to address such risks.[41] The SEC stated that the Rule expanded on the regulations from the 1970s and the guidance issued on climate-related disclosures in 2010.[42] The publication of the proposed Climate Rule stated that business related climate impacts had become increasingly well-documented and the data showed that these risks had grown to pose a greater threat to individual businesses and the overall economy.[43]

Following the publication of the proposed Climate Rule, the SEC reviewed 4,500 unique comment letters and 18,000 form letters, displaying an enormous amount of public engagement, which the Commission recognized as a benefit when the crafting the final Climate Rule.[44] When the Commission published the final Climate Rule on the March 6, 2024, it stated that the Final Rule seeks to balance opposition to the Rule set forth in the comment letters, investor's need for information

[36] *Id*.
[37] *Id*.
[38] *Id*.
[39] *Id*.
[40] *Id.*
[41] *Id.*
[42] *Id*.
[43] *Id*.
[44] Securities Act Release No. 33-11275, *supra* note 2.

and the financial burden imposed on reporting companies.[45] The release of the final Climate Rule, created by the SEC, states that it is clear from the responses to the proposed Climate Rule that investors seek to understand and evaluate how public companies assess, measure and respond to climate risks. [46] In summary, the final Climate Rule requires public companies to disclose information about climate-related risks and impacts that have been identified internally.[47] The identified risks must have a material effect on the company's strategies or activities.[48] Furthermore, the company must also report on processes to mitigate impacts of identified climate risks, any transition plans the company has in place, oversight by the board of directors as it relates to climate risk and climate-related targets or goals that may have an effect on the business of the company.[49] The Climate Rule claims that many companies already collect and distribute the above information and, as such, it should not pose too substantial of a burden on the affected companies. [50]

The Climate Rule was, almost immediately, met with petitions seeking review in courts throughout the nation.[51] Following these challenges, the Commission determined that it would use its discretion in staying the Climate Rule pending judicial review.[52] The Commission noted that despite the decision to stay the Climate Rule, it is of utmost conviction that the Rule will survive the various challenges or petitions for review.[53] Opponents of the Climate Rule, on the other hand, assert a variety of arguments against the Rule; the three main arguments asserted are: that the Climate Rule violates the Major Questions Doctrine, that the Rule is arbitrary and capricious, and that the Rule violates the First Amendment.[54]

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[45] *Id.*
[46] *Id.*
[47] *Id.*
[48] *Id.*
[49] *Id.*
[50] *Id.*
[51] In the Matter of the Enhancement and Standardization of Climate-Related Disclosures for Investors, Securities Act of 1933, Order Issuing Stay Release No. 11280, Securities and Exchange Act of 1934 Release No. 99908 (Apr. 4, 2024).
[52] *Id.*
[53] *Id.*
[54] Opening Brief for Petitioner at 11, Liberty Energy, Inc. v. SEC, No. 24-1624 (8th Cir. June 21, 2024).

III. THE CLIMATE RULE – THE ENHANCEMENT AND STANDARDIZATION OF CLIMATE-RELATED DISCLOSURES FOR INVESTORS

In the preamble, the Climate Rule cites Section 7(a)(1) of the Securities Act of 1933, where Congress authorizes the Commission to require a public registration statement that includes a wide variety of financial information—meaning any information the Commission may deem necessary or appropriate for the public interest or protection of investors.[55] Additionally, the Commission cites Section 12(b) and (g) of the Exchange Act, which allows the Commission to require companies that meet certain criteria to disclose any information the Commission deems necessary and appropriate.[56] In citing the above sections, the Commission asserts in the Climate Rule that Congress not only authorizes such a rule to be promulgated but also allows the Commission to update and build on its framework of disclosure information for the protection of investors.[57]

The SEC states that the Climate Rule is rooted in the understanding that natural disasters or severe weather events and impacts can have serious effects on the finances, operations, and overall position of public companies.[58] It was also constructed with the intention of creating standardized disclosure requirements for public companies within the U.S.[59] The Commission's stated goal of the Climate Rule is to provide investors with consistent, comparable, and reliable information to aid in making well-informed investment decisions.[60] The SEC noted that "the Commission has amended its disclosure requirements many times over the last 90 years based on the determination that the required information would be important to investment and voting decisions."[61] Additionally, as described above, the Commission has required disclosures about matters which relate to the environment for the last 50

[55] Securities Act Release No. 33-11275, *supra* note 2.
[56] *Id.*
[57] *Id.*
[58] *Id.*
[59] *Id.*
[60] *Id.*
[61] Final Rules Fact Sheet, *supra* note 3.

years.[62] This new Climate Rule was presented as a continuation of the Commission's efforts to respond to investors needs for standardized information.[63] Specifically in this case the SEC claims that, the Rule furthers the Commission's efforts in recognizing the financial impacts of climate-related risk and how companies are managing those risks. [64]

In the discussion of the Climate Rule's purpose and overview, the Commission noted that the framework of the disclosures aims to make compliance with the Rule easy for public companies. The proposed Climate Rule was modeled after the Task Force on Climate-related Financial Disclosure ("TCFD") framework, which provided four themes that companies would need to report on, including governance, strategy, risk and management and metrics targets.[65] This conscious decision was made by the Commission as many of the affected companies at the time were familiar with the TCFD framework and were voluntarily making such disclosures with the TCFD.[66]

The content of the Climate Rule requires reporting on an expansive set of climate-related issues.[67] The new disclosures can be separated into disclosures that appear as footnotes to the financial statements and disclosures that are made outside of the financial statements.[68] Disclosures in the financial statements display the financial impact of climate risks and strategies companies employ to achieve climate-related goals. Financial statement disclosures also include the effects of severe weather events or other natural conditions, which must be noted regardless of if they are caused by climate change.[69] It is also noteworthy that the Rules do not define

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[62] *Id*.
[63] *Id*.
[64] *Id*.
[65] *Id.* (noting how the TCFD is an industry-led task force charged with promoting better-informed investment, credit, and insurance underwriting decisions, the disclosure framework it established is designed to elicit information that provides a clearer understanding of climate-related risks to companies, helping investors make better decisions).
[66] *Id*.
[67] Securities Act Release No. 33-11275, *supra* note 2.
[68] Deloitte, *Executive Summary of the SEC's Landmark Climate Disclosure Rule*, HEADS UP, Vol. 31 Issue 4 (Mar. 15, 2024) (last updated Apr. 8, 2024), https://dart.deloitte.com/USDART/home/publications/deloitte/heads-up/2024/sec-climate-disclosure-rule-ghg-emissions-esg-financial-reporting.
[69] Deloitte, *supra* note 68, at 2.

what constitutes a severe weather event but rather provides a non-exhaustive list of what *may* be deemed a severe weather event.[70] As a result of the non-exhaustive list, companies have to create an accounting policy to determine what qualifies as such an event.[71]

Additionally, disclosures regarding Carbon Offsets and Renewable Energy Credits or Certificates ("RECs") must be included as footnotes to the financial statements of companies affected by the Rule.[72] Companies are required to provide disclosures as to RECs when the company uses RECs as a material component of achieving the company's disclosed climate targets or goals.[73]

Separately, there are additional disclosure requirements that are made outside of the financial statements.[74] The non-financial statement disclosures are said to provide greater insight for investors as to how the board and management oversee how the company approaches climate-related risks.[75] These disclosures are related to governance, strategies, transition plans, and climate risk management in addition to many others.[76] As an example, a company must disclose information about how the board manages climate-related risks through committees, processes, and any formal programs.[77] Many of these disclosures are situation dependent and can vary widely depending on the nature of the risk, whether it is considered a material risk and if the company has strategies, controls, or board committees monitoring those risks.[78]

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[70] *Id*. at 3 (emphasis added).
[71] *Id*.
[72] Deloitte, *supra* note 68, at 6. See final rule (a carbon Offset is defined in the rule as representing an emissions reduction, removal or avoidance of greenhouse gasses ("GHG") in a manner calculated and traced for the purpose of offsetting an entities GHS emission.) See final rule defining a REC (Renewable energy credit or certificate or REC means a credit or certificate representing each megawatt-hour (1 MWh or 1,000 kilowatt-hours) of renewable electricity generated and delivered to a power grid).
[73] *Id*.
[74] Deloitte, *supra* note 68, at 1.
[75] *Id*. at 9.
[76] Deloitte, *supra* note 68, at 9-12.
[77] *Id*. at 9-10.
[78] Deloitte, *supra* note 68, at 10.

Domestic and foreign registrants, except asset-backed issuers, are required to provide the disclosures prescribed by the Climate Rule.[79]

Finally, the Climate Rule adds a different disclosure metric that is required in Scope 1 and Scope 2 GHG emissions disclosure.[80] As stated, "Scope 1 emissions are direct GHG emissions that are owned or controlled by a registrant" and "Scope 2 emissions are indirect GHG emissions from the generation of purchased or acquired electricity, steam, heat or cooling that is consumed by operations owned or controlled by a registrant."[81] Simply put, Scope 1 GHG emissions are caused directly from activities of a company and Scope 2 emissions are caused by the activities from products and services used by a company.[82] Many larger filing companies have to disclose this information, and such information must be broken down into the different types of gasses.[83] There are, however, a number of companies exempt from the Scope 1 and 2 GHG emissions disclosure requirements.[84] It was recommended by the Commission's Small Business Capital Formation that the emerging growth companies ("EGRs") and smaller reporting companies ("SRCs") should be exempted from the Final Rules in certain respects due to the financial burden that compliance would have on these companies.[85]

IV. CHALLENGES TO THE RULE

As soon as the Rule was promulgated, it was challenged multiples times.[86] The Fifth Circuit issued an administrative stay of the Final Climate Rule as a result of a petition filed by Liberty Energy Inc. and Nomad Proppant Services LLC ("Liberty").[87] Liberty is an oil field services firm that offers completion services and technology to

[79] Deloitte, *supra* note 68, at 20.
[80] Deloitte, *supra* note 68, at 7.
[81] Securities Act Release No. 33-11275, *supra* note 2.
[82] *National Grid, Exergy Explained,* NATIONAL GRID, https://www.nationalgrid.com/stories/energy-explained/what-are-scope-1-2-3-carbon-emissions (last updated July 1, 2024).
[83] Deloitte, *supra* note 68, at 7.
[84] Id. at 20.
[85] Securities Act Release No. 33-11275, *supra* note 2.
[86] Exchange Act Release No. 99908, *supra* note 51.
[87] *Id*.

onshore and natural gas exploration and production companies and Nomad Proppant Services LLC is a service based frac sand company.[88] In its complaint, Liberty stated that the new disclosure requirements are "wildly speculative" and require that companies convert qualitative data, transition risks and severe weather events, into accurate financial accounting for investors.[89] Later in the complaint Liberty listed three main arguments: 1) that the Rule violates the Major Questions Doctrine; 2) that the Rule is arbitrary and capricious; and 3) that the Rule violates the First Amendment to the U.S. Constitution.[90]

State Attorney Generals from a number of states joined the challenge, including Arkansas, Idaho, Iowa, Missouri, Montana, Nebraska, North Dakota, South Dakota, and Utah.[91] The states were later joined by Virginia, Alabama, Alaska, Georgia, Indiana, New Hampshire, Oklahoma, South Caroline, West Virginia, and Wyoming.[92] As a result, the Commission filed a Notice of Multidistrict Petitions for Review with the Judicial Panel on Multidistrict litigation, and the panel later issued an order consolidating the petitions in the U.S. Court of Appeals for the Eighth Circuit.[93] While judicial review is pending, the Commission stayed the Final Climate Rule to resolve any disputes before reevaluating effective dates and making a plan to roll it out following the conclusion of the litigation. [94]

a. The Major Questions Doctrine

On June 21, 2024, Liberty filed its opening brief in the case before the Eighth Circuit.[95] Liberty's position was that the Rule failed the Major Questions Doctrine because the SEC did not have clear authority from Congress to regulate

[88] Complaint, *supra* note 9, at 3.
[89] *Id*. at 1.
[90] *Id*. at 5, 15, 17.
[91] State of Iowa, et al v. SEC, No. 24-1522 (8th Cir. Mar. 12, 2024).
[92] *Id*.
[93] *Id*.
[94] Exchange Act Release No. 99908, *supra* note 51.
[95] Opening Brief, *supra* note 54, at 1.

environmental matters.[96] In explaining its Major Questions Doctrine argument, Liberty stated that the SEC relied on an old statute to assert its highly consequential power to regulate environmental issues.[97] Liberty then added to its Major Questions Doctrine point that if Congress wanted the SEC to regulate such matters Congress would have made as much clear. [98] The Major Questions Doctrine is a rule established by the United States Supreme Court that requires executive agencies to have clear and express authorization to act when promulgating rules on matters of national significance.[99] In other words, agencies may not rely, in such matters, on broad or general authority.[100]Liberty further stated that the Major Questions Doctrine may render the Rule invalid because the Final Climate Rule is an extraordinary exercise of regulatory power over an economically and politically significant policy issue.[101] In response, the SEC filed a brief on August 6, 2024, in which it maintained the same position as stated in the Rule: Congress granted the Commission the power to request not only the enumerated information but also such information that the Commission determines to be "necessary and appropriate".[102]

Liberty acknowledged the argument that Congress has in the past given the Commission the express authority to require disclosures for information deemed non-traditional like executive pay, conflicts, minerals, and extraction of oil and natural gas. [103] However, Liberty argued that Congress has not done anything similar for climate disclosures, but rather, for example, has provided the Environmental Protection Agency with clear and detailed disclosure powers in the area of GHG.[104] The SEC's position on this, much like the other issue, is that the information required

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[96] *Id*. at 11.
[97] *Id*. at 13.
[98] *Id*.
[99] *Major Questions Doctrine Congressional Research Service Congressional Research Service*, THE MAJOR QUESTIONS DOCTRINE, (last updated Nov. 14, 2022), https://crsreports.congress.gov/product/pdf/IF/IF12077.
[100] *Id*.
[101] *Id*. at 13.
[102] Reply Brief for Respondent at 2, Liberty Energy, Inc. v. SEC, No. 24-1624 (8th Cir. Aug. 6, 2024) (citing U.S.C. 77g9a) (1), 78(b)(1)).
[103] Opening Brief, *supra* note 54, at 27.
[104] *Id*.

is described in the statutory language as necessary and appropriate.[105] That is, the SEC has the authority to promulgate rules that are necessary and appropriate to protect investors and as such this Rule is in line with the statutory authority; therefore, it is in no way a violation of the Major Questions Doctrine.[106] The SEC maintained in the Final Climate Rule Release and in their brief that the desired climate-related information is required for the protection of investors and the public interest as is authorized by the statutes which grant the SEC this power. [107]

b. Arbitrary and Capricious

Liberty's second argument was that the Rule is arbitrary and capricious.[108] A court may set aside an Agency rule in the event it finds the rule to be arbitrary and capricious.[109] For a rule to be considered arbitrary and capricious the court must find that the rule is willfully unreasonable as it does not take into account the facts and circumstances under which the Rule is made.[110] Liberty asserted five reasons as to why it believes that the Rule is arbitrary and capricious; the first is that "the SEC has failed to explain its change in position" from not having the authority to impose climate disclosures to now claiming that same authority.[111] Second, the SEC relied on what Liberty called "at best mixed and new evidence" and failed to recognize the impacts that the Rule will have on efficiency, competition and capital formation as is required by the Exchange Act.[112] Third, it asserted that "the Rule imposes an extraordinary cost with no real benefits."[113] Liberty questioned the evidence that the Commission used to support the Rule, and the evidence used to show that the

[105] Reply Brief, *supra* note 101, at 27.
[106] *Id*. at 36.
[107] *Id*. at 27.
[108] Opening Brief, *supra* note 54, at 39.
[109] *Capricious*, LEGAL INFORMATION INSTITUTE, https://www.law.cornell.edu/wex/capricious (Last visited Dec. 2, 2024).
[110] *Id*.
[111] Opening Brief, *supra* note 54, at 39.
[112] *Id.* at 41.
[113] *Id*. at 44.

investors are desperate for the required disclosure information.[114] Fourth, it asserted that the Final Rule dramatically changed from the Proposed Rule.[115] Finally, it asserted that the Rule is riddled with inconsistencies which Liberty explains are present in third party data collection requirements, auditing assurances and costs of complying with the rule.[116]

In its response brief the SEC argued that it did consider the effects the Final Climate Rule would have on efficiency, competition and capital formation.[117] The Commission claimed that the Rule put investors in a position with superior information to more efficiently allocate capital and make investment decisions.[118] Additionally, the SEC stated that the Rule puts companies on a more even playing field which, in turn, results in greater competition and efficiency.[119] Finally, the Commission estimated the costs of compliance that firms may face in adhering to the Rule, however, its position was that the Commission is not required to base every action upon empirical data.[120] However, the Commission may, in its opinion, conduct a general analysis based in informed conjecture.[121]

c. The First Amendment

Liberty's third argument was that the SEC cannot force public companies to make public disclosures and discussion on topics that may be considered controversial political issues.[122] It further stated the law required the company to describe actual and potential material impacts of climate-related risks which is speech that the

[114] *Id*.
[115] *Id*. at 46.
[116] *Id*. at 49.
[117] Reply Brief, *supra* note 101, at 81.
[118] *Id*. at 82.
[119] *Id*. at 81.
[120] *Id*. at 83.
[121] *Id*.
[122] Opening Brief, *supra* note 54, at 51.

company would prefer not to engage in.[123] Liberty cited to a number of cases that suggest any laws that compel speech are subject to strict scrutiny.[124]

In opposition, the SEC reasoned that the United States Supreme Court has long held that laws requiring the disclosure of factual and uncontroversial information are permissible as long as the law is reasonably related to a government interest that is not unjustified or unduly burdensome.[125] The SEC argued that disclosures are to inform investors about the product or services offered by regulated parties and the terms under which securities in such parties will be available.[126] As a result, the SEC took the position that information as it relates to securities is subject only to limited scrutiny.[127]

V. MAJOR QUESTIONS DOCTRINE ANALYSIS

The Major Questions Doctrine has emerged in recent years as one way in which the Supreme Court has curbed the ability of administrative agencies from expanding their power into areas of political and economic significance without express permission from Congress.[128] The Major Questions Doctrine requires an agency that "seeks to decide an issue of major national significance, its actions must be supported by clear congressional authorization.[129] The Major Questions Doctrine, as the Supreme Court is currently applying it, consists of a two-step analysis: 1) whether

[123] *Id*. at 52.
[124] *Id*. at 51-52; Clyde Reed, et al., Petitioners v. Town of Gilbert, Arizona, et al., 576 U.S. 155 (2015) (explaining that strict scrutiny "requires the government to prove that they restriction furthers a compelling interest and is narrowly tailored to achieve that interest").
[125] Reply Brief, *supra* note 101, at 110.
[126] *Id*. at 98.
[127] *Id*. at 99 (citing SEC v. Wall St. Publ'g Inst., Inc., 851 F. 2d 365, 373 (D.C. Cir 1988) (stating that "regulation of the exchange of information regarding securities is subject only to limited First Amendment scrutiny," as the court goes on to describe that the government's power to regulate in this space is as broad as the general rubric as commercial speech, further noting that the court must determine whether the asserted government interest)).
[128] Louis J. Capozzi III, *The Past and Future of the Major Questions Doctrine*, 84:2 OHIO STATE L.J. 194 (2023).
[129] *Major Questions Doctrine*, *supra* note 99.

the agency is attempting to solve a Major Question; and 2) whether Congress clearly authorized the agency's action.[130]

Ultimately, Liberty's argument in this case was that the Climate Rule was: 1) of vast economic and political significance, meaning Congress would not have intended the SEC to exercise this power without clear authority; 2) the SEC finds the authority to promulgate the Rule in an old statute that does not give them clear authority to create rules on the subject of climate change; and 3) that the Rule is beyond the SEC's area of expertise and that there is an agency in a better position to create rules on the topic.[131]

In arguing the political significance of climate change, Liberty discussed how Biden Administration pushed climate change policy initiatives in Congress that would require climate-related disclosures, which ultimately failed.[132] This failure is what, in Liberty's view, prompted the SEC to create the Climate Rule.[133] Second, Liberty argued that the mere cost of compliance with the Climate Rule would have significant impacts which would be passed onto participants in the marketplace. [134]

Next, Liberty argued that the Securities Act was passed in 1933 and, for many years, the SEC has agreed that it may not require blanket climate disclosures.[135] In support of this, Liberty provided a quote from the SEC which states that, as late as 2016, the Commission took the position that "disclosure relating to environmental and other matters of social concern should not be required of all registrant unless appropriate to further a specific congressional mandate."[136] Liberty reasoned that this is proof that the disclosures should not be required unless they would be appropriate in response to clear authority from Congress to regulate on such matters of social importance. [137]

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[130] Capozzi III, *supra* note 127, at 224.
[131] Opening Brief, *supra* note 54, at 15-39.
[132] *Id*. at 16.
[133] *Id*. at 17-18.
[134] *Id*. at 18.
[135] *Id*. at 20.
[136] Opening Brief, *supra* note 54, at 20.
[137] *Id*. at 26-27.

Third, Liberty argued that the Climate Rule ventures beyond the Commission's expertise.[138] Liberty stated that the EPA is the agency that has the most expertise over climate and emissions related issues.[139] It argued that Congress has already delegated the task of collecting emissions reports to the EPA, which includes the mandatory disclosure of some climate-related information for select regulated entities.[140] Thus, Liberty concluded that the climate-related disclosures are beyond the SEC's sphere of expertise and should be left to the EPA, who is best positioned to create such rules.[141]

The SEC's argument against the Major Questions Doctrine was less robust. The SEC argued that the Climate Rule was created to inform investors of the business, operations and financial performance of a company.[142] This information would help investors understand the value and risks that would result from investing in the company.[143] The SEC stated that the Rule did not serve the purpose of influencing companies' behavior but rather to advance securities laws.[144] The SEC argued next that the Commission has, in the past, required disclosure of information that is not required to be material under all facts and circumstances. [145] Therefore, there is no distinct requirement that the required disclosure information be material, but rather, the Commission can make a reasoned determination whether the information is important to analyzing the investment risk and necessary and appropriate to protect the public interest.[146]

The outcome will most likely hinge on the way the court considers the impact on the economy or marketplace, the nature of Climate Change having become a political issue, and the lack of clear and specific authorization from Congress for the

[138] *Id*. at 25.
[139] *Id*.
[140] *Id*.
[141] *Id*. at 26.
[142] Reply Brief, *supra* note 101, at 1.
[143] *Id*.
[144] *Id*. at 19.
[145] *Id*. at 34-35.
[146] *Id*. at 52-53.

Commission to promulgate this Rule.[147] A handful of recent decisions by the Court provide guidance as to how the Major Questions Doctrine might limit government agency power, by requiring explicit direction from congress before agencies may tackle questions of economic and political significance.[148]

The first of the recent cases addressing the Major Questions Doctrine was *Alabama Association of Realtors v. HHS*.[149] In this case, the Centers for Disease Control and Prevention (CDC) sought to impose a nationwide eviction moratorium and relied on a statute that gave it the authority "to make and enforce such regulations as … are necessary to prevent the introduction and transmission, or spread of curable diseases," in addition to "provide for such inspection, fumigation, disinfection, sanitation, pest examination, destruction of animals … and other measures, as [its] judgement may be necessary." [150] The Court stated that the nationwide eviction moratorium would cost an estimated $50 Billion and effect between six and seven million tenants and, as such, would require Congress to clearly authorize the CDC to take such measures that are of such "economic and political significance."[151]

The Major Questions Doctrine was at issue again in *National Federation of Independent Business v. OSHA*, where the Occupational Safety and Health Administration ("OSHA") tried to mandate COVID-19 vaccines or testing mandates on workplaces.[152] Here, OSHA relied on a statute which express the authority OSHA to impose "emergency" rules where "employees are exposed to substances or agents determine to be toxic or physically harmful' … and … the emergency standard is necessary to protect employees from such danger."[153] The Court did not agree with OSHA's reading of the statute and relied on the clear statement rule as they did

[147] Capozzi III, *supra* note 127, at 229.
[148] *Id.* at 225.
[149] *Id*. at 216.
[150] *Id*.
[151] Capozzi III, *supra* note 127, at 216-17; *see also* Ala. Ass'n of Realtors, et al. v. Dept. of Health and Human Services, et al., 594, U.S. 759, 764 (2021).
[152] *Id.* at 217; *see also* Nat. Federation of Independent Business, et al. v. Applicants v. OSHA, et al. 595 U.S. 112 (2022).
[153] Capozzi III, *supra* note 127, at 217; *see also* 595 U.S. at 113.

above.[154] Secondly, the Court read the statute to mean that OSHA could only take precautions to address dangers in the workplace and held that COVID-19 was no more of a risk at the workplace than in other settings. [155]

Finally, the holding in *West Virginia v. EPA* helps develop the current understanding of the Major Questions Doctrine. The cases arose from the EPA's promulgation of the Clean Power Act ("CPP").[156] The CPP required coal and natural gas power plants to adhere to emissions reduction rules or subsidize clean energy generation plants as a counterbalance to their emissions output.[157] The EPA relied on a statute which allowed it "to determine the "best system of emission reduction" for power plants."[158] The Court held that the Major Questions Doctrine had been applied in "all corners of the administrative state" and that an agency needs to argue beyond authority to implement a major policy the agency must point to clear authority from congress to implement a major policy.[159]

Applying the Major Questions Doctrine guidance gleaned from the aforementioned cases to the Final Climate Rule, it is likely that the Court will find that the Rule will not pass the Major Questions Doctrine's two step inquiry. The SEC aims to create a major economic and politically significant rule that will impact all publicly traded companies and collaterally companies that interact with publicly traded companies. To do this, the SEC relied on a statute that allocates the Commission the authority to act where "necessary and appropriate to protect investors."[160] Based on the three cases discussed above, the likely outcome is that the Court will assess the impact and scale of the Final Climate Rule which will be enough to trigger the Major Questions Doctrine. While the precise definition of what constitutes a major question remains unclear, as the Court has yet to develop a clear

[154] Capozzi III, *supra* note 127, at 217; *see also* 595 U.S. at 114.
[155] Capozzi III, supra note 127, at 217; see also 595 U.S. at 119.
[156] Capozzi III, *supra* note 127, at 217; West Virginia v. E.P.A., 597 U.S. 697 (2022).
[157] *Id.*
[158] *Id*. at 218-19.
[159] Capozzi III, *supra* note 127, at 219.
[160] Reply Brief, *supra* note 101, at 1.

test, the charged political and public debate[161] over the topic of climate change may speak for itself.[162] Secondly, the Court will analyze the Securities Act of 1933 and the Exchange Act of 1934, which grants the Commission the power to enact such legislation.[163] In its analysis, the Court will likely find that the statute lacks the clear and direct authorization from Congress to enact a Rule that would grab such broad power for the Commission.[164] The likely result is that the Court holds the Final Climate Rule goes beyond the Commission's authority and may not require publicly traded companies to make climate-related disclosures under the Rule.

The question then presented is how the agency should move forward in its attempt to provide investors with the information that they seek to make the best and most informed investment decisions. It is worth noting that the Commission's 2010 guidance document to publicly traded companies previously required information related to climate risks which may be sufficient.[165] An alternative approach by the SEC could be to be to limit the disclosure to narrow financial impacts from severe weather events that have already taken place and strategies or expenditure that the company has engaged in relating to severe weather events, which are more precisely measurable. It may also be that it is more appropriate for an environmental agency to create rules in the sphere of climate change rather than the SEC.

Based on the Court's prior decisions regarding the Major Questions Doctrine and the likely outcome regarding the final Climate Rule, government agencies as a whole will be limited going forward without any clear authorization from Congress. The Court has made it clear that in order for agencies to engage in broader rule

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[161] *Id.* at 104-05 (arguing that the required disclosures are uncontroversial and that they do not require the company to opine on the scientific basis of climate change); *see* Opening Brief, *supra* note 54, at 20 (arguing that "the Biden Administration itself claimed that climate issues-including disclosures- are among the most politically significant of our time"); see Capozzi III, *supra* note 127, at 192 (pointing out that climate change has been an issue of political significance for two decades and during that time congress has debated legislation empowering the EPA to take on the challenges presented by it).

[162] Capozzi III, *supra* note 127, at 226.

[163] Securities Act Release No. 33-11275, *supra* note 2.

[164] Capozzi III, *supra* note 127, at 193.

[165] Commission Guidance, *supra* note 29.

making on matters of national significance, there has to be action from Congress providing explicit authorization for the agency to act. The Major Questions Doctrine, while not clear in defining what constitutes a Major Question, is clear in that it requires Congress to work together to identify where agency rules impact issues of economic and social importance and provide clear and pointed authorization that empowers agencies to address the issues that face society. Looking forward, executive agencies must create rules within their mandates to allow for constructive engagement and active rulemaking—especially in spheres that are determined to be of economic and social importance.

FROM TRASH TO CASH: A PROPOSAL TO COMPEL RECYCLING IN PENNSYLVANIA UNDER THE SOLID WASTE MANAGEMENT ACT

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I. INTRODUCTION

A global emergency that threatens biodiversity, human health, food security, and economic growth continues to escalate each passing day.[2] On one such day, not even the United States Supreme Court could ignore the severity of this threat: climate change.[3] Meanwhile, outside the world of environmental jurisprudence,[4] the scientific community confirms this threat, suggesting a causal relationship between rising temperatures caused by climate change and thresholds historically linked to extinctions.[5] While some studies conclude that a worst-case climate change scenario is unlikely, the mere acknowledgement of its possibility may compel action to mitigate this threat.[6]

Designed in 1970 by Gary Anderson, a then senior at the University of Southern California, the green recycling logo was created as a submission for the International Design Conference to commemorate the first Earth Day.[7] Today, it is

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[2] Kashif Abbass et al., *A review of the global climate change impacts, adaptation, and sustainable mitigation measures*, SPRINGER LINK ENV'T SCIENCE AND POLLUTION RESEARCH VOL. 29, 42545 (2022), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8978769/.

[3] Mass. v. EPA, 549 U.S. 497, 526 (2007) (recognizing the considerable significance of the Environmental Protection Agencies' agreement with the President that 'we must address the issues of climate change' and the uncontested affidavit recognizing the rise and real risk of catastrophic harm of global warming).

[4] *Id.*

[5] Haijung Song et al., *Thresholds of temperature change for mass extinction*, NATURE COMMUNICATIONS, 5 (2021), https://www.nature.com/articles/s41467-021-25019-2 (last visited Oct. 9, 2024) (studying marine extinctions and climate thresholds during the end-Ordovician era, which saw cooling and glaciation; the Permian-Triassic era, which experienced extreme warming and ocean anoxia; and the Cretaceous-Paleogene era, which was triggered by an asteroid impact); *see also* Kemp et al., *Climate Endgame: Exploring catastrophic climate change scenarios*, PROC. NAT'L ACAD. SCI., 2-3 (2022), https://www.pnas.org/doi/10.1073/pnas.2108146119, (studying worst-case climate change scenarios during the Pleistocene Epoch, which saw sustained warming above 2°C; the Early Eocene, which experienced extreme heat; and past mass extinctions, which were often driven by abrupt climate shifts).

[6] Kemp et al., *supra* note 5, at 3.

[7] *The Origin of the Recycling Symbol*, CTR. FOR ENERGY EFFICIENCY, https://w1.mtsu.edu/cee/3Rs.php, (last visited Mar. 5, 2024).

a ubiquitous symbol that encourages individuals to reduce, reuse, and recycle.[8] Notwithstanding the apparent value of individual action, however, the role of the government surrounding recycling cannot be understated.[9] Expanding government-led recycling processes, while also increasing incentives, may reduce the threat of climate change by increasing material reuse, reducing raw material use, and decreasing the amount of waste entering landfills.[10]

Under Pennsylvania Law, enforced by the Department of Environmental Protection (hereinafter DEP),[11] the Solid Waste Management Act (hereinafter SWMA) plays a pivotal role in the regulation of residual, municipal, and hazardous waste.[12] The statute then serves several purposes, including: 1) the establishment and maintenance of a program of planning and technical and financial assistance for waste management; 2) the protection of public health and safety from the dangers of the processing, treatment, and disposal of all waste and; 3) the encouragement of the development of resource recovery.[13]

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[8] *Id.*
[9] Alex Tabibi, *The Role of Government Policy in Shaping Recycling Habits,* GREEN.ORG, (Jan. 30, 2024), https://green.org/2024/01/30/the-role-of-government-policy-in-shaping-recycling-habits/.
[10] Celeste Robinson and Kate Huun, *The impact of recycling on climate change*, UNIV. OF COLO. BOULDER ENV'T CTR. (Dec. 15, 2023), https://www.colorado.edu/ecenter/2023/12/15/impact-recycling-climate-change; *see also The Role of Government Policy in Shaping Recycling Habits*, GREEN.ORG (Feb. 22, 2024), https://green.org/2024/01/30/the-role-of-government-policy-in-shaping-recycling-habits/.
[11] Created by the Pennsylvania Legislature in the Act 18 of 1995, 1995 Pa. H.B. 1400 (splitting the 1970 Department of Environmental Resources into two (2) agencies: 1) The Department of Environmental Protection and; 2) The Department of Conservation and Natural Resources); *see also* 71 Pa. Stat. Ann. § 1340.501 (LexisNexis, LEXIS through P.L. 89, § 1) (renaming the Department of Environmental Resources to the Department of Environmental Protection).
[12] Solid Waste Management Act, 35 Pa. Stat. Ann. §§ 6018.101-6018.1003 (LexisNexis, LEXIS through P.L. 380, § 101).
[13] 35 Pa. Stat. Ann. § 6018.102 (LexisNexis, LEXIS P.L. 380, § 102, approved July 7, 1980); *see also* 35 Pa. Stat. Ann. § 6018.103(LexisNexis, LEXIS through § 2) (clarifying the distinction between residual, municipal, and hazardous waste).

To further this third purpose, the statutory scheme comes coupled with several regulations, providing exceptions to certain types of *residual waste*, a specific type of waste resulting from industrial mining and agricultural operations,[14] by classifying such waste as recyclable material and thus exempt from the SWMA.[15] However, under the current regulatory scheme and precedent in interpreting the regulation, the residual waste recycling exception is too restrictive in defining which materials qualify for exemption.[16] At the same time, it fails to provide financial incentives that would encourage recycling at all.[17]

Additionally, the legislature provides another purpose of the SWMA: that the Act should implement the significant Article I, Section 27 of the Pennsylvania Constitution, which grants a constitutional right of environmental preservation for the benefit of all people.[18] As a formidable tool for environmental rights and protections, there has been no shortage of using the section to challenge the SWMA or other environmental laws.[19] In fact, the Pennsylvania Supreme Court has gone so

[14] *See infra* text accompanying notes 60-63.
[15] 25 Pa. Code § 287.1 (2014) (providing that materials are no longer classified as waste when they can be can show to be recycled by being used or reused as ingredient to make a product or used in manner to be an effective substitute for a commercial product) (emphasis added).
[16] *See* discussion *infra* accompanying notes 75-93.
[17] *See* discussion *infra* accompanying notes 94-95.
[18] 35 Pa. Stat. Ann. § 6018.102 (LexisNexis, LEXIS through P.L. 380, § 102); *see also* PA. CONST. art. I, § 27 (establishing, through the 1971 amendment, a constitutional right to clean air, pure water, and to the preservation of [the] natural environment and a duty of the Commonwealth to conserve and maintain the environment for the benefit of all people).
[19] Eagle Env't II, L.P. v. Commonwealth, 884 A.2d 867, 876 (2005) (challenging the SWMA on the ground that the Act unconstitutionally sidesteps Article I, Section 27); *see* Robinson Twp. v. Commonwealth, 83 A.3d 901, 915-916 (2013) (challenging the Act 18, an act which re-codified six new chapters in the Oil and Gas Act, by claiming the act violated the Pennsylvania Constitution under, among other sections, Article I, Section 27).

far as to recognize Section 27's significance when ruling on the SWMA, emphasizing that an SWMA amendment should, at a minimum, account for it.[20]

Therefore, in considering the importance of compelling action to reduce the threat of climate change,[21] the purposes of the SWMA,[22] the limited residual waste recycling regulatory scheme,[23] and importance of the government's role in such action,[24] this article proposes a statutory and regulatory amendment to the SWMA's handling of residual waste.[25]

The purpose of the proposed amendment is to: 1) ensure that the SWMA amendments are drafted to align with the purposes and principles of Article I, Section 27;[26] 2) broaden the definition of recyclable residual waste materials under the regulations while *ensuring compliance* with the law; and 3) provide clear recycling procedure alongside recycling incentives for residual waste.[27] The amendment to the SWMA represents a vital step towards a more sustainable and resilient future.[28] By addressing these regulatory shortcomings, this amendment

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[20] Commonwealth, Dep't of Env't. Res. v. Blosenski Disposal Serv., 566 A.2d 845, 849 (1989) (noting that in evaluating the constitutionality of the Solid Waste Management Act, the court must consider the law was implemented to the will of the people under Article I, Section 27 of the Pennsylvania Constitution).
[21] *See* Abbass et al., *supra* note 2, at 42545; *Mass. v. EPA*, 549 U.S. at 526; Song et al., *supra* note 5, at 5; *see also* Kemp et al., *supra* note 5, at 2–3.
[22] *See* Solid Waste Management Act, 35 Pa. Stat. Ann. § 6018.102, *supra* note 13; *see also id.* § 6018.103.
[23] *See infra* notes 75–95 and accompanying text.
[24] Tabibi, *supra* note 9.
[25] *See* discussion *infra* Section IV.
[26] *See* 35 Pa. Stat. Ann. § 6018.102, *supra* note 18; *Eagle Env't II*, 884 A.2d 867 at 21, *supra* note 19; *Blosenski Disposal Serv*., 566 A.2d 845 at 283, *supra* note 20.
[27] *See* discussion *infra* Section IV.
[28] *See* Robinson & Huun, *supra* note 10; *The Role of Government Policy*, *supra* note 10.

can expand effective waste management recycling practices and contribute to the mitigation of the threat of climate change.[29]

II. BACKGROUND

a. The History of Pennsylvania's Environmental Regulatory Regime

Anderson's 1970 creation of the recycling symbol is not the only development of the modern environmental movement at the time.[30] Meanwhile, policymakers and legislators in Pennsylvania took active steps to develop and implement environmental solutions.[31] Some suggest that Pennsylvania's modern environmental laws were a response to widespread 1960s fears of irreversible environmental damage.[32] To address these fears, Rep. Franklin L. Kury introduced House Bill 958, an amendment to Article I of the Pennsylvania Constitution.[33] Notwithstanding amendments during the legislative process, after finding near unanimous bipartisan approval from the Pennsylvania House and Senate, the proposed amendment was signed by Gov. Milton J. Shapp into law.[34] The text of Article I, Section 27 reads as follows:

> The people have a right to clean air, pure water, and to the preservation of the natural, scenic, historic and esthetic values of the environment. Pennsylvania's public natural resources are the common property of all

[29] *See* Tabibi, *supra* note 9; Robinson & Huun, *supra* note 10.
[30] *See The Origin of the Recycling Symbol*, *supra* note 7.
[31] John C. Dernbach & Edmund J. Sonnenberg, *A Legislative History of Article I, Section 27 of the Constitution of the Commonwealth of Pennsylvania*, 14-18, WIDNER LAW, 1, 1-2 (2014), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2474660.
[32] Kelly Hanna, *The Intersection of Reason and Risk: How Article I, Section 27 of the Pennsylvania Constitution Can Protect Environmental Justice Communities from State-Sanctioned Pollution and Cumulative Impacts*, 15 DREXEL L. REV. 621, 628 (2023).
[33] Dernbach & Sonnenberg, *supra* note 31 at 1.
[34] *Id.*

> the people, including generations yet to come. As trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all the people.[35]

Since the introduction of Article I, Section 27, the promise of environmental sustainability and progress was delivered to the people through a series of laws such as the 1978 Pennsylvania Appalachian Trail Act,[36] the 1995 Conservation and Natural Resource Act,[37] and among others,[38] the Solid Waste Management Act.[39]

b. History of the SWMA, Legislative Intent, and the Role of the Departments

As stated above, the SWMA, a cornerstone of Pennsylvania's statutory scheme, is a key environmental statute that exerts a pervasive influence on waste management practices throughout the Commonwealth.[40] Enacted on July 7th,

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[35] PA. CONST. art. I, § 27.
[36] 64 Pa. Stat. Ann. §§ 801-05 (LexisNexis, LEXIS through P.L. 87, § 1); *see also* 64 Pa. Stat. Ann. § 802 (LexisNexis, LEXIS through P.L. 87, § 1) (stating the policy and purpose of the act is to "implement Article I, [S]ection 27 of the Constitution of Pennsylvania with respect to the Appalachian Trail in Pennsylvania as a source of natural, scenic, historic and esthetic values to be preserved").
[37] 71 Pa. Stat. Ann. § 1340.101 (LexisNexis, LEXIS through P.L. 87, § 1) (stating the purpose of the act is to, "conserve and maintain public natural re- sources 'for the use and benefit of all [Pennsylvania] citizens as guaranteed by [Article I, Section 27] of the Constitution of Pennsylvania'").
[38] *See* The Dam Safety and Encroachment Act of 1978, 32 Pa. Stat. Ann. §§ 693.1–693.27 (LexisNexis, LEXIS through P.L. 204, § 1); *see also* 32 Pa. Stat. Ann. § 693.2(3) (LexisNexis, LEXIS through P.L. 204, § 1); *see also* The Oil and Gas Act of 1984, 71 Pa. Stat. Ann. §§ 1340.101–102 (LexisNexis, LEXIS through P.L. 89, §§ 1–2); *see also* The 1982 Hazardous Sites Clean-Up Act, 35 Pa. Stat. Ann. §§ 6020.101–6020.1305 (LexisNexis, LEXIS through P.L. 756, § 101); 35 Pa. Stat. Ann. § 6020.103 (LexisNexis, LEXIS through P.L. 756, § 103); *see also* The 1982 Wild Resource Conservation Act, 32 Pa. Stat. Ann. § 5301 (LexisNexis, LEXIS through P.L. 597, § 1); with Pa. Stat. Ann. § 5302 (LexisNexis, LEXIS through P.L. 597, § 2).
[39] *See* discussion *infra* Section B.III.A.
[40] 35 Pa. Stat. Ann. §§ 6018.101–6018.1003 (LexisNexis).

1980,[41] the Pennsylvania General Assembly passed the SWMA to combat environmentally harmful inadequate solid waste practices.[42]

Section 6018.102 of the SWMA provides numerous legislative purposes including: 1) the establishment and maintenance of a cooperative state and local program of planning as well as technical and financial assistance for comprehensive solid waste management;[43] 2) the protection of public health, safety and welfare from the dangers of the transportation, processing, treatment, storage, and disposal of all wastes;[44] 3) the encouragement and development of resource recovery as a means of managing solid waste;[45] and 4) the implementation of Article I, Section 27 of the Pennsylvania Constitution.[46]

The legislature in passing the SWMA, delegated to the Pennsylvania DEP[47] the primary responsibility to enforce the Act.[48] Section 601.104 grants the DEP the power and duty to, "administer the solid waste management program, including resource recovery," and to "regulate the storage, collection, transportation, processing, treatment and disposal of solid waste."[49] The SWMA comports with the DEP's mission to, "protect Pennsylvania's air, land, and water resources and to

[41] 35 Pa. Stat. Ann. § 6018.101 (LexisNexis, LEXIS through P.L. 380, § 101).
[42] 35 Pa. Stat. Ann. § 6018.102 (LexisNexis, LEXIS through P.L. 380, § 102) (establishing the legislative intent of the SWMA).
[43] *Id.* at 1.
[44] *Id.* at 4.
[45] *Id.* at 2.
[46] *Id.* at 10.
[47] 35 Pa. Stat. Ann. § 6018.103 (LexisNexis, LEXIS through § 2) (defining Department as the Department of Environmental Protection of the Commonwealth of Pennsylvania and its authorized representatives); *see also* Act 18 of 1995, *supra* note 10.
[48] 35 Pa. Stat. Ann. § 6018.104 (LexisNexis, LEXIS through P.L. 331, § 2).
[49] *Id.*

provide for the health and safety of its residents and visitors, consistent with the rights and duties established under the Environmental Rights Amendment."[50]

Likewise, Pennsylvania's "Environmental Court," the quasi-judicial agency known as the Environmental Hearing Board (hereinafter EHB) serves as a crucial check on the DEP's enforcement of the SWMA.[51] The EHB has the discretion and power to hold hearings and issue adjudications on orders, permits, licenses, and decisions of the DEP,[52] when the actions by the DEP "adversely affect personal or property rights, privileges, immunities, duties, liabilities or obligations or . . . person[s]."[53] Appeals from the EHB are then taken to the Commonwealth Court of Pennsylvania.[54] Additionally, the Environmental Quality Board (hereinafter EQB) as an independent state agency, is responsible for promulgating the rules and regulations under which the DEP operates.[55] In passing the SWMA, the legislature grants the EQB limited regulatory discretion to adopt rules and regulations *only within* the purposes and provisions of the already established Act.[56] These

[50] *Mission Statement,* COMMONWEALTH OF PA., https://www.dep.pa.gov/About/Pages/default.aspx (last visited Oct. 16, 2024).
[51] William Hofmann and Steven Horst, *EHB Review: The EHB: DEP's Friend or Foe? Environmental Hearing Board Review*, 15, VILL. ENV'T. L.J. 173, 175 (2004) (describing EHB's standard of review).
[52] 35 Pa. Stat. Ann. § 7514 (LexisNexis, LEXIS through P.L. 530).
[53] *Practice and Procedural Manual*, PA. ENV'T HEARING BD., 6 (Aug. 2023) (*citing* Stanley Jake v. DEP and KMP Associates, Inc., 2014 EHB 38 (Pa. Env't. Hearing Bd. 2014).
[54] *Environmental Hearing Board Welcome*, PA. ENV'T HEARING BD., https://ehb.pa.gov, (last visited Oct. 25, 2024).
[55] *What is the EQB?*, COMMONWEALTH OF PA., https://www.dep.pa.gov/PublicParticipation/EnvironmentalQuality/Pages/WhatIsEQB.aspx, (last visited Oct. 14, 2024); *see also* 71 Pa. Stat. Ann. §§ 510-20 (LexisNexis, LEXS through P.L. 1275, § 6) (granting the EQB the power to formulate, adopt, and promulgate rules and regulations for proper performance of the work of the department) (emphasis added).
[56] 35 Pa. Stat. Ann. § 6018.105 (LexisNexis, LEXIS through § 3).

regulations cover a wide array of environmental statutes and are primarily found under Title 25 of the Pennsylvania Code on environmental protection.[57]

III. THE SOLID WASTE MANAGEMENT ACT'S KEY PROVISIONS

a. Identifying Waste

The term "solid" under the SWMA's regulation of solid waste, is not to be understood in the ordinary sense as limited to non-liquid or non-gaseous types of waste.[58] Instead, the SWMA applies itself to, and defines, solid waste as, "[a]ny waste, including, but not limited to, municipal, residual or hazardous wastes, including solid, liquid, semisolid or contained gaseous materials."[59] Following this definition, the SWMA defines and establishes three types of solid waste subject to regulation: hazardous waste, municipal waste, and residual waste each subject to their own set of EQB-drafted regulations found in articles VII, VIII, and IX of the regulatory provisions.[60]

Municipal waste is defined as any garbage, refuse, industrial lunchroom or office waste, and other solid, liquid, semisolid, or gaseous material which is generated by residential, municipal, commercial, and institutional establishments.[61] Commercial establishments include retail stores, grocery stores, shopping centers, universities, and non-profit organizations.[62] Likewise, residual waste is defined as

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[57] Pa. Code tit. 25.
[58] 35 Pa. Stat. Ann. § 6018.103 (LEXIS).
[59] *Id.*
[60] 25 Pa. Code §§ 260.1- 270.214 (regulating hazardous waste); *see also* 25 Pa. Code §§ 271.1-271.933 (regulating municipal waste); *see also* 25 Pa. Code §§ 287.1- 299.232 (regulating residual waste).
[61] 35 Pa. Stat. Ann. § 6018.103 (LEXIS).
[62] *Id.*

any garbage, refuse, or other discarded material including solid, liquid, semisolid, or gaseous materials resulting from industrial mining, and agricultural operations.[63] Hazardous waste is then defined generally as, whether municipal or residual waste, any garbage, refuse, or sludge from a water treatment plant, air pollution control facility, or other discarded material which may cause or significantly contribute to an increase in mortality in the population or pose a substantial present or potential hazard to human health of the environment when improper treatment, storage, transportation, or disposal occurs.[64]

Within these three categories of solid waste, the SWMA then regulates various activities such as the transportation, operation, generation, storage, treatment, processing, and disposal of such waste.[65] Of these regulations, a significant provision establishes the importance of DEP-issued permits to manage solid waste.[66] Section 6018.501 requires that any person who processes, stores, treats, or disposes of solid waste, whether on their own land or another's, must first obtain a permit from the DEP.[67]

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[63] *Id.*
[64] *Id.*
[65] *Id.*
[66] 35 Pa. Stat. Ann. § 6018.501(a) (LexisNexis, LEXIS through P.L. 380, § 501); *see also* 35 Pa. Stat. Ann. § 6018.104(7) (LexisNexis, LEXIS through P.L. 331, § 2) (granting the DEP the power to issue permits, licenses and orders, and specify the terms and conditions thereof, and conduct inspections and abate public nuisances to implement the purposes and provisions of this act and the rules, regulations and standards adopted pursuant to this act); 35 Pa. Stat. Ann. § 6018.201(a) (LexisNexis, LEXIS through P.L. 380, § 201) (requiring any person who stores, operates, processes, collects, or dispose of municipal waste must firs obtain a permit for such facility from the DEP); 35 Pa. Stat. Ann. § 6018.301 (LexisNexis, LEXIS through P.L. 380, § 301) (requiring a person or municipality to obtain a permit to store, operate, transport, or dispose residual waste within the Commonwealth); *cf.* 35 Pa. Stat. Ann. § 6018.401 (LexisNexis, LEXIS through P.L. 380, § 401) (requiring that all persons and municipalities acquire licenses to transport hazardous waste).
[67] *Id.* § 6018.501(a).

Additionally, the DEP has the discretion to classify waste as non-waste if it finds that the waste has a beneficial use and does not present a threat to the health, safety or welfare of the people or environment of Pennsylvania.[68] The SWMA also comes coupled with several enforcement and penalty mechanisms including the establishment of a $25,000 maximum civil penalty, per offense per day provision[69] and enforcement orders to compel compliance with the SWMA, which may result in the revocation of a permit should the permit holder fail to comply.[70] The SWMA also regulates the temporary storage of waste for less than one year, the transportation of solid waste upon off-site removal,[71] and the reporting and record-keeping requirements for the design, construction, and maintenance of waste management facilities.[72]

However, despite the granular scope of the SWMA regulatory regime, the provisions addressing exceptions and incentives surrounding recycling merit special consideration within this article.[73]

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[68] 35 Pa. Stat. Ann. § 6018.104(18) (LexisNexis, LEXIS through P.L. 331, § 2).
[69] 35 Pa. Stat. Ann. § 6018.605 (LexisNexis, LEXIS through P.L. 380, § 605) (providing additional considerations that the DEP must undertake in assessing a civil penalty including whether the violation was willful or negligent).
[70] 35 Pa. Stat. Ann. § 6018.602 (LexisNexis, LEXIS through § 3).
[71] 35 Pa. Stat. Ann. § 6018.103 (LEXIS) (defining transportation as waste which has been removed off-site).
[72] 35 Pa. Stat. Ann. § 6018.403 (LexisNexis, LEXIS through P.L. 380, § 403) (requiring a person or municipality who transports or stores waste to, among other things, maintain records as necessary to identify the quantities of hazardous waste, label containers for the storage of such waste, submit reports to the DEP listing out the quantities of hazardous waste and the method of disposal for such waste, and to immediately notify the DEP of any spill or accidental discharge of such waste and take immediate steps to contain and clean up the spill or discharge); *see also* 25 Pa. Code § 273.313 (2000) (requiring that an operator or person of municipal waste ,among other requirements, submit to the DEP an annual operation report which includes a topographic survey map of the same scale of the contours at the beginning and end of the year, the completed areas of the site as well as areas filled but not active during the previous year, a description of capacity used in the previous year, and certification that the operator has received the analysis required by section 287.54).
[73] *See* discussion *infra* Sections III.B–III.C.

b. The Recycling Exception and Judicial Interpretation

i. Residual Waste Recycling

As previously explained, the SWMA categorizes waste into three categories: municipal, residual, and hazardous waste.[74] Of these three types of waste, both residual and municipal waste regulations include definitional clauses that detail the criteria for classifying waste as recyclable material, thereby either exempting waste from SWMA regulation generally or providing certain recycling incentives.[75] In clarifying the process by which *residual waste* is to be managed, Section 287.1 of the Pennsylvania residual waste regulations introduces the concept, providing that:

> Materials that are not waste *when recycled* include materials when they can be shown to be recycled by being [either] [u]sed or reused as ingredients in an industrial process to make a product or employed in a particular function or application as an effective substitute for a commercial product, provided the materials are not being reclaimed.[76]

The section further restricts this exception, stating that waste remains non-recyclable even if recycled if, when recycled, it falls into specific categories.[77] These categories include: 1) disposed matter; 2) products applied to the land; 3) materials burned for energy recovery, used to produce fuel, or contained in fuel; 4) speculatively accumulated materials; and 5) materials evaluated under Section 287.7's beneficial use analysis conducted by the DEP.[78] Additionally, the section

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[74] *See supra* discussion accompanying notes 61–64.
[75] *See* discussion *infra* accompanying notes 76–93, 98–103, 128–136.
[76] 25 Pa. Code § 287.1 (2014) (emphasis added).
[77] *Id.*
[78] *Id.*; *see also* 25 Pa. Code § 287.7 (providing that if the DEP determines the waste is being beneficially used in accordance with a permit and poses no threat to public health or the environment, it may no longer be considered waste).

establishes that a person who claims a coproduct material is exempt from waste must demonstrate: 1) there is a known market or deposition for the market for the material; 2) provide proper documentation and; 3) that they have the necessary equipment to do so.[79]

Thus, while a rule to exclude certain types of residual waste from SWMA regulation through the classification of such waste as recycled certainly exists, the question remains: how have courts interpreted this rule?[80]

The answer can be found under the Pennsylvania Supreme Court case of *Tire Jockey Serv. v. Commonwealth*.[81] In *Tire,* petitioner Tire Jockey Services (hereinafter TJS) intended to operate a tire recycling operation where the company would sell cut and component pieces of non-serviceable tires and manufacture rubber mats and crumb rubber which would be used as playground safety covering.[82] Upon TJS's failure to comply with DEP's orders in response to violations under the SWMA, the DEP issued an order to cease operations, remove a collection of tires and dispose of them in a lawfully permitted facility and pay a fifty-four-thousand dollar civil penalty.[83]

On appeal to the EHB, TJS contended that their tires were recyclable and thus exempt from the SWMA and DEP's order.[84] The EHB rejected this contention,

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[79] 25 Pa. Code § 287.1 (2014) (defining coproduct as a material from manufacturing or production, equivalent in composition to a product or raw material, with no greater risk to health or the environment, and meeting criteria for land application or energy recovery with a minimum BTU value of 5,000 pounds).
[80] *See* discussion *infra* accompanying notes 81-93.
[81] *See* discussion *infra* accompanying notes 82-95.
[82] Tire Jockey Serv. v. Commonwealth, Dep't of Env't. Prot., 915 A.2d 1165, 1171 (Pa. 2007).
[83] *Id*. at 1174.
[84] *Id*.

holding that the use and storage of tires did not fall within the exception of "waste" as, in considering the plain language of the statute, the expectation applies only when the material is recycled or reused.[85]

On appeal to the Pennsylvania Supreme Court, the DEP maintained the position that the used tires obtained and stored by TJS are "waste" as defined by Section 287.1 of the code, thus subjecting TJS to regulatory restriction by the SWMA's permitting process.[86] Additionally, the DEP also contended that under the definition of "waste," material that is "recycled" by being "reclaimed" does not qualify for the exception at issue.[87] The DEP adverted that under the exception to the definition of "waste," processes that convert a material that is not *immediately ready* for use as an effective substitute for a commercial product into one that is ready to be used in that fashion is *reclamation*, and a material that is subject to reclamation does *not* qualify for the exception, even though the reclamation may result in a material that does.[88]

In response, TJS argued that the DEP's analysis was fatally flawed given it ignored the fact that a waste material that *may* immediately be employed as an effective substitute for a commercial product is sufficient to meet the definitional exception.[89] TJS argued that the DEP's assumption that some processing is necessary to convert materials from "waste" to materials that are ready for use as

[85] *Id.* at 1178.
[86] *Id.*
[87] 915 A.2d 1165 at 1183-1184.
[88] *Id.*
[89] *Id.* at 1181.

substitutes for commercial products is invalid, noting that approximately 40% of incoming used tires that TJS obtains can immediately be reused as tires without any processing."[90]

The Pennsylvania Supreme Court relied on an established two-part test to determine whether the agency's interpretation of Section 278.1 of the code is proper: 1) whether the interpretation of the regulation is erroneous or inconsistent with the regulation and; 2) whether the regulation is consistent with the statute under which it was promulgated.[91]

In applying the test, the court held that the plain language of the regulation shows the recycling exception applies only to material *when* recycled and *not* before.[92] The court further established that the exception to the definition of "waste" applies only to materials that are *presently ready* for use as ingredients in an industrial process or as effective substitutes for commercial products, without any processing.[93] Today, the ruling in *Tire* still controls, establishing a narrow application of the regulatory residual waste recycling exception.[94]

Indeed, while the SWMA focuses on municipal waste processing and recycling, it provides little to no financial incentives for the recycling of residual waste, creating a significant barrier to promoting recycling practices for these

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[90] *Id.*
[91] *Id.* at 1185 (*citing* Pelton v. Commonwealth of Pa. Dep't of Pub. Welfare, 523 A.2d 1104, 1107-08 (Pa. 1987); Commonwealth of Pa. Dep't of Pub. Welfare v. Forbes Health Sys., 422 A.2d 480, 482 (Pa. 1980).
[92] 915 A.2d 1165 at 1189. (emphasis added).
[93] *Id.*
[94] *See supra* discussion accompanying notes 92-93.

materials.[95] By contrast, municipal waste recycling in Pennsylvania benefits from structured programs and incentives, highlighting how the presence of such measures can encourage recycling success, providing useful guidance on how effective oversight, regulations, and incentives may promote residual recycling.[96]

ii. Municipal Waste Recycling under the SWMA and Guidance under the Municipal Waste Planning Act

Compared to the management of residual waste, the SWMA presents a more restricted, yet precisely delineated recycling exception for the management of municipal waste.[97] And despite this stricter exception, the SWMA, alongside additional law, carries the additional benefit of offering certain financial incentives for the recycling of municipal waste.[98]

Section 271.1 of the SWMA begins by providing, "[recycling municipal waste under this article includes the] collection, separation, recovery and sale or reuse of metals, glass, paper, plastics and other materials which would otherwise be disposed or processed as municipal waste."[99] The section continues in defining waste as, "a material whose original purpose has been completed [but] not including source separated recyclable materials."[100] The section then provides a rather explicit list of source-separated recyclables: 1) clear and colored glass; 2) aluminum; 3) steel and bimetallic cans; 4) high-grade office paper; 5) newsprint; 6) corrugated

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[95] 35 Pa. Stat. Ann. §§ 6018.101-6018.1003.
[96] *See* discussion *infra* section (B)(2).
[97] *See infra* text accompanying notes 99-102.
[98] *See infra* text accompanying notes 127-135.
[99] Pa. Code § 271.1 (2014).
[100] *Id.*

paper; 7) plastics; and 8) other marketable grades of paper.[101] These eight source-separated materials constitute the comprehensive scope of recyclable materials under the SWMA municipal waste management framework.[102]

These eight municipal waste source-separated materials, as well as the municipal waste generally, is concurrently regulated by the Municipal Waste Planning, Recycling, and Waste Reduction Act (hereinafter Municipal Waste Planning Act) alongside the SWMA.[103] The Municipal Waste Planning Act delegates to the counties and municipalities the duties to develop waste management and recycling plans for the eight source-separated materials.[104] Additionally, similar to the SWMA, the Municipal Waste Planning Act also mandates that individuals must obtain a permit from the DEP to operate municipal waste management facilities.[105] It is through this system of concurrent regulation that the DEP and EQB creates a stringent set of application and planning requirements,[106] alongside economic incentives,[107] for the recycling of municipal waste.[108]

Although the Municipal Waste Planning Act is distinct from regulations governing residual waste, its planning and application provisions may offer

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[101] *Id*.
[102] *See supra* discussion accompanying notes 99-101.
[103] Municipal Waste Planning, Recycling, and Waste Reduction Act of 1998, 53 Pa. Cons. Stat. §§ 4000.101–4000.1904; *see also* 53 Pa. Cons. Stat. Ann. § 4000.104 (LexisNexis, LEXIS through P.L. 556, § 104 (2024)) (psroviding that the act shall be construed in *pari materia* with the Solid Waste Management Act).
[104] 53 Pa. Stat. Ann. § 4000.102 (LexisNexis, LEXIS through P.L. 556, § 102) (declaring that it is necessary to give countries the primary responsibility to plan for the processing and disposal of municipal waste generated within their boundaries and to provide incentives for municipalities to host facilities).
[105] *See supra* discussion accompanying notes 66-67.
[106] *See* discussion *infra* accompanying notes 110-126.
[107] *See* discussion *infra* accompanying notes 127-135.
[108] *See* discussion *infra* accompanying notes 110-126.

analogous guidance for the proposed residual waste recycling amendment(s).[109] For instance, municipalities are required to submit to the DEP a comprehensive set of planning requirements in their municipal waste management plans during the permit approval process.[110] Included among these requirements are: 1) a description of waste, such as the origin, content, and weight or volume of the waste;[111] 2) a description of facilities;[112] 3) the estimated future waste capacity of the plan;[113] 4) a description of recyclable materials;[114] 5) methods of financing the facilities;[115] 6) the

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[109] *See* discussion *infra* accompanying notes 141-151.
[110] *See* discussion *infra* accompanying notes 111-126.
[111] 53 Pa. Stat. Ann. § 4000.502(b) (LexisNexis, LEXIS through P.L. 556, § 502) (requiring that the plan shall explain the origin, content, weight or volume of municipal waste currently generated within the county's boundaries, and the volume of waste that will be generated within the county's boundaries within the next ten years); *see also* 25 Pa. Code § 272.223 (2014) (providing additional guidance on how to describe the origin, weight, or volume of waste); 25. Pa. Code § 272.421 (1992) (providing five elements of source separation programs).
[112] *Id.* at § 4000.502(c) (requiring that the plan identify current municipal waste facilities, their remaining capacity, potential capacity from reasonable expansion, the impact of recycling, and the use of existing facilities without impairing their capacity, while also considering potential expansion and ensuring complete applications are reviewed within 90 days); *see also* 25 Pa. Code § 272.228 (2000) (requiring the plan describe the location of the facility).
[113] *Id.* at § 502(d) (requiring the plan shall estimate ten years of municipal waste capacity needs, account for variables like residual waste, and, if additional capacity is needed, provide public notice, solicit proposals, and notify the department for publication in the Pennsylvania Bulletin); *see also* 25 Pa. Code § 272.225 (2000) (requiring the plan to estimate ten years of municipal waste capacity needs, describe variables affecting the estimate, consider regulatory impacts on residual waste, and, if additional capacity is needed, provide public notice, solicit proposals, and notify the Department for publication in the Pennsylvania Bulletin).
[114] *Id.* at § 4000.502(e)(1)(2) (requiring the plan to describe and evaluate recyclable materials, potential recycling benefits, existing recovery operations, collection and processing options, implementation schedules, estimated program costs and revenues, market commitments, municipal cooperation opportunities, and public education programs, while considering mandated municipal recycling requirements and the results of any market development studies); *see also* 25 Pa Code § 272.226 (2000) (requiring the plan to describe and evaluate recyclable materials, waste reduction benefits, existing recycling operations, collection and processing options, implementation schedules, estimated costs, market commitments, municipal cooperation, and public education programs, while ensuring compatibility with municipal recycling requirements and identifying mandatory or voluntary municipal programs).
[115] *Id.* at § 4000.502(f) ((requiring the plan to describe the type, cost, and financing of proposed facilities, recycling, or waste reduction programs for the next ten years; explain the selection of facilities or programs; evaluate alternatives and their environmental, economic, and life cycle costs; demonstrate consideration for future recycling needs; and provide a timeline for planning, design, construction, and operation).

facility location;[116] 7) proposed ordinances, contracts, or requirements for the plan;[117] and 8) an established process to permit public participation in the development of the facilities.[118] Additional requirements stipulated for the waste management plan in the permit application include a chemical waste analysis[119] and a justification for the proposed waste management program. [120]

[116] 53 Pa. Stat. Ann. § 4000.502(g) (LEXIS) (requiring the plan to identify the general location of municipal waste facilities and recycling programs, specify chosen sites if available, or explain the site selection process, and provide detailed reasons for selecting any facility located outside the county).
[117] *Id.* at § 4000.502(j) (requiring the plan to include proposed ordinances, contracts, or requirements to ensure facility operation, and to identify the affected areas, expected effective dates, and implementing mechanisms for each).
[118] *Id.* at § 4000.502(p); *see also* 25 Pa. Code § 272.222 (1992); *and with* 53 Pa. Stat. Ann. § 4000.1501(LexisNexis, LEXIS through § 1) (requiring that a municipalities' source-separation and collecting program include an ordinance or regulation requiring people to separate such materials and is to be documented to prove the total number of tons recycled); *see also* 53 Pa. Stat. Ann. § 4000.1502 (LexisNexis, LEXIS through P.L. 556, § 1502) (providing that no person shall operate a municipal waste landfill or resource recovery facility unless the operator has established at least one drop-off center for the collection and sale of at least three recyclable materials); 53 Pa. Stat. Ann. § 4000.1503 (LexisNexis, LEXIS through P.L. 556, § 1503) (requiring Commonwealth agencies, within two years, to establish and implement recycling programs for materials like aluminum, high-grade office paper, and corrugated paper; develop waste reduction programs to minimize waste from operations; and prioritize the use of composted materials for public land maintenance to the extent practicable); 53 Pa. Stat. Ann. § 4000.501 (LexisNexis, LEXIS through P.L. 556, § 501) (requiring the county to submit an officially adopted municipal waste management plan within two and a half years, ensure plan revisions are submitted when capacity nears exhaustion or as required, and follow procedures for review, including advisory committee input and municipal distribution for substantial revisions).
[119] 25 Pa. Code § 271.611(a)(b)(2014) (requiring the application to include generator details, waste analysis, leaching evaluations, hazardous waste determinations, and disposal demonstrations; describe waste generation processes with schematics; use approved analytical methods and quality control procedures; and allow waivers or modifications by the Department under certain conditions); *see also* 25 Pa. Code § 271.613 (2000) (requiring the application to include a waste analysis plan detailing parameters, test methods, sampling methods, and analysis frequency; a plan for screening incoming waste for consistency with the permit; and a description of how rejected waste will be managed, including responsible parties).
[120] 25 Pa. Code § 272.227 (2000) (requiring the plan to detail the selection and justification of the municipal waste management program by describing evaluated alternatives, advantages and disadvantages, advisory committee involvement, facility or program costs and financing, environmental and economic evaluations, recycling considerations, proposed schedules, and the use of put-or-pay contracts where applicable).

The regulations also provide alternative requirements for municipal resource recovery facilities.[121] Such requirements include operation requirements,[122] mandates for recycling facility site planning, construction, and maintenance,[123] environmental monitoring requirements,[124] hazardous waste and emergency

[121] 25 Pa. Code § 283.1 (1997) (establishing the scope of chapter 283, resource recovery and other processing facilities).
[122] 25 Pa. Code § 283.102 (2000) (requiring the application to include an operating plan, alternative waste handling procedures, safety and emergency plans, waste consistency measures, operator training, operating hours, and a study on the facility's effects on water supplies); *see also* 25 Pa. Code § 283.121 (2000) (requiring a recycling plan).
[123] 25 Pa. Code § 283.103 (2000) (requiring the application to include a topographic map and descriptions showing property boundaries, water bodies, water sources, infrastructure, buildings, monitoring points, floodplains, access roads, barriers, waste storage areas, utilities, erosion controls, bond areas, facility structures, weigh stations, and designated areas for radioactive waste detection); *see also* 25 Pa. Code § 283.104 (1988) (requiring the application to describe waste sources, flow control, facility dimensions, equipment, recovery rates, residue disposal, unmarketable waste handling, storage limits, shutdown plans, utilities, emergency measures, and equipment repair plans); 25 Pa. Code § 283.212 (2000) (requiring a gate or other barrier and fence blocking access when an attendant is not on duty); 25 Pa. Code § 283.213 (2000) (requiring a specific road design ensuring the prevention of erosion and runoff into nearby streams); 25 Pa. Code § 283.217 (2000) (establishing cleaning and maintenance requirements for the facility); 25 Pa. Code § 283.261 (2000) (establishing daily operational record keeping requirements); 25 Pa. Code § 283.262 (2000) (establishing annual report requirements and submission details to the DEP).
[124] 25 Pa. Code § 283.107 (2000) (requiring the applicant to submit groundwater and soil monitoring plans, if required by the Department, to detect potential degradation or contamination from the facility); *see also* 25 Pa. Code § 283.218 (2000) (requiring facility emissions to comply with the Air Pollution Control Act, ambient air quality standards, and permit conditions; prohibiting open burning; and mandating best available or reasonably available technology standards for air quality control, depending on the type and age of incinerators); 25 Pa. Code § 283.232 (2000) (requiring the operator to manage surface water and control erosion and sedimentation by diverting surface water, comply with Chapters 102 and 105, and prevent erosion to the maximum extent possible, including through revegetation).

response procedures,[125] and the establishment of an accident prevention plan, including specific provisions relating to the handling of waste.[126]

The Municipal Waste Planning Act then incentivizes municipal recycling efforts by mandating that the DEP award grants to cover the costs associated with the preparation of municipal waste management plans, as well as related studies, surveys, research, analyses, and environmental mediation.[127] Section 4000.902 of the Municipal Waste Planning Act further clarifies this process by specifying the prerequisites for DEP grant awards to municipalities for the development and implementation of recycling programs.[128] Said prerequisites include the description

[125] 25 Pa. Code § 283.110 (1998) (requiring the operator to contain a contingency plan relating to emergency procedures); *see also* 25 Pa. Code § 283.253 (2000) (requiring the operator to immediately implement the approved contingency plan during emergencies, assess hazards, prevent further incidents, notify the Department and county emergency agency with specific details, clean up affected areas, and obtain approval before resuming operations); 25 Pa. Code § 283.113 (2000) (requiring the application to include an action plan for monitoring and responding to radioactive material, with procedures for training, notification, recordkeeping, and reporting, prepared in accordance with Department guidance or an equally protective alternative); 25 Pa. Code § 283.123 (2001) (requiring the application include a plan for removal of hazardous waste); *and with* 25 Pa. Code § 283.283 (1992) (prohibiting operation of a resource recovery facility without a program to remove hazardous materials, such as plastics, batteries, and household hazardous waste, to the greatest extent practicable); 25 Pa. Code § 283.251 (1988) (requiring the facility shall be designed to prevent and minimize the potential for fire, explosion, or a release of solid waste into the air, water, or soil).

[126] 25 Pa. Code § 283.241 (1998) (requiring the operator to establish and implement an accident prevention and safety plan, distribute safety handbooks and procedures, conduct ongoing safety programs, post emergency information, comply with State and Federal occupational safety laws, and ensure proper ventilation).

[127] 53 Pa. Stat. Ann. § 4000.901 (LexisNexis, LEXIS through P.L. 556, § 901) (authorizing the Department to award grants to counties for preparing municipal waste management plans, conducting related studies and analyses, environmental mediation, and feasibility studies for waste facilities, excluding non-energy recovery combustion facilities, through an application process on forms provided by the Department).

[128] 53 Pa. Stat. Ann. § 4000.902(a)(b) (LexisNexis, LEXIS through P.L. 556, § 902) (authorizing the Department to award grants for developing and implementing municipal recycling programs, covering up to 90% of approved costs, with an additional 10% for financially distressed municipalities; requiring applications to detail program structure, avoid duplication, provide information on collection systems, markets, and public education, and justify any equipment purchases as unavailable in the private sector, following a 30-day public notice period).

of a recycling collection system's contracts, markets, ordnances, public information and education, program economics, and other information deemed necessary by the DEP.[129] The statutes and regulations then provide specified requirements for different types of grants such as general grants,[130] planning grants,[131] municipal recycling program development grants,[132] grants for county recycling coordinators,[133] performance grants,[134] and grants for host municipality inspectors.[135]

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[129] *Id.*

[130] 25 Pa. Code. § 272.313 (2001); *see* 25 Pa. Code § 272.314 (2001) (limiting grants to 10% per county annually; requiring applicants to comply with prior grants, laws, and reporting; prohibiting duplicate reimbursements or cross-grant matches; withholding funds for false information, misuse, or inadequate documentation; lapsing unused grants after one year; and requiring preapplication conferences for certain grants); *see also* Pa. Code § 272.317 (2001) (requiring grant applications to be submitted on Department-provided forms with necessary information, by municipalities or sponsors, not municipal authorities, using postconsumer material paper when feasible, and requiring preapplication development for certain grants).

[131] 25 Pa. Code § 272.321 (2000) (establishing the scope of the grant); *see* 25 Pa. Code § 272.322 (2000) (establishing limits to the use of the grant); *see also* 25 Pa. Code § 272.323 (2000) (requiring the application to include a detailed project description, formation, funding source match, and an explanation of how it supports the Municipal Waste Planning, Recycling and Waste Reduction Act).

[132] 25 Pa. Code § 272.331 (1992) (allowing the Department to award grants to municipalities for recycling program development and implementation, including market identification, public education, and purchasing equipment for collection and processing recyclable materials, provided such equipment is not available in the private sector); *see also* Pa. Code § 272.333 (2000) (providing grant application description requirements); 25 Pa. Code § 272.334 (1991).

[133] 53 Pa. Stat. Ann. § 4000.903 (LexisNexis, LEXIS through P.L. 556, § 903) (authorizing the Department to award grants to counties to reimburse costs for recycling coordinators' salaries and expenses, requiring an application detailing the coordinator's duties, activities, and prior achievements if applicable); *see also* 25 Pa. Code § 272.341 (1991) (establishing the scope of grant usage); 25 Pa. Code §272.343 (1992).

[134] 53 Pa. Stat. Ann. § 4000.904 (LexisNexis, LEXIS through P.L. 1347, § 2) (authorizing annual performance grants for municipal recycling programs based on recycled materials and population size, requiring applications to detail programs and compliance with ordinances, education, enforcement, and recycling efforts, with funds restricted to eligible activities unless all requirements are met, subject to Department oversight); *see also* 25 Pa. Code § 272.351 (1992) (establishing a wide scope of grant usage); 25 Pa. Code § 272.352 (1992); 25 Pa. Code § 272.353 (2000) (requiring the application to describe the weight of recycled and marketed materials, adjusted for residue, with supporting documentation retained for four years and available for inspection; and, for multi-municipality recycling operations, to specify total materials collected and the applicant's contribution); 25 Pa. Code § 272.354 (1992).

[135] 25 Pa. Code § 272.361 (1992) (establishing scope of the grant to host municipality inspectors); *see* 25 Pa. Code § 272.362 (2000) (providing grants for 50% of approved salaries and expenses for up to

Finally, the Municipal Waste Planning Act also provides enforcement and remedy mechanisms to ensure compliance with the Act and SWMA's municipal waste management.[136] These mechanisms include provisions that establish what constitutes unlawful conduct such as failing to adhere to the conditions of an approved waste management plan,[137] the ability for the DEP to issue enforcement orders,[138] restraining violations through a suit in equity in the Commonwealth Court to enjoin any statutory violations,[139] criminal penalties,[140] and civil penalties.[141] The regulatory scheme additionally provides guidance on nearly all aspects of the these enforcement and remedy mechanisms including when a penalty

two certified host municipality inspectors, excluding costs unrelated to inspections, administrative tasks, office expenses, clothing, costs covered by other grants, or costs incurred outside the inspector's certification period); *see also* 25 Pa. Code § 272.363 (1992) (providing grant application requirements); 25 Pa. Code § 272.364 (2000) (requiring host municipality inspectors to maintain certification through training and annual inspections, with failure leading to inactive status and prohibition from inspection activities; allowing reactivation through training; listing grounds for decertification, such as violations or misconduct; mandating written notice of decertification, including recertification eligibility; and imposing a two-year recertification wait period).

[136] *See* discussion *infra* accompanying notes 137-144.

[137] 53 Pa. Stat. Ann. § 4000.1701 (LexisNexis, LEXIS through P.L. 556, § 1701) (prohibiting violations of the act, approved plans, schedules, or fee payments; obstructing duties; falsifying information; failing to pay landfill funds; and selling non-degradable plastic beverage carriers, all deemed public nuisances).

[138] 53 Pa. Stat. Ann. § 4000.1702 (LexisNexis, LEXIS through P.L. 556, § 1702) (authorizing the Department to issue orders to enforce the act, including compliance with municipal waste plans and regulations, effective upon notice; requiring recipients to diligently comply, with failure punishable as contempt of court).

[139] 53 Pa. Stat. Ann. § 4000.1703 (LexisNexis, LEXIS through P.L. 556, § 1703) (allowing the Department to seek injunctions to stop violations or public nuisances, with courts able to issue preliminary injunctions for unlawful conduct or harm without requiring a bond).

[140] 53 Pa. Stat. Ann. § 4000.1705 (LexisNexis, LEXIS through P.L. 556, § 1705) (establishing penalties for violations, including summary offenses with fines of $100–$1,000 or up to 30 days' imprisonment; third-degree misdemeanors with fines of $1,000–$10,000 per day or up to one year's imprisonment; and second-degree misdemeanors for repeat offenses within two years, with fines of $2,500–$25,000 or up to two years' imprisonment, treating each day's violation as a separate offense).

[141] 53 Pa. Stat. Ann. § 4000.1704 (LexisNexis, LEXIS through P.L. 556, § 1704) (allowing the Department to impose civil penalties up to $10,000 per violation, considering factors like willfulness, environmental harm, and deterrence; requiring payment, escrow, or an appeal bond within 30 days to maintain appeal rights; and treating each day's violation as a separate offense).

will be assessed,[142] the procedures for assessing penalties,[143] and the process by which agencies may inspect the waste management facilities to, among other purposes, inspect and ascertain compliance or noncompliance by the act and regulations.[144]

Although the concurrent regulatory scheme of the Municipal Waste Planning Act may not be directly applicable to residual waste, the Act provides significant guidance regarding the potential structure and implementation of the proposed statutory and regulatory amendment.[145]

iii. Hazardous Waste Recycling

Given the magnitude and risk that hazardous waste posits towards the citizens of Pennsylvania, neither the statute nor regulations provide an exception or

[142] 25 Pa. Code § 271.411(c)(d) (1988) (assessing penalties based on the seriousness of violations, including harm caused, costs incurred or avoided, willfulness, and prior violations within five years; treating each day of a continuing violation as a separate offense, and capping penalties at the statutory maximum for each violation, including multiple violators or violations on the same day); *see also* Pa. Code § 271.412 (1988) (requiring the DEP to assess civil penalties under this section, alongside Section 271.414, for operating municipal waste facilities without permits, accepting unapproved waste, causing open burning, or polluting water; and for landfills, penalties for failing to maintain erosion controls, apply final cover, install liners or monitoring systems, follow operation plans, or submit bond payments on time); Pa. Code § 271.413 (2000) (setting minimum penalties, including $5,000 for unpermitted landfill use, $500 for construction landfill violations, $1,000 for sewage sludge or notice failures, $2,000 for obstructing agents, and $1,000 for training noncompliance).

[143] 25 Pa. Code § 271.414 (1998) (providing procedures for assessing civil penalties, including serving notice by certified mail or personal service, arranging optional review conferences, conducting informal conferences, terminating unresolved conferences, and clarifying that appeals are not delayed by conference requests).

[144] 25 Pa. Code § 271.421 (2014) (authorizing the Department to access records, facilities, and samples for compliance; requiring routine inspections, twelve times annually for landfills and resource recovery facilities, four times for transfer and composting facilities, and at least twice for sewage sludge and medical waste generators; and allowing additional inspections for violations or public health concerns).

[145] *See supra* notes 110-144 and accompanying text.

process to exempt hazardous waste from regulation.[146] On this basis, the regulation of hazardous waste provides no guidance for the proposed amendment.[147]

c. Assessment of the Next Steps

As explained above, a stark contrast exists between the regulatory frameworks governing residual and municipal waste recycling.[148] While residual waste recycling has limited regulatory exceptions and lacks incentives, municipal waste recycling, governed by the Municipal Waste Planning Act, offers a strong incentive structure despite its narrow focus on municipal waste and its delegation to individual municipalities and counties.[149]

Therefore, to expand and incentivize residual waste recycling, the EQB has the capacity to enact and implement new regulations that address the shortcomings of each recycling exception by providing clear language, procedures, and incentives, provided the legislature offers its support.[150] For instance, a new regulation may take guidance from the Municipal Waste Planning Act's approach by incorporating comprehensive planning procedures, economic incentives, and regulatory oversight, which are examined in the following proposal, ensuring a robust and adaptable residual waste recycling framework.[151]

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[146] *See supra* discussion accompanying note 64.
[147] *See* discussion *infra* accompanying section IV.
[148] *See supra* notes 95-96 and accompanying text.
[149] *See supra* notes 97-135 and accompanying text.
[150] *See* discussion *infra* Section IV.
[151] *See* discussion *infra* Section IV.

IV. PROPOSED AMENDMENTS

a. Legislative Action

Given the EQB's limited regulatory discretion under the current SWMA statutory scheme[152] and the absence of existing recycling planning and economic incentives for residual waste under the SWMA, [153] a successful expansion of residual waste recycling requires action from both the legislature and the EQB to promote, incentivize, and ensure compliance with proper residual waste recycling practices.

While the legislature could enact numerous new statutory provisions or significant amendments to the existing SWMA scheme, simply expanding the scope of the EQB's authority with legislative guidance may prove to be an equally if not more effective means of implementing the proposals outlined in this article.

To begin effective implementation the proposals previously outlined, the legislature should pass a statutory amendment under Section 6018.105 of the SWMA or create an additional applicable statutory chapter providing either explicitly or implicitly through alternative language that,

> "The Environmental Quality Board shall have the power, and its duty shall be to adopt rules and regulations to provide for the development, administration, and enforcement of the recycling of residual waste, as defined in Section 6018.103 of the Act, including: (1) the establishment of residual recycling programs for persons as defined in the Act; (2) the establishment of a permitting process, granting the Department the power to issue permits to persons, pursuant to proper planning, including waste management and capacity, facility planning, financial planning, contractual obligation, public participation, chemical analysis, environmental monitoring, hazardous and emergency

[152] *See supra* text accompanying note 55.
[153] *See supra* text accompanying note 95.

> response procedures, and accident prevention plans; (3) the establishment of inspection and enforcement procedures that impose a duty on, and empower, the Department to inspect and monitor violations of the Act resulting from negligence, and to enforce compliance through the issuance of civil penalties as outlined in Section 6018.605 of the Act, or through other applicable penalties; (4) the establishment of economic incentives conditioned on comporting with the rules and regulations pursuant to the Act; and (5) the establishment of recycling goals and environmental sustainability pursuant to the environmental rights amendment."[154]

In providing the EQB with the authority under the proposed amendment, the legislature delegates regulatory authority to the EQB pursuant to an expansive residual waste recycling program ensuring efficiency and flexibility in this new recycling era.

b. Expanding the definition

Following legislative authorization, before the EQB passes new regulations under Title 25 of the Pennsylvania Code on environmental protection, it should amend Section 287.1, resulting in a conclusive effect to overcome, in part, the ruling in *Tire*.[155] In light of *Tire's* interpretation of Section 287.1, which restricts the residual waste recycling exception to material post-recycling, the amendment to Section 287.1 is necessary to preempt this interpretation and authorize the classification of residual waste material pre-recycling[156] Thus, following the preceding language of Section 287.1, "materials are not waste when,"[157] the section will be amended to include the following provision under subsection III,

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[154] *See supra* text accompanying notes 18-20; *see also Eagle Env't II, L.P.* 884 A.2d 867 at 876; *Robinson Twp.,* 83 A.3d 901 at 915-916; *Blosenski Disposal Serv.*, 566 A.2d 845 at 849.
[155] *Tire Jockey Serv.*, 915 A.2d 1165 at 1171.
[156] *Id.* at *1189.*
[157] *See supra* note 76.

> *"(D) the Department grants the person the authorization through the issuance of a permit to recycle such residual waste in compliance with subchapter I: Recycling under this chapter."*

This ensures that if the person seeking to recycle residual waste fails to comport with the regulations, the narrow recycling exception under *Tire* still controls. And although the EQB may modify the exact language or location of *Subchapter I: Recycling*, under Chapter 287: Residual Waste Management within Article IX of the relevant regulations, it is the proposed new location for the following regulations.[158]

c. Ensuring Compliance

Given the possibility of nonfeasance by persons under the amendment whether by intentionally or negligently failing to comply and to ensure compliance with Article I, Section 27,[159] the EQB should pass a stringent set of regulations that begin with requiring any person seeking to recycle residual waste must first obtain a permit from the DEP.[160] By modeling the Municipal Waste Planning Act statutory and regulatory framework,[161] the EQB should require submission of a *detailed* planning application to the DEP before issuing a permit.[162]

The plan should generally include details such as: 1) the justification of the plan;[163] 2) a description of waste, such as the origin, content weight, volume, the

[158] *See supra* text accompanying note 60.
[159] *See supra* text accompanying note 19.
[160] *See supra* discussion accompanying notes 67; 70; 119.
[161] *See supra* discussion accompanying notes 97-145.
[162] *See supra* discussion accompanying notes 111-126.
[163] *See supra* note 120.

amount of estimated processed residual waste over the next year;[164] 3) a description of the operational capacities of the facilities including: the location of the facility,[165] the facilities recycling processes,[166] mandates for recycling facility site planning, construction, and maintenance;[167] 4) the effect that the recycling process will have on the environment and an environmental monitoring process;[168] 5) proposed contracts and business operations of the plan;[169] 6) the method of financing such operation; [170] 7) hazardous waste and emergency response procedures;[171] 8) accident prevention plans with specific provisions on handling waste;[172] and 9) any other requirements the DEP deems necessary to comport with the SWMA and the environmental rights amendment.[173]

Furthermore, should a person under the SWMA receive a DEP permit to recycle residual waste, to ensure compliance with the permit, the EQB should enact regulations which generally, in line with Section 6018.501(a) of the SWMA and Section 271.421 of the regulations, shall grant the DEP the power to: 1) enter a building to ascertain the compliance or noncompliance by the person or with the act and regulations; 2) requiring such person to establish and maintain records and reports to be furnished to the DEP as prescribed and; 3) establishing a routine

[164] *See supra* note 111.
[165] *See supra* note 112.
[166] *See supra* note 112.
[167] *See supra* note 123.
[168] *See supra* notes 119; 124.
[169] *See supra* note 117.
[170] *See supra* note 115.
[171] *See supra* note 125.
[172] *See supra* note 126.
[173] *See* 35 Pa. Stat. Ann. § 6018.102; *see also* PA. CONST. art. I, § 27.

inspection by the DEP of twelve times a year, or at their own discretion, deemed necessary to ensure compliance.[174]

Finally, given the proposed legislative amendment and already existing civil penalties, the EQB should create a regulatory framework in assessing civil penalties which explicitly include a factor as to whether the person acted willfully or negligently[175] in forestalling the residual waste recycling process through excessive waste storage or inaction, resulting in a fine of no more than $25,000 per day per violation,[176] a revocation of the permit,[177] or other penalties found within the SWMA statutory or regulatory scheme.[178]

d. Increasing Incentives

The EQB should base its creation of financial incentives for recycling residual waste, as outlined in the Section 6018.105 amendment, primarily on the existing grant system established by the Municipal Waste Planning Act.[179] Therefore, the EQB ought to empower the DEP to award grants to incentivize residual waste recycling, provided that such grants do not exceed available funding, as determined by the DEP, and are explicitly allocated to the preparation of residual waste recycling plans and recycling operations, as well as studies, surveys, research, analyses, and environmental remediation.[180] Moreover, like Municipal Waste

[174] *See supra* notes 67; 144.
[175] *See supra* notes 69; 140.
[176] *See supra* note 140.
[177] *See supra* note 138.
[178] *See supra* notes 136-144.
[179] *See supra* notes 127-135.
[180] *See supra* discussion accompanying notes 127-129.

Planning Act's regulatory clarification on different requirements for different types of grants for municipal waste recycling,[181] the EQB should take a wait-and-see approach prior to passing more stringent and specific grant regulations based on public policy following the passage of the statutory and regulatory amendment.

V. CONCLUSION

Increasing recycling incentives in response to climate change remains a pressing issue today.[182] While individual actions like reducing, reusing, and recycling hold significant value, they are, by themselves, insufficient, thereby highlighting the importance of government intervention.[183] This is demonstrated by the fact that the SWMA, as currently implemented, fails to incentivize or facilitate recycling practices for residual waste.[184]

This inadequacy is further compounded by restrictive judicial precedent, such as the *Tire* decision, which limits the materials eligible for residual waste recycling.[185] Furthermore, the absence of a clear incentive structure and oversight system exacerbates this issue, leaving residual waste recycling underdeveloped and underutilized.[186] The proposed statutory and regulatory amendments to the SWMA offer a necessary and practical solution to these shortcomings.[187]

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[181] *See supra* discussion accompanying notes 130-135.
[182] *See supra* discussion accompanying notes 2-10.
[183] *See supra* text accompanying notes 7-10.
[184] *See supra* discussion accompanying notes 95-96.
[185] *Tire Jockey Serv.,* 915 A.2d 1165 at 1189; *see supra* discussion accompanying notes 92-94.
[186] *See supra* discussion accompanying notes 95-145.
[187] *See supra* Part IV.

These amendments, by expanding the definition of recyclable residual waste, introducing comprehensive permitting, ensuring compliance, and establishing economic incentives,[188] would modernize Pennsylvania's residual waste management regime while aligning with the purposes and principles of with Article I, Section 27 by advancing the Commonwealth's duty to conserve and maintain public natural resources for the benefit of current and future generations.[189]

[188] *See supra* Part IV.
[189] PA. CONST. art. I, § 27.

PERFORMING FISSION ON THE NUCLEAR STIGMA: AN ANALYSIS OF NUCLEAR ENERGY'S REGULATORY FUTURE

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I. INTRODUCTION

During World War II, nuclear sciences were first developed in an effort to create weapons of war.[2] After the war, the United States made a push to utilize these sciences for energy production purposes.[3] At its core, nuclear energy is created from the splitting of uranium atoms; this reaction is referred to as nuclear fission.[4] In a controlled environment, a chain reaction where atoms continue to split creates high levels of energy and heat.[5] Similar to natural resources power plants, like coal, oil, or gas, nuclear power plants create electricity by heating water and using its steam to turn electricity-generating turbines.[6] While coal, oil, and gas power plants heat the water by burning these resources, nuclear power utilizes the heat produced from the fission reaction.[7]

In 1946, the United States Congress created the Atomic Energy Commission ("AEC") to regulate the development of nuclear energy.[8] The AEC was later replaced by the Nuclear Regulatory Commission ("NRC"), which is still active today.[9] In December of 1951, electricity was generated from a nuclear reactor for the first time in the United States.[10] Throughout the 1950s and 1960s, the United States made a push to further develop nuclear energy and its use for commercial energy purposes grew in popularity.[11]

Developments that brought nuclear energy into the commercial market slowed in the 1970s and 1980s as safety and environmental issues arose, especially after the infamous Three Mile Island incident.[12] On March 28, 1979, the Three Mile Island

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[2] Office of Nuclear Energy, Science, and Technology, *The History of Nuclear Energy*, U.S. DEP'T OF ENERGY, at 7.
[3] *Id.* at 8.
[4] *Id.* at ii-iii.
[5] *Id.*
[6] *Id.* at iii.
[7] Office of Nuclear Energy, Science and Technology, *supra* note 2, at iii.
[8] *Id.* at 8.
[9] *History*, U.S. NUCLEAR REGULATORY COMM'N (Sept. 10, 2021), https://www.nrc.gov/about-nrc/history.html#aec-to-nrc.
[10] Office of Nuclear Energy, Science, and Technology, *supra* note 2, at 8.
[11] *Id.* at 9.
[12] Office of Nuclear Energy, Science, and Technology, *supra* note 2, at 9; U.S. NUCLEAR REGULATORY COMM'N, *supra* note 9.

Nuclear Power Plant in Londonderry Township, Pennsylvania, failed.[13] This failure resulted in the reactor's inability to cool, causing an increase in pressure within the boiler.[14] To relieve this pressure, the workers opened a relief valve, which was supposed to close once the pressure was released.[15] However, the valve malfunctioned and did not close, resulting in the releasing of the cooling water from the valve.[16] By the time the workers were able to get the situation under control, the incident had already resulted in increased levels of radiation inside the reactor.[17] Luckily, those living around the reactor were only exposed to about one millirem of radiation in excess of the regular background dose of radiation that we are exposed to every day.[18]

The Three Mile Island incident is essential for understanding the basis of today's nuclear regulations. Nuclear energy still faces regulatory obstacles today in part as a response to the Three Mile Island incident. Nonetheless, emerging technologies may result in a new era of nuclear energy.[19]

Pennsylvania, in particular, has a very storied history within nuclear energy and the energy sector as a whole.[20] In 1957, the first commercial nuclear power plant in the United States opened in Beaver County, and Pennsylvania currently has multiple nuclear power plants.[21] Pennsylvania is home to a very big energy industry

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[13] *Backgrounder on the Three Mile Island* Accident, U.S. NUCLEAR REGULATORY COMM'N (Mar. 28, 2024), https://www.nrc.gov/reading-rm/doc-collections/fact-sheets/3mile-isle.html#top.
[14] *Id.*
[15] *Id.*
[16] *Id.*
[17] *Id.*
[18] U.S. NUCLEAR REGULATORY COMM'N, *supra* note 9; *Doses in Our Daily Lives*, U.S. NUCLEAR REGULATORY COMM'N (Apr. 26, 2022), https://www.nrc.gov/about-nrc/radiation/around-us/doses-daily-lives.html (A millirem is the standard unit of measurement for radiation exposure. For reference, during the average chest x-ray, a patient is exposed to about 10 millirems of radiation).
[19] Mary Carpenter, *Advanced Nuclear Technologies*, NUCLEAR ENERGY INSTITUTE (Sept. 30, 2021), https://www.nei.org/news/2021/advancing-nuclear-technologies.
[20] *Pennsylvania's Nuclear Power Plants*, PA. DEP'T OF ENV'T PROT. (last visited Mar. 30, 2025), https://www.dep.pa.gov/Business/RadiationProtection/NuclearSafety/Pages/Pennsylvania's-Nuclear-Power-Plants.aspx; *Pennsylvania State Energy Profile*, U.S. ENERGY INFO. ADMIN. (last visited Mar. 30, 2025), https://www.eia.gov/state/print.php?sid=PA.
[21] *History*, NUCLEAR POWERS PENNSYLVANIA (last visited Mar. 30, 2025), https://nuclearpowerspennsylvania.com/issue/history/#:~:text=Pennsylvania%20has%20a%20rich%20nuclear%20energy%20history.%20Pennsylvania,commercial%20nuclear%20power%20plant%20in%20the%20United%20States; PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, *supra* note 20.

and is still a top producer of energy within the United States.[22] In 2022, Pennsylvania ranked second nationally in energy production, second in natural gas production, third in coal production, third in electricity production, and second in electricity generation from nuclear power.[23] Pennsylvania is also home to the first commercial oil well in the United States which opened in 1859.[24] In 2022, Pennsylvanians consumed most of their energy from natural gas sources followed by nuclear electric power, motor gasoline (used to power cars), and coal.[25]

In recent years, concerns about the impact that traditional energy sources have on the climate and environment have led to a push for more clean energy options.[26] The increase in popularity of renewable energy comes with concerns about its reliability.[27] For example, two of the most popular renewable energy sources, solar and wind, are among the least reliable sources of energy, and in 2023 neither reached more than 35% of their total output potential.[28] Comparatively, in 2023, nuclear energy reached 93.1% of its output potential.[29]

This article outlines the current regulatory obstacles that nuclear energy faces by analyzing the federal nuclear regulations and the effects that these regulations have on the energy sector within the state of Pennsylvania. This article further touches upon emerging technologies, such as small modular reactors and AI, and the role these technologies play in the future of nuclear energy. Finally, this article addresses how these regulations can adapt to promote further developments in nuclear power. Nuclear energy faces challenges from regulatory agencies focused on development, environmental impact, and national security, as well as challenges from the public which must be overcome to allow nuclear energy to reach its

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[22] PA. DEP'T OF ENV'T PROT., *supra* note 20.
[23] *Id.*
[24] *Id.*
[25] *Id.*
[26] *Climate Change Impacts on Energy*, U.S. ENV'T PROT. AGENCY (Oct. 2, 2024), https://www.epa.gov/climateimpacts/climate-change-impacts-energy.
[27] *Electric Power Monthly*, U.S. ENERGY INFO. ADMIN., https://www.eia.gov/electricity/monthly/epm_table_grapher.php?t=epmt_6_07_b (last visited Mar. 30, 2025).
[28] *Id.*
[29] *Id.*

maximum potential. These challenges may be overcome by new investments in nuclear energy and its emerging technologies, rolling back regulations to make nuclear energy development easier, and the introduction of incentive programs for energy companies.

II. BACKGROUND

i. Regulatory Agencies

When signed into law in 1946, the Atomic Energy Act ("AEA") created the AEC, the first regulatory body focused solely on nuclear energy.[30] The AEA outlined the Atomic Energy Commission's purpose, stating that:

> Atomic energy is capable of application for peaceful as well as military purposes. It is therefore declared to be the policy of the United States that:
>
> (a) the development, use, and control of atomic energy shall be directed so as to make the maximum contribution to the general welfare, subject at all times to the paramount objective of making the maximum contribution to the common defense and security; and
>
> (b) the development, use, and control of atomic energy shall be directed so as to promote world peace, improve the general welfare, increase the standard of living, and strengthen free competition in private enterprise.[31]

The AEA provided funds for the research and development of, among other things, the use of atomic energy for the generation of usable commercial energy.[32] This established the United States' commitment to investments in the use of nuclear energy for commercial purposes.[33] The AEA focused heavily on the licensure and ownership rights of nuclear material used in the production of nuclear generated power.[34] At the time, there were serious national security concerns surrounding

[30] Office of Nuclear Energy, Science, and Technology, *supra* note 2, at 8.
[31] Atomic Energy Act, 42 USC § 2011.
[32] *Id.*
[33] *Id.*
[34] *See* 42 USC § 2092.

nuclear energy in part due to the fact that, up until that point, the main use of nuclear energy was for weapons of mass destruction.[35]

In 1974, Congress passed the Energy Reorganization Act ("ERA"), which abolished the AEC and replaced it with the NRC.[36] The newly founded NRC absorbed the powers granted to the AEC outlined in the AEA.[37] The NRC is comprised of five members appointed by the president and confirmed by the senate, one of whom the president appoints as chair.[38] Similar to the AEC, the ERA gave the NRC the right to oversee the licensing rights of nuclear power plants and the exclusive right to regulate nuclear energy in the United States.[39]

Through its authority as the exclusive regulator of nuclear energy, the NRC has issued many regulations on nuclear energy production and its development.[40] Notably, the NRC has regulated reactor sites and reactor licensing, both of which directly affect the development of nuclear power plants.[41] In evaluating a potential reactor site, the NRC considers the factors outlined in § 100.20 of NRC Regulations Title 10 of the Code of Federal Regulations.[42] Following these factors, the NRC considers 1) the surrounding population, 2) the site's proximity to other major infrastructure sites, and 3) the actual physical characteristics of the site.[43]

First, when assessing the surrounding populus, the NRC looks to the social impact that a potential reactor accident would have on this populus in an effort to mitigate the risk of greater harm in the instance of a reactor accident.[44] For this

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[35] Office of Nuclear Energy, Science, and Technology, *supra* note 2.
[36] Energy Reorganization Act of 1974, 42 USC § 5814; 42 USC § 5841.
[37] *Id.*
[38] U.S. NUCLEAR REGUL. COMM'N, *The Commission* (Nov. 2023), https://www.nrc.gov/about-nrc/organization/commfuncdesc.html (noting that the chair is in charge of administrative, organizational, long-term planning, and personnel matters, while the remaining four commissioners, along with the chair, collectively formulate policies and regulations governing nuclear energy, including reactor and safety guidelines, issue licenses, and adjudicate legal issues).
[39] 42 USC § 5841.
[40] *NRC Regulations by Subject Matter*, U.S. NUCLEAR REGUL. COMM'N (Oct. 7, 2024), https://www.nrc.gov/about-nrc/regulatory/rulemaking/access-regs.html.
[41] *Id.*
[42] NRC, 10 CFR § 100.20 (1996).
[43] *Id.*
[44] *Id.*

reason, it is unlikely that a nuclear reactor site would be approved in a highly densely populated area.[45]

Second, the NRC also evaluates the surrounding infrastructure which includes airports, dams, transportation routes, military facilities, and chemical facilities.[46] This evaluation is done to evaluate whether the plant design can "accommodate commonly occurring hazards."[47] This implies that a plant design must comply with the structural requirements of the area which the plant is to be developed.[48]

Finally, the NRC evaluates the physical characteristics of the site itself, which includes the seismology, meteorology, geology, and hydrology characteristics of the site.[49] Geologic and seismic factors help determine whether the site is suitable to build the proposed plant design.[50] Meteorological factors are used to determine the effect, if any, that weather conditions in the area may have on the plant as it was proposed.[51] The hydrology of the site is measured to determine radionuclide transport factors, which are imperative to site safety determinations.[52] If the NRC determines that a site is suitable for the proposed plant, the developers will still have to go through the licensing process.[53]

To develop, build, and operate a nuclear power plant, the NRC requires the submission of an application of which the NRC holds exclusive decision-making power over.[54] After submitting an application for a new nuclear power plant, there are a series of considerations that the NRC takes into account followed by hearings conducted by the NRC.[55] Specifically, the NRC reviews safety, financial, and environmental standards when evaluating whether to give a license to a new nuclear

[45] *Id.*
[46] *Id.*
[47] *Id.*
[48] U.S. NUCLEAR REGUL. COMM'N, *supra* note 43.
[49] *Id.*
[50] *Id.*
[51] *Id.*
[52] *Id.* (noting that radionuclide transport factors focus on the probability of nuclear matter escaping and leaching into the surrounding environment).
[53] 42 U.S.C § 5842.
[54] Patrick White & Brittany Lutz, *Nuclear Reactor Licensing 101*, 1 (2024).
[55] *Id.* at 6.

power plant.[56] With the licensing application, developers are required to submit construction permit applications, as well as, operator's license applications.[57] Throughout the application process, the NRC conducts several hearings and reviews relating to the categories discussed above.[58] During this time, the NRC allows the public to contest the development of the power plant through a series of additional hearings, which are open to public comment.[59] It is only after this lengthy process that the NRC votes on whether to allow the development of a new nuclear power plant.[60]

ii. State Cooperation

While the federal government through the NRC is the exclusive regulator of nuclear energy, § 2021 of the AEA provides the states with the right to regulate certain aspects of nuclear energy through cooperation with the NRC.[61] 42 U.S.C. § 2021 specifically gives the NRC the right to enter into agreements with governors of states to provide states with the right to regulate byproduct materials, source materials, and special nuclear materials in quantities not sufficient to form a critical mass.[62] According to § 2104 of the AEA, the states are given the opportunity to regulate radioactive materials and byproduct waste produced by the generation of nuclear energy.[63] As states have begun utilizing their right to enter into these

[56] *Id.* at 7 (noting that nuclear developers must be able to show that the reactor abides by the NRC's safety standards, the financial stability of the project and the finished reactor, and that the project and finished reactor will not detrimentally impact the surrounding environment and populus).
[57] White & Lutz, *supra* note 55*,* at 14; 42 U.S.C. § 2137.
[58] White & Lutz, *supra* note 55, at 11-12.
[59] *Id.* at 12.
[60] *Id.* at 13.
[61] 42 U.S.C § 2021.
[62] 42 U.S.C § 2021(B); Statista Research Department, *Licensing timeframe for nuclear power plants in the United States as of 2023, by license type*, Statista (Dec. 10, 2024), https://www.statista.com/statistics/1450533/nuclear-power-plants-licensing-duration-us/ (noting that for reference, to get an operating license it can take up to three and a half years); A critical mass is used to define a large amount of nuclear matter sufficient for nuclear fission.
[63] 42 USC § 2104.

agreements, issues began to arise revolving around the scope of the states' new-found power and the remaining preemptive power of the NRC.[64]

In *Pacific Gas and Electric Company v. State Energy Resources Conservation & Development Commission*, the United States Supreme Court explained the role that the states play in the regulation of nuclear energy by outlining specifically the state's power.[65] The Court stated, "the Federal Government maintains complete control of the safety and "nuclear" aspects of energy generation, whereas the States exercise their traditional authority over economic questions such as the need for additional generating capacity, the type of generating facilities to be licensed, land use, and ratemaking."[66] This case is clear—the federal government is the *sole* regulator of the actual generation of nuclear energy.[67] However, the federal government does not preempt state laws, which fall within the jurisdiction granted to them by the AEA.[68] *Pacific Gas and Electric Company* opened new avenues for states to pass laws which may have an effect on nuclear energy.

In *Virginia Uranium, Inc. v. Warren*, a Virginia-based mining company brought suit challenging state law prohibiting the mining of uranium within the state of Virginia.[69] In its claim, Virginia Uranium, Inc. contended that the NRC, through the power granted to it in the Atomic Energy Act (AEA), had the exclusive right to regulate the mining of materials used for the generation of nuclear energy, therefore preempting Virginia law.[70] The United States Supreme Court rejected this claim.[71] In the opinion of the Court, Justice Gorsuch explained that in writing the AEA, Congress specifically chose to leave the power to regulate mining as a right reserved to the states.[72] He went on to explain that § 2092 of the AEA expressly places the

[64] Va. Uranium, Inc. v. Warren, 139 S.Ct. 1894, 1897 (2019); Pac. Gas & Elec. Co. v. State Energy Res. Conservation & Dev. Comm'n, 103 S.Ct. 1713, 1716 (1983).
[65] Pac. Gas & Elec. Co., 103 S.Ct. at 1716.
[66] *Id.*
[67] *Id.*
[68] *Id.*
[69] *Id.*
[70] *Id.*
[71] *Id.* at 1909.
[72] *Id.* at 1900.

mining of uranium outside of the jurisdiction of the NRC.[73] 42 U.S.C. § 2092 specifically states that the NRC's power to regulate uranium only arises "after removal from its place of deposit in nature."[74]

The aforementioned cases give valuable insight into the actual scope of the NRC's power.[75] States are protected from federal preemptions when it comes to the rights that they inherently possess.[76] States have never, and do not currently, hold any power when it comes to the direct regulation of nuclear power.[77] However, as seen above, states do have the ability to affect some things relating to nuclear power within the state.[78] Therefore, state regulatory bodies can influence the development of nuclear power facilities. One of the primary ways in which states affect not only nuclear power but power in general, is through the enactment of environmental protection policies.

iii. Environmental Policies

Environmental policies can have a direct effect on the energy sector and energy development plans.[79] As stated above, when developing a new nuclear power plant, an environmental impact report will be conducted.[80] However, environmental impact reports are not the only environmental restrictions placed on nuclear power plant development.[81] At the federal level, environmental policies are made by the Environmental Protection Agency ("EPA").[82] The primary federal law governing

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[73] *Id*. at 1902.
[74] *Va. Uranium, Inc.*, 139 S.Ct. at 1902.
[75] *Id.*
[76] *Id.*
[77] *Id.*
[78] *Id.*
[79] *Electric Power Generation, Transmission and Distribution (NAAICS 2211)*, U.S. ENV'T PROT. AGENCY (Jul. 2, 2024), https://www.epa.gov/regulatory-information-sector/electric-power-generation-transmission-and-distribution-naics-2211.
[80] White & Lutz, *supra* note 55, at 7 (listing factors including site inspection and state environmental rights; noting that an environmental impact report may include the power plant's impact on local waterways).
[81] U.S. ENV'T PROT. AGENCY, *supra* note 79.
[82] *The Origins of EPA*, U.S. ENV'T PROT. AGENCY (May 31, 2024), https://www.epa.gov/history/origins-epa.

environmental policy is the National Environmental Policy Act ("NEPA").[83] In 1971, the NEPA was signed into law and requires federal agencies to conduct an assessment of the impact that their proposed actions would have on the environment.[84] In addition, Title I § 102 of NEPA requires federal agencies to prepare a statement assessing alternatives to actions that may significantly affect the environment.[85] The courts has explored the requirements of NEPA.[86]

In *Susquehanna Valley Alliance v. Three Mile Island Nuclear Reactor,* the Susquehanna Valley Alliance brought suit seeking injunctive relief preventing the Three Mile Island Nuclear Reactor from releasing partially decontaminated water into the Susquehanna River.[87] The Susquehanna Valley Alliance is an environmental group with residents from Lebanon County, York County, and Lancaster County in Pennsylvania.[88] The group alleged that following the Three Mile Island Nuclear Power Plant incident of March 28, 1979, a combined 850,000 gallons of contaminated water had built up across different locations in the reactor.[89] The plaintiffs claimed that the defendants planned to partially decontaminate the water and then release it into the Susquehanna River.[90] The plaintiffs claimed that such a release would contaminate the river, resulting in a tainted water system for the municipalities, as well as, a polluted habitat for the fish and other wildlife that live in and around the river.[91] At the trial court level, the matter was dismissed for a lack of subject matter jurisdiction and the plaintiffs appealed.[92] The Third Circuit Court of Appeals ruled that the issues raised by the Susquehanna Valley Alliance fell within the subject

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[83] *What is the National Environmental Policy Act?*, U.S. ENV'T PROT. AGENCY (Sept. 4, 2024), https://www.epa.gov/nepa/what-national-environmental-policy-act.
[84] *Id.*
[85] *Id.*
[86] *See generally* Susquehanna Valley Alliance v. Three Mile Island Nuclear Reactor, 619 F.2d 231, 234 (3d Cir. 1980); Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council, Inc., 98 S.Ct. 1197, 1197 (1978).
[87] Susquehanna Valley Alliance v. Three Mile Island Nuclear Reactor, 619 F.2d 231, 234 (3d Cir. 1980).
[88] *Id.*
[89] *Id.*
[90] *Id.*
[91] *Id.*
[92] *Id.*

matter jurisdiction of the district court.[93] The Third Circuit Court found that the district court had jurisdiction to make rulings concerning NEPA.[94] *Susquehanna Valley Alliance* is important to note because it further shows that private parties can bring suit to enforce the NEPA or challenge actions of the NRC for environmental reasons.[95]

In *Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council, Inc.*, the Natural Resources Defense Council brought suit to compel the AEC to consider energy conservation alternatives when giving its environmental impact report.[96] In this case, the court considered the requirements of an environmental impact report as established in the Administrative Procedure Act and NEPA.[97] The United States Supreme Court ruled that it would not expand the scope of environmental impact reports as defined in NEPA by compelling the AEC to consider energy conservation alternatives.[98]

One of the increasingly substantive issues with nuclear power and the environment is the handling of nuclear waste.[99] Nuclear waste is the radioactive material left over following a nuclear fission reaction.[100] In *Westinghouse Electric Corporation v. U.S. Nuclear Regulatory Commission*, the Third Circuit Court of Appeals upheld the NRC's order to regarding the recycling of nuclear waste.[101] As a result of this decision, the court affirmed the commissions policy on burying rather than recycling nuclear waste.[102] The Nuclear Waste Policy Act established federal regulations dictating how nuclear waste is discarded.[103] Under the Nuclear Waste

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[93] *Susquehanna Valley Alliance*, 619 F.2d at 241.
[94] *Id.*
[95] *Id.*
[96] Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council, Inc., 98 S.Ct. 1197, 1197 (1978).
[97] *Id*. at 1201-02.
[98] *Id*. at 1214.
[99] Tom Westgate, *Dealing with Nuclear Waste*, ROYAL SOC'Y OF CHEMISTRY (Feb. 28, 2007), https://edu.rsc.org/feature/dealing-with-nuclear-waste/2020123.article.
[100] *Id.*
[101] Westinghouse Electric Corp. v. U.S. Nuclear Regul. Comm'n, 555 F.2d 82, 96 (3d Cir. 1977).
[102] *Id.*
[103] *Summary of the Nuclear Waste Policy Act*, U.S. ENV'T PROT. AGENCY (Jun. 12, 2024), https://www.epa.gov/laws-regulations/summary-nuclear-waste-policy-act.

Policy Act, nuclear waste in the United States is discarded in "deep geologic repositories."[104] Simply stated, the policy in the United States is to burry nuclear waste in containment repositories deep underground.[105] This form of discarding nuclear waste has given rise to challenges from those who do not want nuclear waste stored near where they live.[106]

In *Nuclear Energy Institute, Inc. v. Environmental Protection Agency*, Nevada challenged congressional legislation regarding nuclear waste.[107] Prior to this case, Congress passed a joint resolution which provided federal lands in Yucca Mountain, Nevada for the disposal of nuclear waste.[108] Under the joint resolution, nuclear waste was to be buried in repositories deep underneath the ground of these federal lands.[109] This case is focused on the EPA's power under § 197 of the Yucca Mountain, NV Public Health and Environmental Radiation Protection Standards.[110]

In 1992, Congress required the EPA to "establish site-specific standards for a repository at Yucca Mountain."[111] Following the authority given to it by Congress the EPA promulgated 40 C.F.R § 197 which created the "individual-protection standard", the "human intrusion standard", and the "ground-water-protection standard".[112] First, the "individual-protection standard" required the Energy Department to show that a hypothetical individual living directly next to the site will be protected from radiation.[113] As applied to the Yucca Mountain site, this protection was required to last for the next 10,000 years.[114] Second, the "human intrusion standard" requires that this theoretical person will receive no more than a predetermined amount of radiation for the next 10,000 years.[115] Finally, the "ground-water-protection

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[104] *Id.*
[105] *Id.*
[106] Nuclear Energy Institute, Inc., v. Env't Prot. Agency, 373 F.3d 1251, 1262 (D.C. Cir. 2004).
[107] *Id.*
[108] *Id.* at 1258.
[109] *Id.* at 1302.
[110] *Id.* at 1262.
[111] *Id.*
[112] *Id.* at 1262-63.
[113] *Nuclear Energy Institute, Inc.*, 373 F.3d at 1262.
[114] *Id.*
[115] *Id.* at 1263.

standard" requires that the facility contains sufficient protection for ground water against radiation.[116] The Third Circuit Court of Appeals found that, while the EPA has the authority to enforce these standards, the 10,000 years minimum requirement was unreasonable.[117]

At the state level, there are additional regulations placed on the development of nuclear power plants by way of environmental regulations.[118] Regulations concerning the environment have become one of the primary ways that states have been able to regulate nuclear energy.[119] In Pennsylvania, the Pennsylvania Department of Environmental Protection ("DEP") is the agency focused on the protection of the environment; the Nuclear Safety Division of the DEP focusses on nuclear energy.[120] When the Pennsylvania Radiation Protection Act was passed in 1984, it gave the DEP the authority to "establish and maintain a program of radiation protection."[121] Within the per views of nuclear safety, the Radiation Protection Act provides the DEP with the ability to:

> • Perform an independent nuclear safety oversight review of Pennsylvania NPP sites by conducting routine site visits and interacting with NRC inspectors.
>
> • Participate in joint inspections with the NRC inspectors.
>
> • Review and evaluate all proposed license amendments and provide input into the NRC review process.
>
> • Participate in Federal Emergency Management Agency (FEMA) evaluated and non-evaluated emergency preparedness drills and exercises for Pennsylvania NPPs.
>
> • Provide technical support and assistance to FEMA during a nuclear event or incident.

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[116] *Id.*
[117] *Id.* at 1273.
[118] *Nuclear Safety Division*, PA. DEP'T OF ENV'T PROT. (2024), https://www.dep.pa.gov/Business/RadiationProtection/NuclearSafety/Pages/default.aspx.
[119] *Id.*
[120] *Id.*
[121] PA. DEP'T OF ENV'T PROT. BUREAU OF RADIATION PROT., *Commonwealth of Pennsylvania Radiation Protection Act Report to the General Assembly Pursuant to Act 31 of 2007*, at 1 (Sept. 28, 2023).

> • Act as on-site representatives for the Commonwealth during emergencies.
>
> • Attend meetings and conferences and review NRC and industry documents and correspondence.
>
> • Review license renewal-related correspondence and documents.
>
> • Review new application-related documents and correspondence.
>
> • Participate in plume and ingestion phase and Hostile Action Based (HAB) emergency tabletops, drills and exercises including preparation and training.
>
> • Monitor post-Fukushima industry actions and the NRC regulatory initiatives.[122]

While it may seem that the Radiation Protection Act gives the DEP an abundance of power concerning nuclear energy and nuclear power plants, most of the DEP's capabilities under this act require the DEP to continue to work with the federal government.[123]

iv. National Security Concerns

When the United States first embraced nuclear energy as an option for commercial use, one of the earliest concerns was focused around national security implications.[124] At the time, the world was just coming out of World War II and nuclear fission in United States had only been used for weapon creation.[125] Similar national security concerns surrounding nuclear energy reemerged in the early twenty first century following the 9/11 terrorist attacks.[126] Within the environmental impact review, national security concerns are taken into account.[127] Specifically, reviewers

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[122] *Id.*at 4.
[123] *Id.* (explaining that many of the powers granted by the Act require the state to collaborate with the NRC rather than acting independently, as seen in points one, two, seven, and eleven; and requiring coordination with FEMA, a federal agency, in points four and five).
[124] Office of Nuclear Energy, Science, and Technology, *supra* note 2.
[125] *Id.*
[126] *See generally* New Jersey Dep't of Env't Prot. v. U.S. Nuclear Regul. Comm'n, 561 F.3d 132 (3d Cir. 2009); San Luis Obispo Mothers for Peace v. U.S. Nuclear Regul. Comm'n, 449 F.3d 1016 (9th Cir. 2005).
[127] *New Jersey Dep't of Envtl. Prot.*, 561 F.3d at 135; *San Luis Obispo Mothers for Peace*, 449 F.3d at 1019-20.

may look to the effect that a potential attack on a nuclear power plant may have on the environment, as seen in the following cases.[128]

In *New Jersey Department of Environmental Protection v. Nuclear Regulatory Commission*, the New Jersey Department of Environmental Protection asked the court to compel the NRC to consider the threats of potential airborne terrorist attacks when conducting its environmental impact review at the Oyster Creek Nuclear Generation Station.[129] The New Jersey Department of Environmental Protection previously sent a request to the NRC asking permission to intervene in the environmental impact assessment, allowing the New Jersey Department of Environmental Protection to assess the impact of airborne terrorist attacks.[130] The NRC already determined that a terrorist attack would not differ notably from environmental effects of an adverse event borne outside of the act of terrorism.[131] The Third Circuit Court of Appeals found that the NRC satisfied its duty in considering terrorist attacks when conducting its environmental impact report.[132]

Additionally, in *San Luis Obispo Mothers for Peace v. United States Nuclear Regulatory Commission*, the San Luis Obispo Mothers for Peace asked the Ninth Circuit Court of Appeals to remove the NRC's approval of a nuclear waste storage site in Diablo Canyon, California.[133] The San Luis Obispo Mothers for Peace claimed that the NRC breached its duty when conducting its environmental impact report by failing to consider the potential of terrorist attacks on the waste storage site.[134] The NRC claimed that the idea of a terrorist attack being carried out at the site was too far removed to warrant its inclusion in the environmental impact report.[135] The court found that it was reasonable to consider potential terrorist attacks when conducting the environmental impact report and that by failing to do so, the NRC breached its

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[128] *New Jersey Dep't of Envtl. Prot.*, 561 F.3d at 135; *San Luis Obispo Mothers for Peace*, 449 F.3d at 1019-20.
[129] *New Jersy Department of Environmental Protection*, 561 F.3d at 135.
[130] *Id.*
[131] *Id.*
[132] *Id.* at 144.
[133] *San Luis Obispo Mothers for Peace*, 449 F.3d at 1019-20.
[134] *Id.*
[135] *Id.* at 1022.

duty.[136] *San Luis Obispo Mothers for Peace* highlights that the courts may be inclined to require nuclear power facility developers to consider the national security risks associated with the facility and the effect that a potential attack may have.[137]

v. Public Sentiment

Nuclear energy can be a hot button issue in the United States and all over the world.[138] The primary driver of the skepticism surrounding nuclear energy is a fear over the safety of the practice and the effects of possible radiation exposure.[139] Globally, accidents like Chernobyl in Ukraine and Fukushima in Japan further drove these fears.[140] The Fukushima accident, being the most recent of the two, brought these fears to the twenty-first century.[141] The Three Mile Island incident brought fears and skepticism about nuclear energy to the United States and—more specifically—Pennsylvania.[142] This fear was expressed in two previously discussed cases.[143] *San Luis Obispo Mothers for Peace v. United States Nuclear Regulatory Commission* and *Nuclear Energy Institute, Inc. v. Environmental Protection Agency* arose because of the public's disinterest and apprehension in the development of new nuclear waste containment facilities.[144] To further advance the development of nuclear energy production in the United States, it is important to tackle some of these public concerns especially while considering hearings for public concern which occur during the application process.

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[136] *Id.* at 1030 (decided in 2006, in the aftermath of 9/11, when concerns about terrorist attacks were more heightened than they may be today).
[137] *Id.* at 1030.
[138] Jon Kelly, *The Fear of Nuclear*, BBC NEWS (Mar. 15, 2011), https://www.bbc.com/news/magazine-12746129.
[139] *Id.*
[140] *Id.*
[141] *Id.*
[142] *Backgrounder on the Three Mile Island Accident*, U.S. NUCLEAR REGUL. COMM'N (Mar. 28, 2024), https://www.nrc.gov/reading-rm/doc-collections/fact-sheets/3mile-isle.html#top.
[143] San Luis Obispo Mothers for Peace v. U.S. Nuclear Regul. Comm'n, 449 F.3d 1016, 1019-20 (9th Cir. 2005); Nuclear Energy Institute, Inc., v. Env't Prot. Agency, 373 F.3d 1251, 1262 (D.C. Cir. 2004).
[144] *Id.*

III. ANALYSIS

i. The Case in Favor of Nuclear Energy

Regulating nuclear energy is now and will continue to be a necessary practice. Any type of energy generation has the potential to be dangerous and when it comes to nuclear energy that may be more so.[145] There is a reason why the federal government gave so much attention to the safety and national security risks of nuclear energy.[146] However, the energy sector is currently at a crossroads where it must decide how to continue. There is an ever-growing public and political desire to make the shift from traditional energy sources such as oil, gas, or coal to cleaner energy sources.[147] However, there are still some major issues when it comes to some of the more popular renewable energy sources.

As addressed in the Introduction, wind and solar energy are significantly less reliable than more traditional sources of energy like oil, gas, or coal.[148] To reiterate, in 2023, solar energy had only a capacity factor of 23.2% and wind energy had a limited capacity factor of 33.2%.[149] A capacity factor is the amount of energy that a source produces compared to the theoretical maximum output of that source of energy.[150] Therefore, solar only produces 23.2% of the amount of the energy that it should and wind only produces 33.2% of the energy that it should. Comparatively, in 2023 natural gas, one of America's largest sources of energy, had a capacity factor of 56.6%.[151] While a 56.6% capacity factor may seem low, it is still considerably higher

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[145] *See, e.g.*, *History*, U.S. NUCLEAR REGULATORY COMM'N (Sept. 10, 2021), https://www.nrc.gov/about-nrc/history.html#aec-to-nrc.
[146] *See generally*, Office of Nuclear Energy, Science, and Technology, *The History of Nuclear Energy*, U.S. DEP'T OF ENERGY, at 7.
[147] Brian Kennedy et al., *Majorities of Americans Prioritize Renewable Energy, Back Steps to Address Climate Change*, PEW RESEARCH CENTER (Jun. 28, 2023), https://www.pewresearch.org/science/2023/06/28/majorities-of-americans-prioritize-renewable-energy-back-steps-to-address-climate-change/.
[148] *Electric Power Monthly*, U.S. ENERGY INFO. ADMIN., https://www.eia.gov/electricity/monthly/epm_table_grapher.php?t=epmt_6_07_b (last visited Mar. 30, 2025).
[149] *Id.*
[150] Michael McHugh, *What is Capacity Factor? A Beginner's Guide*, SOLIS RENEWABLES (last visited Mar. 30, 2025), https://www.solisrenewables.com/blog/what-is-capacity-factor.
[151] U.S. ENERGY INFORMATION ADMINISTRATION, *supra* note 148.

than wind or solar energy.[152] This may be because wind and solar energy rely heavily on uncontrolled external factors such as sunlight and wind.[153] Because of these external requirements, solar panels and wind turbines are only able to generate electricity when the weather permits.[154]

Gas on the other hand is able to be burned continually and may produce electricity twenty-four hours a day.[155] Evidently, some of the traditional energy sources are more reliable than the renewable energy sources but the renewable energy sources are more desirable because of their cleanliness.[156] This begs the question: what is more important, clean energy or reliable energy? With nuclear energy, that decision does not need to be made. In 2023, nuclear energy had a capacity factor of 93%, meaning that this energy source only lost 7% of its theoretical maximum.[157] This means that nuclear energy is very reliable. Not only is nuclear energy very reliable, but in 2023, nuclear energy was the most reliable energy source in the United States.[158]

Nuclear energy is also very powerful.[159] In 2022, nuclear power plants produced enough electricity to power over 72 million American homes across only 94 reactors.[160] Further, nuclear energy is very clean and produces nearly half of the clean energy in the United States.[161] Unlike coal, gas, or oil, nuclear energy does not burn any material and produce carbon footprint, a common concern among climate activists.[162] Instead nuclear energy produces nuclear waste. The United States

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[152] *Id.*
[153] *See generally,* Ben Jervey & Ensia, *Wind and Solar Are Better Together*, SCIENTIFIC AMERICAN (Nov. 7, 2016), https://www.scientificamerican.com/article/wind-and-solar-are-better-together/.
[154] Id.
[155] Office of Nuclear Energy, Science and Technology, *supra* note 2.
[156] Kennedy et al., *supra* note 147; U.S. ENERGY INFO. ADMIN., *supra* note 148.
[157] U.S. ENERGY INFO. ADMIN., *supra* note 148.
[158] *Id.*
[159] Office of Nuclear Energy, *The Ultimate Fast Facts Guide to Nuclear Energy,* 2.
[160] *Id.*
[161] *Id.*
[162] Brian Kennedy et al., *Majorities of Americans Prioritize Renewable Energy, Back Steps to Address Climate Change*, PEW RESEARCH CENTER (Jun. 28, 2023), https://www.pewresearch.org/science/2023/06/28/majorities-of-americans-prioritize-renewable-energy-back-steps-to-address-climate-change/.

generates about 2,000 metric tons of nuclear waste each year and has generate 90,000 metric tons of waste since the 1950s.[163] While 90,000 metric tons may seem like a lot, if one were to stack all of this nuclear waste together, it would only fill about ten yards of a football field.[164] However, the fact that the total volume of nuclear waste is relatively small is not enough to ease some concerns that people may have about the storage of nuclear waste, as seen in the cases above. One possible solution to the issue of burying nuclear waste may be to recycle it instead.

ii. Proposal to Allow for the Recycling of Nuclear Waste

To understand the value and some of the hurdles of recycling nuclear fuel, France's nuclear grid will be evaluated. France is a nation with an advanced nuclear grid, with 65% of the nation's electricity being generated by nuclear energy across 56 nuclear power plants in 2023.[165] France has operated nuclear recycling facilities for decades, and will continue to recycle nuclear waste as it is expected to reduce its amount of nuclear waste by 75% by 2040.[166]

Recycling spent nuclear fuel is a very highly technical and difficult process.[167] This process includes recovering plutonium, a byproduct of uranium used in nuclear fission.[168] That recovered plutonium is then used as nuclear fuel itself.[169] While recycling spent nuclear fuel may be difficult, discarding spent nuclear fuel results is wasting around 95% of the fuel's potential to generate electricity.[170] Such waste implies that, by discarding spent nuclear fuel, the United States is missing out on a

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[163] Office of Nuclear Energy, *5 Fast Facts about Spent Nuclear Fuel,* Energy.gov, U.S. DEP'T OF ENERGY (Oct. 3, 2022), https://www.energy.gov/ne/articles/5-fast-facts-about-spent-nuclear-fuel.
[164] *Id.*
[165] IAEA Country Nuclear Power Profiles, *France 2024*, INT'L ATOMIC ENERGY AGENCY, https://cnpp.iaea.org/public/countries/FR/profile/preview (last visited Mar. 30, 2025); *Efficiency in the Nuclear Fuel Cycle: What Can 'Oui' Learn?*, INT'L ATOMIC ENERGY AGENCY (Sept. 4, 2019), https://www.iaea.org/newscenter/news/frances-efficiency-in-the-nuclear-fuel-cycle-what-can-oui-learn.
[166] *Id.*
[167] Kelsey Adkisson, *Recycling Goves New Purpose to Spent Nuclear Fuel*, PACIFIC NORTHWEST NAT'L LABORATORY (May 12, 2021), https://www.pnnl.gov/news-media/recycling-gives-new-purpose-spent-nuclear-fuel.
[168] *Id.*
[169] *Id.*
[170] *Id.*

considerable amount fuel that could be used to produce electricity. The United States generated about 2,000 metric tons of nuclear waste each year.[171] This means that the United States is also burying about 2,000 metric tons of this nuclear waste each year.[172] If the United States begins recycling nuclear fuel like France does, this amount of waste can be considerably decreased, potentially easing concerns surrounding its storage and environmental impact.

Environmentally, France has been able to decrease its need of natural uranium by 17%, allowing for less disruption during the mining process.[173] To accommodate the recycling of spent nuclear fuel, the United States will need to invest in the development of recycling plants and advanced reactors that can run on recycled nuclear fuel.[174] Currently, the average age of nuclear reactors in the United States is 39 years old.[175] If the United States wants to advance the nuclear power grid, there will need to be a commitment to invest in new technologies in nuclear energy.

iii. New Technologies to Consider for the Future of Nuclear Energy

Nuclear energy has become a more widely discussed topic because of its use in powering technological developments.[176] Microsoft, Meta, and Amazon, for example, have all invested heavily in nuclear energy to power their computing demand.[177] Artificial intelligence (and large language models), being a recent major technological

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[171] Office of Nuclear Energy*, supra* note 2.
[172] *Id*.
[173]Alfie Shaw, *France to Continue Recycling Nuclear Fuel Beyond 2024,* POWER TECHNOLOGY (Mar. 11, 2024), https://www.power-technology.com/news/france-will-continue-its-programme-to-recycle-nuclear-materials-beyond-2040/.
[174] *Id.*
[175] Martin McKown, *Nuclear Regulation*, DUQUESNE UNIVERSITY, https://duq.instructure.com/courses/46862/pages/video-nuclear-regulation (last visited Mar. 30, 2025).
[176] Jordan Valinsky, *Three Mile Island is reopening and selling its power to Microsoft*, CNN BUSINESS (Sept. 20, 2024), https://www.cnn.com/2024/09/20/energy/three-mile-island-microsoft-ai/index.html; Ryan Browne, *Why Big Tech is turning to nuclear to power its energy-intensive AI ambitions*, CNBC (Oct. 16, 2024), https://www.cnbc.com/2024/10/15/big-tech-turns-to-nuclear-energy-to-fuel-power-intensive-ai-ambitions.html?msockid=259e776c998c6d49141a6435989e6cff; Diana Olick, *Amazon goes nuclear; plans to invest more than &500 million to develop small modular reactors*, NBC NEWS (Oct. 16, 2024), https://www.nbcnews.com/business/energy/amazon-goes-nuclear-plans-invest-500-million-develop-small-modular-rea-rcna175673?os=osdf&ref=app.
[177] *See, e.g.*, Valinsky, *supra* note 173.; Browne, *supra* note 173.; Olick, *supra* note 173.

advancement, has been at the forefront of these discussions.[178] In Pennsylvania, Microsoft has invested in nuclear energy by utilizing the Three Mile Island Nuclear Power Plant to power its artificial intelligence computing.[179] Similarly, Meta and Google announced recently that they would be looking to nuclear power to source their artificial intelligence computing.[180] Amazon recently shared that it planned to invest heavily in small modular reactors ("SMRs"), investing more than $500 million to help power its data centers.[181] With the increasing development of technology and artificial intelligence, the appeal of nuclear power's strong generation capabilities is becoming more and more apparent. The investment in nuclear energy from these tech industry giants may be a sign that the government should invest as well. These big tech investments show that nuclear energy can be used efficiently to power industry and innovation. However, these technological advancements not only place more demand on nuclear energy, but they also provide new sources of nuclear energy.

One of the primary new technologies in nuclear energy is SMRs.[182] SMRs are small nuclear reactors with an electric output of no more than 300 megawatts.[183] SMRs also tend to have passive safety systems that do not need to be operated by machines, making them safer than conventional power plants.[184] Because of their compact size, there are more options available for their deployment.[185] SMRs can be utilized as single units or clustered together, this allows more flexibility to meet the needs of the community.[186] SMRs also require less fuel and may only require refueling every 3 to 7 years as compared to conventional nuclear plants which require refueling every 1 to 2 years.[187] Because of their ability to run longer on less fuel, SMRs also

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[178] *See*, *e.g.*, Valinsky, *supra* note 173.; Browne, *supra* note 173.; Olick, *supra* note 173.
[179] Valinsky, *supra* note 173.
[180] Browne, *supra* note 173.
[181] Olick, *supra* note 173.
[182] *SMR regulatory compliance*, SMALL MODULAR REACTORS, https://small-modular-reactors.org/smr-regulatory-compliance/ (last visited Mar. 30, 2025).
[183] *Id*.
[184] *Id*.
[185] *Id*.
[186] *Id*.
[187] Joanne Liou, *What are Small Modular Reactors (SMRs)?*, INT'L ATOMIC ENERGY AGENCY (Sept. 13, 2023), https://www.iaea.org/newscenter/news/what-are-small-modular-reactors-smrs.

produce less waste each year.[188] These increasing technological advances require adaptation from regulatory bodies. Current nuclear regulations focus on large-scale, conventional power plants which are not appropriate for SMRs and future technologies.[189] With the increase in safer nuclear technology must also come the adaptation of the regulatory bodies to allow for more innovation. Smaller, safer, and less powerful reactors will not require the same amount of regulatory scrutiny as the larger conventional reactors and because of this, deregulation may allow for more advances in nuclear power.

iv. Proposal to Deregulate the Nuclear Power Plant Application Process to Encourage Growth

The process of developing nuclear power plants can be a lengthy and expensive process.[190] While this may in part be because of the technical hurdles of construction, this is also in part because of present regulations. As previously stated, the regulatory procedures that were developed for conventional reactors may not be appropriate for SMRs and other future reactor technologies.[191] However, there are also advancements that can be made regarding the regulations of conventional reactors that may be able to advance nuclear energy. As stated above, there are many regulatory hurdles that may be holding nuclear energy back including environmental and licensing requirements.[192] In order to expand the nuclear power system of the United States more effectively, it may be necessary to roll back these regulations. While it is important to advocate for the protection of the environment and the safety of citizens, it is equally important to allow for a more robust nuclear framework to encourage a more multifaceted energy grid. By rolling back some of these regulations, states like Pennsylvania may be able to advance their nuclear power grid.

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[188] *Id*.
[189] Small Modular Reactors, *supra* note 179.
[190] Statista Research Department, *Licensing timeframe for nuclear power plants in the United States as of 2023, by license type*, STATISTA (Dec. 10, 2024) (noting that, to get an operating license, it can take up to three and a half years).
[191] Small Modular Reactors, *supra* note 179.
[192] U.S. NUCLEAR REGUL. COMM'N, *supra note 40*.

v. Pennsylvania's Potential Role in the Future of Nuclear Energy

Pennsylvania has an opportunity to take advantage of the growing nuclear power industry. In 2019, the Three Mile Island Nuclear Power Plant closed to commercial use, resulting in a reduction in Pennsylvania's nuclear power output of about 8%.[193] However, in 2024, the Pennsylvania legislature announced that it will be relaunching the Nuclear Energy Caucus.[194] Members the caucus stated, "We are relaunching the bipartisan, bicameral Pennsylvania Nuclear Energy Caucus to ensure we keep this tried-and-true clean energy contributing to our baseload power for generations to come."[195] As previously touched on, SMRs are a new and exciting technology in nuclear power. The Pennsylvania commission has vowed to prepare Pennsylvania for this new technology and incorporate it into the nuclear grid of Pennsylvania.[196]

When creating SMR legislation, the Pennsylvania commission can look to Illinois. Illinois is the largest producer of nuclear energy amoung the states and nearly half of its power comes from nuclear energy.[197] In 1987, Illinois placed a moratorium on the construction of new nuclear energy plants.[198] Although, in December of 2023, the governor of Illinois lifted the moratorium to allow new developments.[199] In the same year, the Illinois legislature passed a bill approving the development of SMRs.[200] By 2026, the Illinois Emergency Management Agency will begin regulate these reactors within the bounds of the state's power.[201] If the

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[193] Rep. Robert Matzie, *PA legislators announced relaunch of bipartisan, bicameral Nuclear Energy Caucus*, PA. HOUSE DEMOCRATS (Jul. 2, 2024), https://www.pahouse.com/InTheNews/NewsRelease/?id=134720.
[194] *Id*.
[195] *Id*.
[196] *Id*.
[197] *Leading nuclear power producing states in the United States in 2023*, STATISTA (Jun. 28, 2024), https://www.statista.com/statistics/614164/us-nuclear-power-electricity-generation-by-state/.
[198] Andrew Adams, *Illinois lawmakers approve plan to allow small-scale nuclear development*, NPR ILLINOIS (Nov. 9, 2023), https://www.nprillinois.org/illinois/2023-11-09/illinois-lawmakers-approve-plan-to-allow-small-scale-nuclear-development.
[199] *Pritzker signs law lifting moratorium on nuclear reactors*, AP NEWS (Dec. 8, 2023), https://apnews.com/article/illinois-nuclear-moratorium-modular-reactors-solar-wind-225d14cefb03793e08f0802745df4e02.
[200] Adams, *supra* note 195.
[201] *Id*.

Pennsylvania legislature wants to advance nuclear power in the state, it will need to be able to provide support for new forms of nuclear power and provide incentive structures for the development of nuclear power plants in the state.

vi. Incentive Structures to Advance Nuclear Power

To advance nuclear power in Pennsylvania and the United States as a whole, there must be incentive structures for the incumbent energy providers to make the transition to nuclear energy. In addition to making it easier to open new power plants through regulatory restructuring, state and national governments will need to make investments in nuclear energy. Other incentives including tax credits, government partnership programs, and deregulations to reduce cost may all aid in incentivizing the incumbent energy providers to make the shift to nuclear. It is not uncommon for governments to offer incentives to large projects such as these. In 2022, the federal government offered tax credits for electric vehicles under the Inflation Reduction Act.[202] Further, the Residential Clean Energy Credit provides a tax credit to households who invest in renewable energy.[203] While these two examples apply primarily to customers, they also have an effect on the manufacturers and producers as well by creating incentives to expand the market. In addition, providing nuclear power developers with more incentives directly will likely result in an uptick in new developments. Allowing more nuclear power plants and new technologies to be built is insufficient. Regulatory and legislative bodies must also give energy companies reasons to want to make the shift to nuclear.

IV. CONCLUSION

America's nuclear regulatory landscape can be difficult and time consuming to traverse. Whether it be the extensive licensing process or the environmental

[202] *Credits for new clean vehicles purchased in 2023 or after*, U.S. INTERNAL REVENUE SERVICE (Aug. 8, 2024), https://www.irs.gov/credits-deductions/credits-for-new-clean-vehicles-purchased-in-2023-or-after.

[203] *Residential Clean Energy Credit*, U.S. INTERNAL REVENUE SERVICE (Nov. 13, 2024), https://www.irs.gov/credits-deductions/residential-clean-energy-credit (The Residential Clean Energy Credit applies to energy sources including solar, wind, geothermal as well as investments in fuel cells or battery storage. Including nuclear energy in this credit may make the energy source more appealing to customers and thus create a larger market for nuclear energy).

restrictions, there are clear barriers to the development of nuclear power. While nuclear regulations are important to protect the safety of the people and the environment, it is equally important to provide pathways for more developments in nuclear energy. Perhaps it is time to examine the regulations that are in place and ask whether they are still appropriate today. Some questions may arise as to whether new technologies should be subject to the same regulations as incumbent nuclear reactors or what kind of a role nuclear power should hold in the future of the American energy grid. With the rise of newer technologies such as SMRs, it may be necessary to reexamine whether the regulations in place still make sense for a safer and more efficient type of reactor. Further, it may be beneficial to take the approach championed by France when it comes to spent nuclear fuel. Allowing for the recycling of spent nuclear fuel in America would lessen the amount of nuclear waste produced and tap into the full energy production potential of the already existing uranium.

In order to advance the nuclear grid in America, some of these regulations will need to be reevaluated and nuclear power developers and utility companies will need more incentives to develop more nuclear power plants. Being a clean and effective energy source, nuclear power is a great resource that can help fix some of the incumbent problems within the electrical grid. It is time that the regulatory landscape understands that fact and encourages the continued growth of nuclear energy.