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Developments in Interstate Compact Law and Practice 2022

Jeffrey B. Litwak* and Marisa Fiat**

The year 2022 was an interesting year for interstate compacts. While there were no blockbuster judicial decisions, one was decided in 2023. *New York v. New Jersey*, an original jurisdiction case filed at the beginning of 2022, involved a question whether one state may unilaterally withdraw from and terminate a compact absent express authorization to do so in the compact. In early 2023, the Court ruled in New Jersey's favor. In other cases, the majority and dissent in the First Circuit sparred over how to characterize an interstate compact agency in a non-compact case; courts in New York seem to have opened the door for changing the analytical framework for determining whether state law applies to the Port Authority of New York and New Jersey; and two courts interpreting compacts referred to interpretations of other related compacts, illustrating a premium on uniformity.

Administrative developments included compact agencies taking advantage of federal funding opportunities in the 2021 Infrastructure Investment and Jobs Act. The Act has some preferences for cooperative actions and some references to specific compact agencies. The Military Interstate Children's Compact Commission has developed a plan for the states to fix a scrivener's Interstate Compact in Educational Opportunity for Military Children, a heavy lift as all fifty states and the District of Columbia are members.

Legislative developments included several federal bills that would have directed changes to specific interstate compacts or changed how states implement those compacts. None of these bills proceeded to a vote. Notable new state laws provide for a new bridge authority between local governments in Oregon and Washington; Massachusetts becoming the fiftieth state to join the Interstate Wildlife Violator Compact; Virginia and Louisiana enacting amendments to compacts that other members states have not yet enacted; Maryland resolving discrepancies between it and Virginia's enactment of amendments to the Potomac River Compact; New Hampshire and Vermont enacting the new Interstate Compact for the Placement of Children (ICPC); and South Carolina withdrawing from the Interstate Insurance Product Regulation Compact, the first state to ever withdraw from that compact.

This article discusses a wide range of judicial, administrative, and legislative developments in interstate compact law in 2022.[1] We examine reported and unreported cases as both illustrate how courts apply or distinguish principles of compact law. We review enacted and unenacted bills because both illustrate

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1. Between 2008 and 2019, this annual Developments article was published in the ABA Section of Administrative Law and Regulatory Practice's annual book, *Developments in Administrative Law and Regulatory Practice*. The

policy conversations involving interstate compacts. Discussions of many cases, agency actions, and legislative actions present principles of law, administrative and legislative context associated with the reported developments, and citations for further reading.

Interstate compacts are legislation and contracts between the states.[2] They are not one of the traditional local, state, or federal governments, but more than 250 current compacts address subjects as varied as social services delivery; child placement; education policy; emergency and disaster assistance; corrections, law enforcement, and supervision; professional licensing; water allocation; land use planning; environmental protection and natural resources management; and transportation and urban infrastructure management. Most professionals who work in these policy areas will encounter one or more interstate compacts from time to time, or regularly. When interacting with compacts, these professionals must know the unique principles of law applicable to compacts and compact agencies, as well as the limitations on federal, state, and local officials when navigating or administering a compact.

Studying this most formal type of intergovernmental agreement also provides a framework for thinking about other forms of intergovernmental cooperation, including intergovernmental agreements that state agencies and municipalities commonly use. Finally, because compacts and compact agencies are largely separate from and independent of federal and state governments, scholars may wish to study how these agencies develop and apply their own governance practices and how they observe elements of state and federal legal requirements, which often require unique solutions foreign to federal and state laws and agencies.

I. JUDICIAL DEVELOPMENTS

A. Applying the Compact Clause of the U.S. Constitution

The Compact Clause of the U.S. Constitution states, "No State shall, without the Consent of Congress, . . . enter into any Agreement or Compact with another state, or with a foreign Power . . . ."[3] Despite the apparent requirement for consent for all compacts, the U.S. Supreme Court has concluded that consent is needed only for compacts that increase the power of the compacting states that could encroach upon federal powers[4] or that could affect the non-compacting states.[5] Common legal issues involving the Compact Clause include whether a particular compact requires consent or has received consent; permissible conditions of congressional consent; and whether a grant of consent limits the ability of the federal government to legislate in the policy area of the compact.[6] No cases in 2022 involved the application of the Compact Clause in any significant way.

B. Jurisdiction and Reviewability

The very earliest compacts all involved agreements establishing the boundaries of colonies and later the states. Unfortunately, boundary compacts have not always eliminated future litigation over the boundaries

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Administrative Law section ceased publication of that book after the 2019 edition. Beginning in 2020, *The Urban Lawyer* has graciously continued to publish this overview.

2. *See* Michael L. Buenger, et al., The Evolving Law and Use of Interstate Compacts 35 (Am. Bar Ass'n, 2d ed. 2016).

3. U.S. Const. art. I, § 10, cl. 3.

4. U.S. Steel Corp. v. Multistate Tax Comm'n, 434 U.S. 452, 460 (1978).

5. Ne. Bancorp, Inc. v. Bd. of Governors, FRS, 472 U.S. 159, 176 (1985).

6. For a thorough discussion of these and other legal issues and leading case law and scholarship, see Buenger, *supra* note 2, at 68–86; Jeffrey B. Litwak, Interstate Compact law: Cases and Materials 37–82 (Semaphore Press, 4th ed. 2020).

of the states. In *W.C. Chapman, L.P. v. Cavazos*,[7] a case involving ownership of disputed property, the court needed to determine whether the case was properly brought in Texas under the "local action doctrine," which requires that a local action involving real property may only be brought in the territorial boundaries of the state where the land is located.

The plaintiff alleged that "the Disputed Property has been located in Texas since at least 1941,"[8] citing the 1999 Red River Boundary Compact.[9] The defendant argued that the compact did not apply because the compact does not affect private property rights or title to property.[10] The court noted that the defendant's argument conflated ownership with the state where the property is located; the state in which the property is located does not change depending on which private party owns title to the property. The court applied the compact, which established the Red River's south vegetation line as the boundary between Oklahoma and Texas, and concluded the evidence showed that the property is located in Texas. Consequently, the court concluded that the case satisfied the local action doctrine and thus the court had diversity jurisdiction.[11]

In a long-running dispute over the Delaware River Basin Commission (DRBC) ban on fracking, the Third Circuit in *Yaw v. Delaware River Basin Commission*[12] concluded that two state senators, the Pennsylvania Republican Caucus, and several Pennsylvania municipalities lacked standing to challenge the ban. The court applied federal law on standing but without any recognition, comment, or consideration that the DRBC is a multistate agency created by an interstate compact. For example, the court concluded that the individual senators lacked standing to assert institutional injuries belonging to the "legislature as a whole."[13] But the court did not consider that its reference to the "legislature as a whole" refers to the Pennsylvania General Assembly, which lacks the authority to unilaterally direct the multistate DRBC's operations and decision-making. Even if the state senators could speak for the Commonwealth of Pennsylvania, granting them standing would give Pennsylvania a pole position to direct the action of the DRBC.

Even though the Third Circuit did not see the senators' participation as a problem of unilateral state control, the court appropriately observed:

> Plaintiffs-Appellants are also free to seek redress through other means. They can lobby the Commission to reverse course based on their policy concerns. They can try to amend the Delaware River Basin Compact through concurrent legislation of the member states. Or, they can persuade a party with standing to assert the institutional injuries they allege to bring a version of this lawsuit.[14]

7. No. 4:21-cv-00893-ALM, 2022 U.S. Dist. LEXIS 88739 (E.D. Tex. May 17, 2022).

8. *Id.* at *18.

9. Tex. Nat. Res. Code Ann. §§ 12.001–12.005; Okla. Stat. tit. 74, §§ 6105–06; Joint Resolution of Oct. 10, 2000, Pub. L. No. 106-288, 114 Stat. 919 (granting congressional consent to the Red River Boundary Compact).

10. 2022 U.S. Dist. LEXIS 88739, at *20. The court did not cite article IV of the compact, which specifies that the compact does not affect the jurisdiction of any litigation concerning title pending as of the date of the compact. W.C. Chapman initiated this litigation in 2021, more than twenty years after the date of the compact.

11. *Id*. at *22–28.

12. 49 F.4th 302 (3d Cir. 2022).

13. *Id*. at 311.

14. *Id*. at 307.

In *Garmong v. Tahoe Regional Planning Agency*,[15] the Ninth Circuit concluded that the district court properly dismissed claims challenging a Tahoe Regional Planning Agency (TRPA) permitting decision because the plaintiff failed to bring the claims under the exclusive provision for judicial review in the Tahoe Regional Planning Compact. The court succinctly explained:

> The TRPA Compact provides that the exclusive means of challenging a TRPA permitting decision is a judicial-review claim brought under Article VI(j)(5) of the Compact, alleging "prejudicial abuse of discretion." Despite multiple motions to dismiss from the TRPA Defendants arguing that [plaintiff] Garmong failed to bring his noncompliance claims as claims for judicial review and despite Garmong receiving multiple opportunities to amend his complaint, he never cited Article VI(j)(5) as the basis for these claims or specifically alleged that the TRPA "prejudicially abused its discretion" anywhere in his initial or Amended Complaint.[16]

This case illustrates a common problem: private parties and their attorneys suing interstate compact agencies often do not understand the unique compact authorities. Typical state or federal claims do not always apply against compact agencies, which may have unique authorities relating to immunity or judicial review. One author of this article, who is general counsel to an interstate compact agency, often advises persons how to structure their claims to expedite litigation by avoiding civil procedure issues that may unnecessarily become the focus of a case.

Finally, in *Keystone Outdoor Advertising Co. v. Secretary of the Pennsylvania Department of Transportation*,[17] the court concluded that Keystone Outdoor Advertising Company did not have standing to bring a claim under the Delaware River Port Authority (DRPA) compact.[18] In this case, Keystone owned billboards that were located on DRPA property. PennDOT attempted to deny Keystone's applications for the billboards; PennDOT asserted that the billboards would violate the Pennsylvania Outdoor Advertising Control Act of 1971. Keystone sought declaratory and injunctive relief, and the DRPA intervened. PennDOT filed counterclaims. All the parties requested that the court declare whether PennDOT can enforce state billboard law on DPRA property.[19] The merits of this legal question are discussed below.[20]

Relevant to reviewability, PennDOT claimed that Keystone and the DRPA do not have standing to enforce the compact as third-party beneficiaries. The court applied the factors from *Doe v. Pennsylvania Board of Probation and Parole*,[21] in which the Third Circuit concluded that a parolee who applied to use the Interstate Compact Concerning Parole and Probation[22] did not have rights under the compact as a third-

15. No. 21-16653, 2022 U.S. App. LEXIS 30691 (9th Cir. Nov. 4, 2022).

16. *Id*. at *2.

17. No. 19-5951, 2022 U.S. Dist. LEXIS 126425 (E.D. Pa. July 18, 2022).

18. Agreement Between the Commonwealth of Pennsylvania and the State of New Jersey, codified at 36 Pa. Cons. Stat. § 3503 & N.J. Stat. Ann. §§ 32:3-1–32:3-13, 32:3-23 (West 2022). A copy of the compact is available at http://www.drpa.org/pdfs/Compact_DRPA.pdf [hereinafter DRPA Compact].

19. *Keystone Outdoor Advert. Co.*, 2022 U.S. Dist. LEXIS 126425, at *7–8.

20. *See infra* text and discussion at notes 44–49.

21. 513 F.3d 95 (3d Cir. 2008).

22. The states superseded this compact with the Interstate Compact for the Supervision of Adult Offenders. For more about the Adult Offender Supervision Compact, see Interstate Comm'n for Adult Offender Supervision, www.interstatecompact.org (last visited Dec. 7, 2022).

party beneficiary considering the intent of the compact.[23] In *Keystone*, the court noted that Article I of the DRPA compact explained:

> The purpose of this compact is primarily to create the DRPA, a bi-state entity, to supervise and manage the operation and maintenance of the bridges and tunnels across or under the Delaware River, the improvement and development of the Port District, the promotion of the Delaware River as a highway of commerce, and other issues related to the travel over, under, or in the Delaware River.[24]

The court thus concluded that Keystone, a third-party vendor, had no legally enforceable rights under the compact. This analysis is notable because few compact cases directly address whether an individual is a third-party beneficiary with rights to enforce an interstate compact.

PennDOT also argued that the DRPA did not have standing to enforce the compact. Although PennDOT admitted in its briefing that the DRPA was a third-party beneficiary, PennDOT argued that the DRPA could not assert a redressable injury related to a violation of the compact.[25] The court did not explain DRPA's argument but readily disagreed, pointing out:

> T]he DRPA is authorized through the Compact to contract with third party vendors, such as Keystone, to use its land for revenue generation through collecting rents and undertaking economic development projects. Therefore, PennDOT's attempt to regulate the Billboards on DRPA property, located there pursuant to a contract between the DRPA and Keystone and in accordance with the DRPA's authorized purposes, directly impinges on the DRPA's legal rights under the Compact.[26]

The court's reasoning and conclusion that the DRPA can assert a redressable injury suggests the court understands that the DRPA is separate from the states that created it, even though it did not discuss or cite authority to that effect.[27] The *Coughlin* and *Panova* cases discussed below more directly involve the question of how to characterize an interstate compact agency. As of November 20, 2022, the district court case is still pending.

C. What Is an Interstate Compact and Compact Agency?

Courts commonly rely on principles of law and judicial precedent from non-compact authority to describe compacts and compact agencies.[28] Less commonly, courts rely on principles of interstate compact law to describe other governmental entities. *Coughlin v. Lac du Flambeau Band*[29] out of the First Circuit

23. *Doe*, 513 F.3d at 107.

24. *Keystone Outdoor Advert. Co.*, 2022 U.S. Dist. LEXIS 126425, at *14.

25. *Id*. at *15.

26. *Id*. at *16.

27. Article I of the DRPA Compact, *supra* note 18, states:

The body corporate and politic, heretofore created and known as the Delaware River Joint Commission hereby is continued under the name of the Delaware River Port Authority (hereinafter in this agreement called the "Commission"), which shall constitute the public corporate instrumentality of the Commonwealth of Pennsylvania and the State of New Jersey for the following public purposes, and which shall be deemed to be exercising an essential governmental function in effectuating such purposes . . . .

28. *E.g.*, Newberry Station Homeowners Ass'n v. Fairfax Cty., 740 S.E.2d 548, 556 (Va. 2013) (using Virginia law to characterize the Washington Metropolitan Area Transit Authority).

29. 33 F.4th 600 (1st Cir. 2022), *cert. granted*, 598 U.S. ___, 2023 WL 178401 (U.S. Jan. 13, 2023) (No. 22-227).

had nothing to do with interstate compacts, but the dissent used interstate compacts as an example for characterizing a tribal government.

Coughlin was a bankruptcy case in which the debtor sought an order preventing collection efforts by the Lac Du Flambeau Band of Lake Superior Chippewa Indians (Band) pursuant to section 106 of the Bankruptcy Code, which waives sovereign immunity "as to a governmental unit."[30] Section 101(27) of the Bankruptcy Code defines a governmental unit as "or other foreign or domestic government."[31] The majority readily determined that the Band was a "domestic government" and pointed out that the term "or other foreign or domestic government" would be surplusage if it did not include tribal governments.[32]

The dissent challenged that assertion and, in doing so, captured the essence of why courts have struggled with describing interstate compact agencies since the creation of the first compact agency, the Port Authority of New York Harbor, now the Port Authority of New York and New Jersey:[33]

> For, even if the phrase "or other . . . domestic government" were not read to include Indian tribes, it still could be read to pick up otherwise excluded, half-fish, half-fowl governmental entities like authorities or commissions that are created through interstate compacts . . . .
>
> In fact, the trailing phrase in § 101(27) seems quite well-suited to that modest, residuum-defining function. Such joint entities are not susceptible of the kind of one or two-word description ("Interstate Commission, Authority or the Like"? "Products of compacts or agreements"?) that—like Indian tribes themselves—each of the expressly listed types of foreign or domestic governments is. Nor do any other words in § 101(27) lend themselves to a construction that would encompass such odd governmental hydras.
>
> The majority contends in response that these types of entities are already encompassed within § 101(27)'s definition of "governmental unit" as "instrumentalit[ies] . . . of a State," such that the residual phrase "or other . . . domestic government" need not apply. See Maj. Op. at 611. But, why would we think such a joint entity is an "instrumentality" of *a* "State" when it is a body that is formed by more than one State through an interstate compact blessed by Congress and has a regulatory purview greater than that of a single state?[34]

In these three short paragraphs, Judge Barron recognized that compact agencies are not easily characterized in terms common to describing governmental agencies (*i.e.*, "state" or "federal"). Compact agencies are indeed, "neither fish nor fowl" and "odd governmental hydras" in that they are created by two or more states acting cooperatively and, when necessary, with congressional consent, but they are neither state agencies nor federal agencies. Scholars and other courts have, for a long time, said this much. Indeed, in describing compact agencies as a hydra, Judge Barron was not the first judge to use a mythical creature to make their point. One scholar described the congressionally approved multistate compact as

30. *Id.*
31. 33 F.4th at 605 (citing 11 U.S.C. § 101(27)).
32. *Id.*
33. N.J. Stat Ann. § 32:1-3 (West 2022); McKinney's Unconsol. Laws of N.Y. § 6404 [as added by L. 1921 c 154, § 1].
34. *Coughlin*, 33 F.4th at 616 (Barron, C.J., dissenting).

a "'centaur of legislation' which is an offspring of both state and federal law,"[35] which the Ninth Circuit once adopted.[36]

Nor was Judge Barron the first to use interstate compacts to assist in interpreting a non-compact-related statute. On occasion, courts have applied interstate compact law and principles in cases involving a state-tribal compact.[37] And, in 2019, Justice Thomas applied interstate compact law in *Franchise Tax Board v. Hyatt*,[38] a case in which the U.S. Supreme Court had to decide whether the U.S. Constitution permits a state to be sued by a private party without its consent in the courts of a different state.

The Supreme Court granted certiorari,[39] giving it the first-ever opportunity to resolve a Circuit split over which of the many hybrid animals of Greek mythology best describes an interstate compact.

In *Panova v. Palisades Interstate Parkway Police Department*,[40] the court concluded that it should not construe a general waiver of sovereign immunity from a sue-and-be-sued clause to include a waiver of New Jersey's Eleventh Amendment immunity. The court followed decisions from the Second Circuit and the New Jersey Supreme Court involving interstate compacts. But curiously, the court then deviated from compact law precedent and principles and applied its non-compact-law *Fitchik*[41] factors to determine whether the Palisades Interstate Parkway Police Department was an arm of the State of New Jersey for the purpose of the Eleventh Amendment. The decision is not particularly satisfying because it does not explain why it did not apply three particularly helpful U.S. Supreme Court decisions specific to determining whether a compact agency is an arm of the state for Eleventh Amendment purposes.[42] *Fitchik* did cite and rely on one of those leading compact cases (*Lake Country Estates v. Tahoe Regional Planning Agency*), so perhaps there would not have been any practical difference in the reasoning or outcome. Nevertheless, the district court missed citing this seemingly applicable compact law precedent.

D. Relationship Between a Compact and State Laws and Constitutions

One of the original and still enforceable principles of interstate compact law is that a state may not impose state law on a compact agency unless that law is reserved in the compact. The U.S. Supreme Court articulated this principle in its first compact case in 1823, concluding that Kentucky could not enact real property law that conflicted with the Virginia-Kentucky Compact of 1789, which preserved the application of Virginia's real property law.[43] Since then, courts have applied the principle with few deviations but with many variations on how they explain the principle.[44]

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35. Comment, *Federal Question Jurisdiction to Interpret Interstate Compacts*, 64 Geo. L.J. 87, 110 (1975).

36. Jacobson v. Tahoe Reg'l Plan. Agency, 566 F.2d 1353, 1359 n.8 (9th Cir. 1977). For more examples of scholars and courts trying to describe compact agencies, see Litwak, *supra* note 6, at 3–4.

37. *E.g.*, Pueblo of Santa Ana v. Kelly, 104 F.3d 1546, 1556, 1557–58 (10th Cir. 1997); Flathead Irrigation Dist. v. Jewell, 121 F. Supp. 3d 1008, 1024 (D. Mont. 2015). For a longer introduction to similarities and differences between an interstate compact and a state-tribal compact, see Rebecca Tsosie, *Negotiating Economic Survival, The Consent Principle and Tribal-State Compacts Under the Indian Gaming Regulatory Act*, 29 Ariz. L.J. 25 (1997).

38. 139 S. Ct. 1485, 1498 (2019).

39. Lac du Flambeau Band v. Coughlin, 598 U.S. ___, 2023 WL 178401 (U.S. Jan. 13, 2023) (No. 22-227).

40. No. 21-cv-226 (KSH) (CLW), 2022 U.S. Dist. LEXIS 114323, at *15–17 (D.N.J. June 28, 2022).

41. Fitchik v. N.J. Transit Rail Operations, Inc., 873 F.2d 655 (3d Cir. 1989).

42. Hess v. Port Auth. Trans-Hudson Corp., 513 U.S. 30 (1994); Port Auth. Trans-Hudson Corp v. Feeney, 495 U.S. 299 (1990); Lake Country Estates v. Tahoe Reg'l Plan. Agency, 440 U.S. 391 (1978).

43. Green v. Biddle, 21 U.S. 1 (1823).

44. *See* Buenger, *supra* note 2, at 54–66; Litwak, *supra* note 6, at 255–96.

As summarized above, in *Keystone Outdoor Advertising Co. v. Secretary of the Pennsylvania Department of Transportation*,[45] Keystone owned billboards that were located on Delaware River Port Authority (DRPA) property.[46] PennDOT attempted to deny Keystone's applications for the billboards, asserting that they violated the Pennsylvania Outdoor Advertising Control Act of 1971. The legal question before the court was whether PennDOT had the authority to regulate billboards on DRPA property.

PennDOT argued that the DRPA was not acting within its authorized purposes by hosting privately owned billboards. Considering multiple articles and sections of the DPRA compact, the court readily concluded that the DPRA compact provided the DRPA with authority to contract with Keystone to use DPRA land for outdoor advertising signs and that the states did not reserve authority to regulate outdoor advertising. The court also cited Third Circuit precedent, concluding that "[w]hen a bi-state entity is created pursuant to the Compact Clause there is presumed to be an unambiguous surrender of state sovereignty to that entity."[47] The court further reasoned:

> By creating a bi-state entity, the states relinquish all control over the entity unless expressly reserved in the compact. All parties agree, as do we, that the Third Circuit's decision in [*Delaware River Joint Toll Bridge Commission v. Secretary Pennsylvania Department of Labor & Industry*, 985 F.3d 189 (3d Cir. 2021)] stands for the proposition that when a bi-state entity created by Compact acts in accordance with its authorized purposes, the scope of the surrender of authority should be construed broadly and includes the general surrender of police powers, unless expressly reserved.[48]

This reasoning on the surrender or shifting of sovereignty is consistent with U.S. Supreme Court decisions. For example, in *Hess v. Port Authority Trans-Hudson Corp.*, the Court explained that "bistate entities created by compact . . . are not subject to the unilateral control of any one of the States [because] '[a]n interstate compact, by its very nature, shifts a part of a state's authority to another state or states, or to the agency the several states jointly create to run the compact.'"[49] In another case, Justice Scalia dissented, reasoning in part, "There is no way [a compact] can be interpreted other than as a yielding by both States of what they claimed to be their sovereign powers."[50]

In *McKenzie v. Port Authority of New York & New Jersey*,[51] the New York Supreme Court Appellate Division concluded—in a two-paragraph decision—that New York's Uniform Notice of Claim Act did not extend the time specified in the New York-New Jersey Port Authority Compact of 1921 (PANYNJ compact) to sue the Port Authority. The court gave two succinct reasons. First, the court concluded that the Port Authority "is not a 'political subdivision of the state, . . . instrumentality or agency of the state or a political subdivision, . . . public authority[,] or . . . public benefit corporation entitled to receive a notice of claim as a condition precedent to commencement of an action' within the meaning of the [Notice of Claim Act]; rather, it is a bistate agency."[52] Second, the court reasoned, "What is more, New Jersey has

45. No. 19-5951, 2022 U.S. Dist. LEXIS 126425 (E.D. Pa. July 18, 2022).
46. *See supra* text and discussion at notes 17–19.
47. 2022 U.S. Dist. LEXIS 126425, at *24 (citing Del. River Joint Toll Bridge Comm'n v. Sec'y Pa. Dep't of Labor & Indus., 985 F.3d 189, 195 (3d Cir. 2021)).
48. *Id.*
49. Hess v. Port Auth. Trans-Hudson Corp., 513 U.S. 30, 42 (1994).
50. New Jersey v. Delaware, 552 U.S. 597, 629–30 (2008) (Scalia, J., dissenting).
51. 157 N.Y.S.3d 714 (App. Div. 2022).
52. *Id.*

not enacted identical legislation, and bistate entities created by compact are not subject to the unilateral control of any one state."[53]

This decision must have surprised Port Authority as pleasantly inconsistent with several of the court's recent decisions. To understand this pleasant inconsistency, some background on how state law applies to the Port Authority is necessary. The PANYNJ compact has a provision that allows a state to apply state law to the Port Authority when "concurred in" by the other state.[54] Generally, New York state courts apply an express intent standard to determine whether a particular state law applies to a compact.[55] The express intent standard requires that the states' laws must be substantially similar and the states' legislatures must expressly specify that they intend the law to apply to the compact agency.[56] Federal courts also apply the express intent standard.[57] In contrast, New Jersey state courts do not apply the express intent standard to any compact.[58] Instead, New Jersey state courts apply state law under a "concurred in" provision when the law to be applied is "complementary and parallel" to law in the other state. New Jersey state courts do not have a single standard for determining when laws are "complementary and parallel." In different cases, New Jersey state courts have concluded laws are complementary and parallel when they are substantially similar,[59] when they are somewhat similar,[60] when regulations do not conflict with regulations in the other state,[61] and when laws express similar public policy.[62]

However, instead of applying the express intent test to the Port Authority, New York state courts have held that state law is applicable to the Port Authority when that law regulates the external conduct of the Port Authority. Conversely, state law does not apply when it would regulate the internal conduct of the Port Authority. This unique test for the Port Authority first appeared in *Agesen v. Catherwood*,[63] and New York state courts seem to continue applying *Agesen* reflexively rather than for any specific reason; no decision has explained why New York state courts started using the *Agesen* test or why they only apply it to the PANYNJ, and no other court uses the *Agesen* approach.[64]

In the past several years, the Supreme Court of New York and its appellate division consistently rejected the Port Authority's express arguments asking the court to apply the express intent standard rather than

53. *Id*. (citations omitted).

54. N.J. Stat. Ann. § 32:1-4 (West 2022); McKinney's Unconsol. Laws of N.Y. § 6404 [as added by L. 1921 c 154, § 1].

55. *E.g.*, Malverty v. Waterfront Comm'n, 524 N.E.2d 421 (N.Y. 1988).

56. *See* Int'l Union of Operating Eng'rs, Local 542 v. Del. River Joint Toll Bridge Comm'n, 311 F.3d 273 (3d Cir. 2002) (giving a long recitation of the express intent standard).

57. *Id*.

58. *But see* Alpha Painting & Constr. Co. v. Del. River Port Auth., No. 1:16-cv-05141-NLH-AMD, 2018 U.S. Dist. LEXIS 104695, at *19 (D.N.J. June 22, 2018) (mentioning the lack of Pennsylvania's intent as evidenced by Pennsylvania's lack of express language applying its Sunshine Law to the DRPA).

59. Int'l Union of Operating Eng'rs, Local 68 v. Del. River & Bay Auth., 688 A.2d 569, 574–75 (N.J. 1997).

60. Bunk v. Port Auth. of N.Y & N.J., 676 A.2d 118, 122 (N.J. 1996).

61. Ampro Fisheries v. Yaskin, 606 A.2d 1099, 1104 (N.J. 1992).

62. Textar Painting Corp. v. Del. River Port Auth., 686 A.2d 795, 798 (N.J. Super. Law Div. 1996).

63. 260 N.E.2d 525 (N.Y. 1970).

64. In *Granados v. Port Authority of New York & New Jersey*, No. 714754/2017, 2018 N.Y. Misc. LEXIS 2995, at *3 (Sup. Ct. Queens Cnty. Mar. 9, 2018), the court stated that federal courts have embraced the *Agesen* approach. But the cases the court cited seem to show that the federal courts applied *Agesen* only because federal courts apply state law in state law cases, not because they endorse *Agesen*.

Agesen.[65] New Jersey courts similarly rejected the Port Authority's arguments and continued to apply its complementary and parallel standard.[66]

With this background, the most notable aspect of this year's *McKenzie* case is that the court did not apply *Agesen*; rather, the court seemed to apply an express intent standard, reasoning that New Jersey has not enacted identical legislation. Perhaps *McKenzie* signals that the court is moving toward applying the express intent standard to the Port Authority, or perhaps the case is an aberration.

In *Oyola v. Washington Metropolitan Area Transit Authority*,[67] the court applied Maryland law to determine the applicable statute of limitation. The court wrote:

> For violations of [the] Rehabilitation Act, this Court "borrow[s] the time limit from the most analogous state law claim." Thus, for these incidents, the Court looks to analogous state violations proscribed by the Maryland Fair Employment Practices Act, which provides a two-year limitations period.[68]

What is notable about this case is what is missing. The court did not explain why it applied Maryland law instead of the law of the other parties to the Washington Metropolitan Area Transit Regulation Compact—Virginia or the District of Columbia. Perhaps the U.S. District Court for the District of Maryland only reflexively applied Maryland law. However, before "borrowing" state law in cases involving a compact agency, the court should consider whether there are differences in the states' laws and explain why it selected the law of a particular state. Perhaps the court would have concluded that Maryland law was the most appropriate because, for example, the events occurred in Maryland or the plaintiff is a resident of Maryland. In contrast, the Transit Authority's main office is in the District of Columbia. Established principles exist for when state law applies to a compact agency;[69] however, none of those principles addresses the instances where federal law requires a court to borrow state law.

E. Interpretation of Interstate Compacts

In *Afanasieva v. Washington Metropolitan Area Transit Authority*,[70] the U.S. District Court for the District of Columbia applied an important principle for interpreting interstate compacts—considering a decision from another party state's court, in this case, the District of Columbia Court of Appeals. The District Court acknowledged that the decision was not binding in federal court yet found the outcome sufficiently persuasive to apply and follow.[71]

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65. *See* Wortham v. Port Auth. of N.Y. & N.J., No. 155687/2017, 2018 N.Y. Misc. LEXIS 2190, at *4 (Sup. Ct. N.Y. Cnty. May 30, 2018), *aff'd*, 110 N.Y.S.3d 539 (App. Div. 2019); *In re* Lopez v. Port Auth. of N.Y. & N.J., 98 N.Y.S.3d (App. Div. 2019); Rosario v. Port Auth. of N.Y. & N.J., 114 N.Y.S.3d 219 (App. Div. 2020); Ayars v. Port Auth. of N.Y. & N.J., 115 N.Y.S.3d 896 (App. Div. 2020); Ray v. Port Auth. of N.Y. & N.J., 124 N.Y.S.3d 189 (App. Div. 2020); Latteri v. Port Auth. of N.Y. & N.J., No. 33226/2018E, 2021 N.Y. Misc. LEXIS 4152 (Sup. Ct. Bronx Cnty. June 1, 2021).

66. *See* Port Auth. of N.Y. & N.J. v. Port Auth. of N.Y. & N.J. Police Benevolent Ass'n, 209 A.3d 897 (N.J. App. Div. 2019).

67. 8:21-cv-00540-PX, 2022 U.S. Dist. LEXIS 95576 (D. Md. May 27, 2022).

68. *Id*. at *8 (citations omitted).

69. *See* Buenger, *supra* note 2, at 54–66; Litwak, *supra* note 6, at 255–96.

70. 588 F. Supp. 3d 99, 107 (D.D.C. 2022).

71. *Id*. at 108, 111.

While applying precedent from other courts is a common practice generally, it is critically important in compact cases because it helps ensure a uniform interpretation to an interstate compact. Uniformity is particularly elusive because many courts in different states need to interpret and apply the same compact text.[72] *Afanasieva* was not the first case in which a court considered another court's law in interpreting the Washington Metropolitan Area Transit Regulation Compact. In *Proctor v. Washington Metropolitan Area Transit Authority*,[73] the Maryland Supreme Court expressly noted that prior decisions in other courts are "highly persuasive" and overruled a decision from the Appellate Court of Maryland that was contrary to decisions from Virginia and District of Columbia courts. The Maryland Supreme Court noted that the decisions from the other states' courts were "highly persuasive" and that, because the Appellate Court's decision was contrary to the other Transit Authority jurisdiction, the district court "quite reasonably in our view, had reservations whether [the Appellate Court decision] was decided correctly."[74]

Another interpretive practice is that courts consider prior interpretations of similar compacts. This is illustrated in *Burke v. Lamont*,[75] in which the plaintiff, an incarcerated person, was transferred from a correctional facility in New Hampshire, where he was convicted and sentenced, to a facility in Connecticut using the New England Interstate Corrections Compact. The court concluded that the plaintiff could not maintain a section 1983 claim pursuant to the New England Interstate Corrections Compact, citing cases in which courts reached the same conclusion about the Interstate Corrections Compact (ICC), a different compact with a similar name.[76]

The court's approach in *Burke* makes sense because the New England Corrections Compact and the ICC are two of three similar corrections compacts. The New England Corrections Compact and the Western Interstate Corrections Compact (Western ICC) are two regional interstate corrections compacts that authorize transfers of inmates between states.[77] These regional compacts operate alongside a national-in-scope ICC. The regional compacts predated the ICC, which was modeled on the Western ICC.[78] One important difference between the regional compacts and the ICC is that the regional compacts permit states to enter into contracts prior to construction of a new facility or enlargement of an existing facility that reserves a specific percentage of its capacity for use by the sending state.[79]

States transfer inmates for many reasons to benefit the correctional system (such as easing crowding, security, and control) and for the benefit of inmates (such as protection from other prisoners, location

72. *See* Buenger, *supra* note 2, at 187–96; Litwak, *supra* note 6, at 303–15.

73. 990 A.2d 1048 (Md. 2010). Following a state vote in November 2022, the Maryland Court of Appeals had its name changed, becoming the Maryland Supreme Court, and the Court of Special Appeals became the Appellate Court of Maryland.

74. *Id*. at 1056.

75. No. 3:22-CV-475 (OAW), 2022 U.S. Dist. LEXIS 158047 (D. Conn. Sept. 1, 2022).

76. Similarly, in *Carter v. White*, No. 7:21-cv-00484, 2022 U.S. Dist. LEXIS 138874 (W.D. Va. Aug. 4, 2022), a case involving the ICC, the court used one case interpreting the Western Interstate Corrections Compact.

77. In 1955 and 1957, respectively, Tennessee and Arkansas enacted a "South Central Interstate Corrections Compact," 1955 Tenn. Pub. Acts 628; 957 Ark. Acts 1035, but it never caught on in other states. Tennessee repealed the compact in 1971, 1971 Tenn. Pub. Acts 42. Arkansas has not repealed the compact, and it is the only state with the compact text in its statutes. Ark. Code Ann. §§ 12-49-201–12-49-202.

78. *See, e.g.*, Taylor v. Peters, 361 P.3d 54 (Or. Ct. App. 2015) (discussing the ICC and the Western ICC and noting that the ICC was based on the Western ICC), *aff'd*, 383 P.3d 279, 280 (Or. 2016).

79. *Compare* Interstate Corrections Compact, art. III, *with* Western Interstate Corrections Compact, art. III(b), *and* New England Interstate Corrections Compact, art. III(b); *see also* Mitchell Wendell, *Multijurisdictional Aspects of Corrections*, 45 Neb. L. Rev. 520, 526–27 (1966).

closer to family or a job before release, or for specialized healthcare).[80] Transfers, however, may "limit prisoners' access to courts and families, create perverse incentives to incarcerate[,] and aggravate the concern that America's reliance on prisoners is unsustainable and unjust."[81] Additionally, the law and its procedures are complex for incarcerated persons to understand and often result in errors in pleading, including which law applies and in which court a plaintiff must file their claim.

Most states that are members of one of the regional compacts are also members of the ICC, and transfer records may not clearly show which compact was used. Somewhat humorously, in *Griffin v. Hollar*,[82] the court could not figure out which compact the state used to transfer the plaintiff, stating, "On or about October 9, 2015, Plaintiff was transferred to the custody of the North Carolina Department of Public Safety (NCDPS) through the Interstate Corrections Compact (ICC) or the Western Interstate Corrections Compact (WICC)."[83]

As noted above, applying precedent from other courts is one way that courts create a uniform interpretation of a compact. There are many others.[84] However, states and courts do not consistently strive for uniformity, and some expressly reject uniformity.

A notable split in the states' interpretation of a compact involves the Interstate Compact on the Placement of Children (ICPC), in which the states are roughly evenly split on whether the ICPC applies to non-custodial, out-of-state parents. In 2010, in *In re C.B.*,[85] the California Court of Appeal noted the split and lamented, "We are publishing this opinion . . . to point out that the resulting lack of uniformity is dysfunctional, that courts and rule makers have not been able to fix it, and hence that it may call for a multistate legislative response."[86] The Court of Appeal concluded that the ICPC does not apply to out-of-state, non-custodial parents, which curiously some California courts still do not observe and more curiously the Court of Appeal does not correct. For example, in *In re Z.B.*,[87] the California Court of Appeal noted without comment that the trial court had ordered an evaluation of the father's Iowa home pursuant to ICPC.[88]

In 2022, in *In re D.L. v. S.B.*,[89] the New York Court of Appeals resolved a split between appellate divisions in the state and concluded that the ICPC does not apply to non-custodial, out-of-state parents. In doing so, the court considered the text and intent of the compact. In contrast, when the North Carolina Court of Appeals had to resolve two conflicting lines of cases involving the application of the ICPC, it applied North Carolina common law requiring application of the older of the two lines of cases.[90]

80. *See* David Shichor & Dale K. Sechrest, *Privatization and Flexibility: Legal and Practical Aspects of Interjurisdictional Transfer of Prisoners*, 82 Prison J. 386 (2002); Emma Kaufman, *The Prisoner Trade*, 133 Harv. L. Rev. 1815 (2020).

81. Kaufman, *supra* note 80, at 1820.

82. No. 5:19-cv-00049-MR, 2022 U.S. Dist. LEXIS 42924 (W.D.N.C. Mar. 10, 2022).

83. *Id*. at *6.

84. *See* Litwak, *supra* note 6, at 303–18.

85. 188 Cal. App. 4th 1024 (2010).

86. *Id*. at 1027.

87. No. D080050, 2022 Cal. App. Unpub. LEXIS 4964 (Aug. 12, 2022).

88. *Id*. at *4. This is not a single incident. In 2021, in *K.R. v. T.R.*, No. B300269, B305038, 2021 Cal. App. Unpub. LEXIS 99, at *12 (Jan. 8, 2021), the California Court of Appeal noted without comment that a trial court ordered an ICPC home study on an out-of-state father.

89. No. 76, 2022 N.Y. LEXIS 2070 (Oct. 25, 2022).

90. *In re* J.D.M.-J, 817 S.E.2d 755, 760 (N.C. Ct. App. 2018).

The Utah Supreme Court also acknowledged a state split in the application of the ICPC in *In re K.S. & C.S.*,[91] but the court expressly avoided taking sides, stating:

> We acknowledge Father's point that there exists a sharp split of authority among courts that have considered the issue, and we recognize that Utah's appellate courts, at some point, may need to weigh in on this question. But in our view, this case does not present an appropriate opportunity for us to do so because, even if we presume for purposes of our analysis that Father's interpretation of the ICPC—that it has no application to placements with noncustodial parents—is the better one, Father still cannot prevail here, for several reasons.[92]

Harrosh v. Tahoe Regional Planning Agency[93] presents an interesting question involving interpretation and application of the Tahoe Regional Planning Compact (the Tahoe Compact). The Tahoe Compact requires a double majority vote to approve a development "project," comprising at least nine of the fourteen voting members of the TRPA Governing Board, including five from the state in which the project is located.[94] The compact also specifies that if a project does not garner the necessary votes, "upon a motion of approval, an action of rejection shall be deemed to have been taken."[95] In this case, the Governing Board made its decision with only four members of the California delegation voting. Two of the seven seats on the California delegation were vacant, and one California board member recused herself.[96] Thus only four members of the California delegation were available to vote. Harrosh challenged the Governing Board's decision. The district court denied TRPA's motion to dismiss, concluding that Harrosh had stated a claim.[97]

TRPA does not appear to have raised the Rule of Necessity in its proceeding. The Rule of Necessity is a common doctrine that allows an otherwise recused member of a decision-making body to participate if necessary to reach a decision; the rule ensures that the parties have a forum. The Tahoe Compact does not expressly state that the Rule of Necessity may apply, and TRPA regulations and procedures do not mention the Rule of Necessity. If, indeed, the TRPA authorities are silent on the Rule of Necessity, the Tahoe Compact allows state law to apply to TRPA if concurred in by the other state.[98] At this point, the application of the Rule of Necessity will not arise in this case; California has now filled the two vacant seats, so even if the court remands the case back to TRPA, there should be at least five members of the California delegation that could vote on the project.

Finally, several courts concluded that statewide suspension of jury trials in response to the COVID-19 pandemic tolled the requirement in the Interstate Agreement on Detainers to bring a prisoner to trial within 180 days.[99] These cases are consistent with several other decisions concluding the same in 2020 and 2021.[100]

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91. 512 P.3d 497 (Utah 2022).
92. *Id*. at 507.
93. No. 2:21-cv-1969-KJM-JDP, 2022 U.S. Dist. LEXIS 205603 (E.D. Cal. Nov. 10, 2022).
94. Tahoe Regional Planning Compact, art. III(g)(2).
95. *Id*.
96. 2022 U.S. Dist. LEXIS 205603, at *7.
97. *Id.* at *32.
98. Tahoe Regional Planning Compact, art. X(b).
99. *E.g.*, Brown v. State, No. 1210172, 2022 Ala. LEXIS 51 (June 17, 2022); *In re* Davis, No. 10-21-00074-CR, 2022 Tex. App. LEXIS 3385 (May 18, 2022); State v. Reeves, 268 A.3d 281, 290 (Me. 2022).
100. *See* State v. Reeves, 268 A.3d at 289–90 (citing cases).

F. Withdrawal from and Termination of Interstate Compacts

In 2022, following the U.S. Supreme Court denial of certiorari in *Waterfront Commission of New York Harbor v. Murphy*,[101] New York filed a bill of complaint against New Jersey in the Supreme Court's original jurisdiction. This original jurisdiction case involves a claim that the New Jersey governor could not initiate withdrawal from the Waterfront Commission Compact pursuant to authority and direction granted by a New Jersey law that former governor Chris Christie signed on his last day in office in 2018.[102] This bill directed the New Jersey governor to give notice of New Jersey's withdrawal to New York and would dissolve the Waterfront Commission, transferring its assets to the New Jersey State Police. The 2021 edition of this article summarized the history of this saga.

The Supreme Court granted New York's bill of complaint. On April 18, 2023, the Court decided the case in favor of New Jersey with remarkably little discussion.[103] The 2023 edition of this article will cover the Court's decision.

II. ADMINISTRATIVE DEVELOPMENTS

With over 250 interstate compacts, it is difficult to capture the range of administrative activities by compact agencies and those that intersect with compact agencies. A complete review of the developments of each compact entity is beyond the scope of this article; instead, this section aims to highlight developments that offer learning opportunities for other compact agencies and persons studying interstate compacts.

A. Compacts Receiving Funding from Infrastructure Investment and Jobs Act of 2021

The 2021 federal Infrastructure Investment and Jobs Act (IIJA)[104] was good for compact agencies, as many are involved in developing and operating multistate infrastructure systems. Below is a sampling of the compact agencies that received this funding.

The IIJA provides a $1 billion investment over a five-year period to support multiple initiatives developed by the Appalachian Regional Commission (ARC).[105] ARC is a regional collaboration between the federal government and thirteen states within the Appalachian region.[106] The collaboration leverages interstate and federal cooperation to address region-specific economic and social harms.[107] ARC began spending its first $200 million annual allocation by creating the Appalachian Regional Initiative for Stronger Economies (ARISE).[108] ARISE leverages infrastructure money to increase regional cooperation and

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101. 429 F. Supp. 3d 1 (D.N.J. 2019), *remanded for dismissal*, 961 F.3d 234 (3d Cir. 2020), *and cert. denied*, 142 S. Ct. 561 (2021).

102. Act of Jan. 16, 2018, 2017 N.J. Sess. Law Serv. ch. 324 (codified at N.J. Stat. Ann. §§ 32:23-229 to 32:23-230).

103. New York v. New Jersey, ___ U.S. ___, 143 S. Ct. 918 (2023).

104. Infrastructure Investment and Jobs Act, Pub. L. No. 117-58, 135 Stat. 429 (2021).

105. Infrastructure Investment and Jobs Act § 11506; *see also* Press Release, Appalachian Reg'l Comm'n, ARC Launches $73.5 Million Grant Initiative in FY22 to Spur Multistate Collaboration to Transform Appalachia's Economy Through President Biden's Bipartisan Infrastructure Law (Aug. 23, 2022), https://www.arc.gov/news/arc-launches-73-5-million-grant-initiative-in-fy22-to-spur-multistate-collaboration-to-transform-appalachias-economy.

106. *About the Appalachian Region*, Appalachian Reg'l Comm'n, https://www.arc.gov/about-the-appalachian-region (last visited Dec. 15, 2022).

107. *Id.*

108. *See Appalachian Regional Initiative for Stronger Economies*, Appalachian Reg'l Comm'n, https://www.arc.gov/ARISE (last visited Dec. 15, 2022).

progress towards the ARC's strategic investment priorities.[109] To be eligible for ARISE grants, applicants must collaborate with at least one other state on an initiative that creates multistate impacts.[110]

The Delaware Valley Regional Planning Commission (DVRPC) began to provide IIJA funding procurement resources to its constituent municipalities.[111] The DVRPC is a regional planning commission created by Pennsylvania and New Jersey.[112] The commission serves as an advisory agency and consists of representatives from the nine counties that make up the greater Philadelphia urban area.[113] Pursuant to its advisory capacity, DVRPC is educating the counties about various IIJA funding initiatives and their respective requirements, emphasizing the importance of collaboration to increase their chance to receive funding.[114]

The IIJA established a $4.7 billion effort to identify, characterize, and plug undocumented orphan oil wells across the country[115] and specified several roles for the Interstate Oil and Gas Compact Commission (IOGCC) that leverage IOGCC's significant influence and power in the energy industry.[116] The IOGCC is a multistate government entity established by an interstate compact between thirty-eight oil-producing states, with eight Canadian provinces as "international affiliates."[117]

The IIJA identifies the IOGCC as an advisory entity to the U.S. Secretary of Energy and as a source of technical assistance to states and entities doing the work to plug the wells and thus provides the IOGCC with funding for those roles.[118] Pursuant to these roles, the IOGCC signed a Memorandum of Understanding with the U.S. Departments of the Interior, Agriculture, and Energy, and the Environmental Protection Agency (the MOU) outlining the parties' roles in relation to orphaned well site plugging, remediation, and restoration.[119] The MOU creates a technical working group of federal land managers and specifies that this working group will consult and work with the IOGCC to develop reporting templates

109. *Id.* The strategic investment priorities include Building Business, Workforce Systems, Community Infrastructure, Regional Culture and Tourism, and Leaders and Local Capacity. *ARC's Investment Priorities for Appalachia*, Appalachian Reg'l Comm'n, https://www.arc.gov/investment-priorities/ (last visited Dec. 15, 2022).

110. Appalachian Regional Initiative for Stronger Economies (ARISE) Request for Proposals, Appalachian Reg'l Comm'n (2022), https://www.arc.gov/wp-content/uploads/2022/08/RFP-ARISE-Appalachian-Regional-Initiative-for-Stronger-Economies.pdf.

111. *Infrastructure Investment and Jobs Act,* Del. River Valley Reg'l Plan. Comm'n, https://www.dvrpc.org/iija (last visited Dec. 15, 2022).

112. N.J. Stat. Ann. § 32:27-1 (West); 73 Pa. Stat. Ann. § 701 (West).

113. *About DVRPC*, Del. River Valley Reg'l Plan. Comm'n, https://www.dvrpc.org/about (last visited Dec. 15, 2022).

114. *See* Del. River Valley Reg'l Plan. Comm'n, *supra* note 110.

115. Infrastructure Investment and Jobs Act § 40601, Pub. L. No. 117-58, 135 Stat. 429 (2021) (amending 42 U.S.C. § 15907).

116. 42 U.S.C. § 15907(e) (2022); *see also What We Do*, Interstate Oil & Gas Compact Comm'n, https://iogcc.ok.gov/what-we-do (last visited Dec. 15, 2022).

117. *Member/Associate State Sites*, Interstate Oil & Gas Compact Comm'n, https://iogcc.ok.gov/links (last visited Dec. 15, 2022).

118. 16 U.S.C. § 15907(e), (h) (2022).

119. Press Release, Department of the Interior, Interior Department, Federal Partners Announce Interagency Effort to Clean Up Legacy Pollution, Implement Infrastructure Law (Jan. 18, 2022), https://www.doi.gov/pressreleases/interior-department-federal-partners-announce-interagency-effort-clean-legacy; Memorandum of Understanding Between The Department of the Interior, et al., on Orphaned Well Site Plugging, Remediation, and Restoration (2022), https://www.doi.gov/sites/doi.gov/files/orphan-well-mou-01-13-2022.pdf [hereinafter MOU].

and best practices to facilitate fact-gathering and reporting. The IOGCC also will help determine the eligibility of a state for funding through the State Grant Program.[120] In addition to signing the MOU, the IOGCC organized a research consortium with the Department of Energy to guide well plugging efforts for the next five years.[121]

The IOGCC also began to advise the Secretary of Energy in evaluating grant applications submitted by states for federal funding.[122] A state must be a member of the IOGCC to qualify for the first round of well-plugging grants—nearly $775 million.[123]

The Federal Aviation Administration (FAA) awarded the Metropolitan Washington Airports Authority (MWAA), a multistate agency, a $49.6 million grant as part of its first wave of IIJA funds allocated to national airport development.[124] MWAA intends to use the grant to begin work on a 15-year terminal redevelopment project at Washington Dulles International Airport, one of the two airports managed by MWAA.[125] MWAA is a "public body politic and corporate" made up of representatives appointed by the governors of Virginia and Maryland, the mayor of Washington D.C., and the President.[126] MWAA operates independently of the four appointing authorities and will continue to be eligible to apply for more infrastructure grants managed by the FAA.[127]

The IIJA also specified safety and accountability investments for the Washington Metropolitan Area Transit Authority (WMATA).[128] WMATA administers the Washington Metropolitan Area Transit Regulation Compact between Maryland, Virginia, and Washington D.C. to develop and manage the transportation system in the nation's capital region.[129] For years, WMATA has struggled with inefficiency, safety concerns, and corruption[130]—issues that the new law directly addresses by making some funding

120. MOU, *supra* note 118, at 6–7.

121. *Undocumented Orphaned Wells Research Program Division of Methane Mitigation Technologies*, Dep't of Energy, Off. of Fossil Energy & Carbon Mgmt., https://www.energy.gov/fecm/undocumented-orphaned-wells-research-program-division-methane-mitigation-technologies (last visited Dec. 15, 2022).

122. Press Release, Department of the Interior, Biden-Harris Administration Releases Final Guidance on New Orphaned Well Program, (Apr. 12, 2022), https://www.doi.gov/pressreleases/biden-harris-administration-releases-final-guidance-new-orphaned-well-program; U.S. Dep't of the Interior, Bipartisan Infrastructure Law Sec. 40601 Orphaned Well Program Fy 2022 State Initial Grant Guidance (n.d.), https://www.doi.gov/sites/doi.gov/files/state-initial-grant-guidance-4-11-22.pdf.

123. 16 U.S.C. § 15907(c)(3)(A)(i)(II)(aa) (2022).

124. FAA, FY 2022 Airport Terminal Program Final Sections 7 (2022), https://www.faa.gov/sites/faa.gov/files/2022-07/ATP_Final_FY22_07072022.pdf.

125. Metro. Wash. Airports Auth., Board of Directors Meeting Minutes of July 20, 2022, at 2 (2022), https://www.mwaa.com/sites/mwaa.com/files/inline-files/July%2020%2C%202022.pdf.

126. 49 U.S.C. § 49106(c); *see also About the Airports Authority*, Metro. Wash. Airports Auth., https://www.mwaa.com/about-airports-authority (last visited Dec. 15, 2022).

127. Metro. Wash. Airports Auth., *supra* note 125, at 10.

128. Infrastructure Investment and Jobs Act § 30019, Pub. L. No. 117-58, 135 Stat. 429 (2021) (amending 42 U.S.C. § 15907).

129. Md. Code Ann., Transp. § 10-204; Va. Code Ann. § 33.2-3000 (West); Act of Nov. 6, 1966, Pub. L. No. 89-774, 80 Stat. 1324, as amended by Joint Resolution of Apr. 7, 1988, Pub. L. No. 100-285, 102 Stat. 82.

130. *Revitalizing WMATA: Getting to a Culture of Excellence: Hearing Before the Subcomm. on Government Operations of the Committee on Oversight and Reform*, 107th Cong. 3–4 (2022) (opening statement by Chairperson of the Committee Hon. Gerald E. Connolly).

available to WMATA only if it makes specific changes to its existing Inspector General position.[131] WMATA members also must match these funds to initiate their disbursement.[132] In addition to the conditional Inspector General funds, the IIJA allocates $150 million annually to WMATA between 2022 and 2030.[133]

IIJA provisions relating to WMATA demonstrate one federal lever that can influence an interstate compact. WMATA operates independently of the state and federal governments that appoint its board of directors, yet WMATA is still subject to significant influence by these governments through amendment of Congress's consent to the compact and incentive funding.

Evidence of the effectiveness of this influence is apparent in the actions that WMATA took following passage of the IIJA. Members from WMATA's board of directors and management team participated in a congressional hearing to explain how WMATA would capitalize on the IIJA investment moving forward.[134] WMATA's acting Inspector General submitted a report to the House Committee on Oversight and Reform in October 2022.[135] The report outlines findings from the Office of the Inspector General's investigation into allegations that WMATA withheld material communications about safety matters from the Washington Metrorail Safety Commission.[136] The Washington Metrorail Safety Commission is a new interstate compact agency created in 2017 specifically to oversee the WMATA.[137] The acting Inspector General was recently appointed to the permanent position and will serve for a three-year term.[138]

The IIJA also allocated $2.2 billion to the Rebuilding American Infrastructure with Sustainability and Equity (RAISE) program.[139] The U.S. Department of Transportation created the RAISE program to support non-traditional funding recipients, such as municipalities, counties, port authorities, tribal governments, and metropolitan planning organizations.[140] Entities that receive grants are involved in road, rail, transit, and port projects that help accomplish national infrastructure goals.[141] Michigan and Illinois, two member states of the Midwest Interstate Passenger Rail Commission (MIPRC), obtained

131. Infrastructure Investment and Jobs Act § 30019(c).
132. *Id.*
133. *Id.*
134. *Revitalizing WMATA*, *supra* note 129.
135. Off. of Inspector Gen. Washington Metro. Area Transit Auth., OIG 23-002, OIG Response to Congressional Inquiry—Communication Between the Washington Metropolitan Area Transit Authority (WMATA) and the Washington Metropolitan Safety Commission (WMSC) (2022), https://wmataoig.gov/wp-content/uploads/2022/10/OIG-Response-to-Congressional-Inquiry-Communication-WMATA-WMSC-OIG-23-002IG-Final.pdf.
136. *Id.*
137. Joint Resolution Granting Consent to the Washington Metrorail Safety Commission, Pub. L. No. 115-54, 131 Stat. 1093 (2017); Va. Code Ann. § 33.2-3101; Md. Code Ann., Transp. § 10-208.
138. Press Release, Washington Metropolitan Area Transit Authority, Metro Board Appoints Rene Febles Inspector General (Nov. 3, 2022), https://www.wmata.com/about/news/Rene-Febles-IG-Appointment.cfm.
139. *RAISE Discretionary Grants, Biden-Harris Administration Announces Funding for 166 Projects to Modernize Transportation Across the Country and Make it More Affordable, Increase Safety and Strengthen Supply Chains*, U.S. Dep't of Transp. (Dec. 15, 2022), https://www.transportation.gov/RAISEgrants.
140. *About RAISE Grants*, U.S. Dep't of Transp. (Nov. 30, 2022), https://www.transportation.gov/RAISEgrants/about.
141. *Id.*

grants from the RAISE program.[142] The MIPRC is an interstate rail compact between Illinois, Indiana, Kansas, Michigan, Minnesota, Missouri, North Dakota and Wisconsin; however, Iowa, Nebraska, Ohio, and South Dakota are also eligible to join.[143] The grants will fund improvements to existing passenger rail infrastructure, as well as research into the feasibility of new routes in Michigan and Illinois.[144]

The MIPRC also responded to a request for stakeholder input by the Federal Railroad Administration (FRA) regarding creation of a new IIJA-funded Corridor Identification and Development program that will develop passenger rail corridors across the country. The new program specifically identifies interstate rail compacts as eligible entities for submitting participation proposals.[145] MIPRC contributed comments developed in coordination with each member state's department of transportation.[146] One of MIPRC's comments to the FRA recommends that the new program prioritize capital projects guided by regional compacts.[147]

The Southern Rail Commission (SRC) helped Louisiana, one of its member states, obtain a RAISE grant that will fund creation of a passenger rail service from Baton Rouge to New Orleans.[148] The SRC is an interstate rail compact between Louisiana, Mississippi, and Alabama.[149] The compact authorizes the SRC to assist member states in pursuit of interstate passenger rail development—a purpose particularly conducive to the IIJA's focus on interstate rail collaboration.

The FRA is in the process of developing the Interstate Rail Compact Grant Program, an initiative created by the IIJA.[150] The new program will help fund the creation of new rail compacts, activities of existing compacts, and substantive rail services provided by compacts.[151] The SRC, MIPRC and the National Center for Interstate Compacts at the Council of State Governments have provided comment to the FRA.[152]

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142. Jon Davis, *Illinois, Michigan Passenger Rail Projects Again Win RAISE Grant Awards*, Midwest Interstate Passenger Rail Comm'n (Aug. 19, 2022), https://miprc.org/News/News-From-MIPRC-States/illinois-michigan-passenger-rail-projects-again-win-raise-grant-awards.

143. Midwest Interstate Passenger Rail Comm'n, https://miprc.org/ (last visited Nov. 20, 2022).

144. Davis, *supra* note 141.

145. Establishment of the Corridor Identification and Development Program, 87 Fed. Reg. 29,432 (May 13, 2022).

146. Midwest Interstate Passenger Rail Commission, Comment Letter on FRA's request for comments on Corridor Identification and Development Program (Mar. 8, 2022), https://miprc.org/PORTALS/0/USERFILES/3/MIPRC%20RESPONSE%20TO%20FRA%20RFI%20ON%20CORRIDOR%20ID%20AND%20DEV%20PROGRAM%20030822.PDF?VER=NM08KKVUV4ITRTYHD-QCSA%3D%3D.

147. *Id*. at 4.

148. Press Release, Southern Rail Commission, Louisiana Awarded $20 Million in RAISE Grant Funding for Baton Rouge-New Orleans Passenger Rail (Aug. 10, 2022), https://www.southernrailcommission.org/press-releases/2022/8/10/23puckum7ia11bs80o0eo7a7rvptxp.

149. Act of June 30, 1982, Pub. L. No. 97–213, 96 Stat 150; La. Stat. Ann. § 48:1671; Miss. Code. Ann. § 57-45-1 (West); Ala. Code 1975 § 37-11-1.

150. Infrastructure Investment and Jobs Act § 22910, Pub. L. No. 117-58, 135 Stat. 429 (2021) (amending 42 U.S.C. § 15907).

151. *Bipartisan Infrastructure Law Information from FRA*, Fed, R.R. Admin., U.S. Dep't of Transp., https://railroads.dot.gov/BIL (scroll down to the list of "Recent Milestones") (last visited Dec. 18, 2022).

152. Fed, R.R. Admin., *Interstate Rail Compact Grant Program Webinar*, Fed, R.R. Admin., U.S. Dep't of Transp. (June 16, 2022), https://railroads.dot.gov/elibrary/interstate-rail-compact-grant-program-webinar. The FRA webinar included Knox Ross, SRC Chairman, John Spain, SRC Vice-Chairman, Laura Kliewer, Director of the

B. Notable Adjudications and Rulemaking

Many compact agencies and party states are involved in numerous adjudication and licensing actions and rulemaking proposals, which are too numerous to fully cover here. This article identifies actions that are notable as highly controversial or the subject of prior litigation, or both.

The Wisconsin Department of Natural Resources approved an application by the Village of Somers to divert an average of 1.2 million gallons of water per day from Lake Michigan.[153] Water diversion applications for water from the Great Lakes Basin are evaluated according to procedural and substantive requirements in the Great Lakes-St. Lawrence River Basin Water Resources Compact. The compact bans all water diversions from the Great Lakes Basin with some exceptions.

The Village of Somers in southeast Wisconsin is a "straddling community" according to the Great Lakes-St. Lawrence River Basin Water Resources Compact, as it is partially inside and partially outside the Great Lakes Basin.[154] The Great Lakes-St. Lawrence River Basin Water Resources Compact specifies that states may approve a diversion for a straddling community provided the diversion meets certain criteria, including use for public water supply purposes and treatment and return to the Great Lakes Basin.[155]

Somers's diversion proposal met the criteria for state approval, rather than review by the regional body, because the amount of water loss created by the diversion was beneath the level requiring review.[156] Somers's is the latest of several straddling-community applications that Wisconsin has approved because the basin boundary is quite close to the shore of Lake Michigan in southeast Wisconsin, which is a highly developed region close to both the Chicago and Milwaukee metropolitan areas. Unlike other out-of-basin diversions, this application was approved with little opposition after Somers received a stop-work notice on its construction before receiving approval.[157]

In 2021, the Delaware River Basin Commission proposed a new rule prohibiting discharge of wastewater from high-volume hydraulic fracturing and related activities ("fracking") within the Delaware River Basin.[158] In February 2022, the comment period for this rule concluded with 2451 written and oral

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Midwest Interstate Passenger Rail Commission, and Dan Logsdon, Director of the National Center for Interstate Compacts, Council of State Governments. *Id.*

153. *Village of Somers Water Diversion Application*, Wis. Dep't of Nat. Res., https://dnr.wisconsin.gov/topic/WaterUse/Somers.html (last visited Dec. 18, 2022).

154. Great Lakes-St. Lawrence River Basin Water Resources Compact § 4.9, Great Lakes Compact Council, http://www.glslcompactcouncil.org/media/nmzfv5jq/great_lakes-st_lawrence_river_basin_water_resources_compact.pdf (last visited Dec. 29, 2022). Wisconsin codified its enactment of this compact provision at Wis. Stat. Ann. § 281.343(4)(c) (West).

155. Wis. Stat. Ann. § 281.346(4)(e)(1)(h)(j) (West). Diversions for communities that are completely outside the Great Lakes Basin, but within a county that straddles the basin, require approval from the two entities that oversee the compact: the Great Lakes-St. Lawrence River Basin Water Resources Council and the Great Lakes-St. Lawrence River Basin Water Resources Regional Body.

156. Wis. Stat. Ann. § 281.343(4)(c)(4) (West). Diversions require review by the regional body if the water loss would average 5,000,000 gallons or more per day in a 90-day period. *See also* Somers Diversion DNR Approval: Findings of Fact, Conclusions of Law, and Diversion Approval (2022), https://dnr.wisconsin.gov/sites/default/files/topic/WaterUse/somers/SomersDiversionDNRApprovalFinal2022023.pdf.

157. Letter from Public Services Comm'n of Wis. to Jason Peters, Administrator, Village of Somers (June 7, 2021), https://wpr-public.s3.amazonaws.com/wprorg/cease_and_desist_letter.pdf.

158. Importations of Water Into and Exportations of Water From the Delaware River Basin; Discharges of Wastewater from High Volume Hydraulic Fracturing and Related Activities, 86 Fed. Reg. 66,250 (proposed Nov. 22, 2021)

comments.[159] This rulemaking should come as no surprise. The DRBC has never permitted fracking within the basin.[160] It is currently involved in protracted litigation over its authority to prohibit fracking.[161] As of the end of 2022, the DRBC had not yet summarized and responded to comments or acted on the proposed rule.

C. Plan for Amending the Interstate Compact on Educational Opportunity for Military Children

The Interstate Compact on Educational Opportunity for Military Children facilitates the enrollment of students of military families when the military relocates a family. All fifty states and the District of Columbia are members of the compact.[162] In 2022, the Military Interstate Children's Compact Commission (MIC3) began addressing a scrivener's error in the compact that would seem to exclude the application of the compact to students of active members of the National Guard and Reserve. The compact refers to "10 U.S.C. Section 1209 and 1211."[163] The correct statutory citation is "10 U.S.C. Chapters 1209 and 1211." A series of legal opinions from MIC3's counsel recommended that the states should amend their statutory enactments of the compact and recommended a plan for MIC3 to work with the states in three tiers based on the number of National Guard and Reserve children in that state.[164]

The legal opinions recognize the complexity of all fifty-one members amending the compact. The plan is an elegant recommendation because as the states amend their statutory enactments, the temporary mix of references to "Sections 1209 and 1211" and "Chapters 1209 and 1211" will not alter the states' implementation of the compact. This is the first time that such a large compact has attempted to have all members amend their statutory enactments without enacting a new compact.[165]

(to be codified at 18 C.F.R. pts. 410, 440).

159. *Notice of Proposed Rulemaking & Public Hearing: Importations of Water Into and Exportations of Water From the Delaware River Basin; Discharges of Wastewater from High Volume Hydraulic Fracturing and Related Activities*, Del. River Basin Comm'n, https://www.nj.gov/drbc/meetings/proposed/notice_import-export-rules.html#1 (last updated Mar. 21, 2022).

160. DRBC Regulation 440.3 (codified at 18 C.F.R. § 440.3 (2021)).

161. Wayne Land & Mineral Grp. v. Del. River Basin Comm'n, No. 3:16-cv-897, 2021 U.S. Dist. LEXIS 2004 (M.D. Pa. Jan. 6, 2021) (describing case history and denying defendant's motion for summary judgment and plaintiff's request for summary judgment in its favor).

162. The MIC3 website contains a list of and links to all of the states' enactments. *State Statutes*, Mil. Interstate Children's Compact Comm'n, https://mic3.net/state-statutes/ (last visited Dec. 19, 2022).

163. Model Interstate Compact on Educational Opportunity for Military Children arts. II.A, III.A.1 (Mil. Interstate Children's Compact Comm'n, n.d.), https://mic3.net/assets/compact-model-language.pdf.

164. The opinions are reprinted in the MIC3 docket book for its October 2022 annual meeting. Mil. Interstate Children's Compact Comm'n, Docket Book October 19–20, 2022 (2022), https://mic3.net/wp-content/uploads/2022/10/Docket-Book-for-Web-10.06.pdf.

165. For an example of the states enacting a new compact rather than amending an existing compact, see Michael L. Buenger and Richard L. Masters, *The Interstate Compact on Adult Offender Supervision: Using Old Tools to Solve New Problems*, 9 Roger Williams U. L. Rev. 71 (2003) (giving the historical account of enacting a new Interstate Compact for the Supervision of Adult Offenders to replace the Interstate Compact for the Supervision of Parolees and Probationers). Other "new" compact efforts have been less successful. For example, only one-third of the necessary number of states have enacted the new Interstate Compact for the Placement of Children, and thus the new compact is still not effective. *See The New ICPC is Not in Effect Until Passage by 35 States*, Am. Pub. Human Servs. Ass'n, https://aphsa.org/AAICPC/ICPC.aspx (last visited Dec. 19, 2022).

D. A New Compact Board

Although not an interstate compact, a new water rights compact between Montana and the Confederated Salish and Kootenai Tribes[166] had a busy first year. The state and tribes signed the compact in December 2020,[167] and Secretary of the Interior Deb Haaland signed the compact in September 2021.[168] Montana and the Confederated Salish and Kootenai Tribes established the Flathead Reservation Management Board, which met for the first time at the beginning of 2022.[169] As of this writing, the Board has met an additional twenty-six times and made significant progress towards solidifying itself as the independent regulatory body for water rights administration on the Flathead Indian Reservation.[170]

Courts sometimes cite interstate compact law when resolving cases involving state-tribal compacts, which illustrates shared legal principles.[171] Indeed, many of the administrative and legal matters that the Flathead Management Reservation Board are working through, such as searching for office space,[172] evaluating the Board's legal status for tax purposes,[173] and designing a logo,[174] are the same that new interstate compact agencies must work through. The Board's expedient progress on these practical issues has helped it attend to substantive matters related to its actual mandate. To address water rights applications without delay, the Board developed interim review systems less than five months after the first meeting.[175] The Flathead Reservation Management Board has many exemplars that it can rely on as resources for thorny problems associated with administering a complex multi-governmental agency, including the National Center for Interstate Compacts at the Council of State Governments, other interstate compact agencies, and other state-tribal water rights administrations.[176]

166. Mont. Code Ann. § 85-20-1901 (2021); Confederated Salish & Kootenai Tribes Ordinance No. 111-A.

167. *CSKT-MT Water Compact*, Confederated Salish & Kootenai Tribes of the Flathead Reservation, https://csktribes.org/water-rights (last visited Jan. 5, 2023).

168. *Id.*

169. *Flathead Reservation Water Management Board*, Mont. Dep't of Nat. Res. & Conservation, http://dnrc.mt.gov/divisions/water/water-compact-implementation-program/confederated-salish-and-kootenai-tribes-compact/flathead-reservation-water-management-board (last visited Dec. 19, 2022).

170. *Id.*

171. *See* Tsosie, *supra* note 37; *see also, e.g.*, Pueblo of Santa Ana v. Kelly, 104 F.3d 1546, 1556 (10th Cir. 1997); Flathead Irrigation Dist. v. Jewell, 121 F. Supp. 3d 1008, 1024 (D. Mont. 2015).

172. Flathead Reservation Water Management Board, Flathead Reservation Water Management Board Meeting Minutes from March 16, 2022, https://dnrc.mt.gov/Water-Resources/Compacts/Flathead-Reservation-Water-Management-Board.

173. Flathead Reservation Water Management Board, Flathead Reservation Water Management Board Meeting Minutes from October 13, 2022, https://dnrc.mt.gov/Water-Resources/Compacts/Flathead-Reservation-Water-Management-Board.

174. *Id.*

175. Interim Process for Certain Water Rights, Mont. Dep't of Nat. Res. & Conservation, http://dnrc.mt.gov/divisions/water/water-compact-implementation-program/confederated-salish-and-kootenai-tribes-compact/interim-process-for-certain-water-rights (last visited Dec. 29, 2022).

176. *E.g.*, Fort Belknap-Montana Compact Board, Mont. Code Ann. § 85-20-1001; *see* S. Ute Indian Tribe/State of Colo. Env't Comm'n, https://www.southernute-nsn.gov/justice-and-regulatory/epd/air-quality/env-commission/ (last visited Dec. 29, 2022).

III. LEGISLATIVE DEVELOPMENTS

A. Federal Legislation

Federal lawmakers introduced several bills that would have affected interstate compacts. None of the bills progressed, and none would have significantly altered the compact landscape; nevertheless, they illustrate issues with existing compacts, trends, and federal interest in easing barriers to professional licensing.

One bill, the "Military Interstate Children's Compact Commission Improvement Act," directed the Secretary of Defense, in consultation with the states, to develop recommendations to improve and fully implement the Interstate Compact for Educational Opportunity for Military Children.[177] The Department of Defense helped create the compact and still contributes funding to the MIC3, which administers the compact.[178] The compact streamlines interstate educational transfers of military-family students due to frequent relocation of service members.[179]

The bill identified two specific requirements for the Secretary to consider with the states: (1) removing barriers to enrolling children in school without requiring the parent or child to be physically present in the state, and (2) ensuring that children who receive special education may access the same services and supports in their new schools.[180] The bill also identified other considerations[181] but curiously not the scrivener's error discussed above.[182]

Federal legislators and agencies have often taken a lead role in directing changes to compacts. For example, following several incidents on the Washington Metropolitan Area Transit Authority's Metrorail (the Metro), the Federal Transit Commission assumed oversight of the Metro and issued several corrective directives before transferring oversight to a new Washington Metrorail Safety Commission.[183]

Another bill, the Compacts, Access, and Responsible Expansion for Mental Health Professionals Act of 2022, directed the Secretary of Health and Human Services, acting through the Administrator of the Health Resources and Services Administration, to establish a grant program called the Mental Health Licensure Portability Program.[184] This program would incentivize counselors to practice in states that have entered into interstate compacts for the purpose of expanding the workforce of credentialed mental health counselors and to develop and operate interstate compact commissions in those states.[185]

The states were already in the process of adopting a new Counseling Compact when this Senate bill was introduced; indeed, less than two weeks later, the tenth state enacted the compact, which made the compact effective.[186] As of the end of 2022, seventeen states have enacted the Counseling Compact.

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177. H.R. 8342, 117th Cong. (2022).

178. *Background*, Mil. Interstate Children's Compact Comm'n, https://mic3.net/background/ (last Dec. 29, 2022).

179. *Id.*

180. H.R. 8342, 117th Cong. § 2(b)(1) (2022).

181. *Id.* § 2(b)(2).

182. *See supra* notes 161–64 and accompanying text.

183. *See FTA WMATA Corrective Actions*, Fed. Transp. Auth., https://www.transit.dot.gov/regulations-and-guidance/safety/fta-wmata-corrective-actions (last visited Dec. 29, 2022).

184. S. 4058 117th Cong. (2022).

185. *Id.* § 2(a).

186. Counseling Compact Model Legislation, Counseling Compact § 13.A (Dec. 4. 2020), https://counselingcompact.org/wp-content/uploads/2022/03/Final_Counseling_Compact_3.1.22.pdf.

Apparently, no federal incentives were needed to get states to join the compact but could still help develop and operate the Counseling Compact Commission.

Finally, another bill, the "Student Veteran Emergency Relief Act of 2022," contained provisions that would require states to allow a servicemember or spouse of a servicemember to practice with a current license from any state for the duration of a military order.[187] The bill also recognized that some servicemembers and their spouses may be licensed through an existing interstate compact and provided that those persons would remain subject to the terms of the compact and applicable state law.[188] This is the second bill, in as many years, to introduce the same universal licensure recognition for servicemembers and their spouses.[189] Last year's developments article discussed some differences between universal licensure and licensure through interstate compacts.[190]

B. State Legislation

The following is a summary of significant 2022 state bills and enacted laws relating to interstate compacts.

1. New Interstate Compacts

While not an interstate compact, a new creature of interstate cooperation is underway in Oregon and Washington. Oregon and Washington both passed legislation that authorizes local governments from each state to create an interlocal bridge authority between local governments in the two states.[191] Both states had long-standing existing law generally authorizing interstate interlocal cooperation.[192] Under the new bistate legislation, the new authority will have the power to raise federal funds, issue tax-exempt bonds, and raise and manage toll revenue, which was missing or limited in the states' existing laws.[193] Significantly, the legislation specifies that the new authority will be governed by the law of the state where the authority's principal office is located and that the legislation applies where a conflict arises with other state law.[194] This requirement should eliminate legal questions over which state's law applies to the new authority, which is a common source of litigation with interstate compacts.[195]

The new legislation is a creative and necessary solution to replacing the functionally obsolete Hood River Interstate Bridge that crosses the Columbia River and connects the two states. A Bridge Replacement Bi-State Working Group of local officials in both states[196] has met for several years to develop design alternatives, begin obtaining entitlements and permits, and create a governance structure.[197] With the new

187. H.R. 7939, 117th Cong. § 19 (2022).

188. *Id.*

189. *See* Military Spouse Licensing Relief Act of 2021, H.R. 2650, 117th Cong. (2021).

190. Jeffrey B. Litwak & Elie Steinberg, *Developments in Interstate Compact Law and Practice 2021*, 51 Urb. Law. 283, 325–26 (2022).

191. 2022 Wash. Sess. Laws ch. 89; 2022 Or. Law ch. 7.

192. Or. Rev. Stat. § 190.420; Wash. Rev. Code § 39.34.040.

193. *Id.*

194. 2022 Wash. Sess. Laws ch. 89 § 13(1)(a), (c); 2022 Or. Law ch. 7 § 13(2), (4).

195. *See supra* notes 43–69 and accompanying text; *see also* Buenger, *supra* note 2, at 139–62; Litwak, *supra* note 6, at 375–96.

196. The local governments involved in the Bi-State Working Group are Oregon's Hood River County, City of Hood River, and Port of Hood River, and Washington's Klickitat County, City of White Salmon, and City of Bingen. *See Bridge Replacement Bi-State Working Group (BSWG)*, Port of Hood River, https://portofhoodriver.com/bridge/bridge-replacement-bi-state-working-group-bswg (last visited Dec. 29, 2022).

197. *Id.*

legislation, the bi-state bridge authority will have sufficient power to address the project's major hurdles and have a level of cooperation necessary to better compete for funding to construct the bridge, and to manage and maintain the bridge in the long-term.

The Bridge Replacement Bi-State Working Group is in the process of writing the Commission Formation Agreement that will officially create the new authority.[198] This process includes making pivotal decisions about the new entity, such as choosing the commission's principal place of business.[199]

2. States Joining Compacts

Typically, a state joining an existing compact is not much to report; however, in 2022, Massachusetts enacted legislation to become the fiftieth state to join the Interstate Wildlife Violator Compact.[200] The Interstate Wildlife Violator Compact is now one of the few interstate compacts with all fifty states as members. The first states enacted the compact thirty-five years ago in 1987,[201] so this milestone has been a long time coming. The compact requires member states to report poaching convictions to a centralized database and allows member states to recognize each other's suspensions and revocations of hunting and fishing licenses through reciprocal suspension or revocation. Having all fifty states in this compact is important because it prevents safe havens for poachers, who cannot commit new wildlife crimes without those crimes being reported to all states prior to issuance of hunting or fishing licenses.

3. Modifications to Existing Compacts

Many reasons exist that a state may modify the legislation that enacts a compact to which it is a member, including changes in circumstances within the state, motivation to leverage the compact to achieve a specific state aim, addressing an unanticipated limitation, or correcting a legislative error. Legislative changes to compacts in 2022 illustrate these reasons. A compact is a law, but a state may not amend a compact like any other law because compact amendments may materially alter the state's enrollment in the compact or impact other compact members.[202]

Virginia enacted legislation adding the Arland D. Williams, Jr. Memorial Bridge (formerly the 14th Street Bridge) to the Potomac River Bridge Towing Compact.[203] Washington, D.C. and Maryland are the other members of that compact.[204] The compact authorizes each state's law enforcement agents and other traffic authorities to remove abandoned or disabled vehicles and various auto accoutrements from bridges otherwise outside of that agent's jurisdiction.[205] Neither Maryland nor the District of Columbia has passed substantially similar legislation to add this bridge, so this change to the compact is not yet effective, which means that law enforcement agents and other traffic authorities technically do not have the authority to operate on the bridge, unless it is independently within their jurisdiction.

198. Hood River-White Salmon Bridge Replacement Project Bi-State Working Group Meeting Minutes (Sept. 19, 2022), https://portofhoodriver.com/wp-content/uploads/2022/09/10.03.22_Packet.pdf.

199. Hood River-White Salmon Bridge Replacement Project Bi-State Working Group Meeting Minutes (Oct. 3, 2022), https://portofhoodriver.com/wp-content/uploads/2022/10/10.17.22_Packet.pdf.

200. 2022 Mass. Legis. Serv. ch. 145 (H.B. 4442) (West).

201. Or. Rev. Stat. Ann. § 496.750 (West); Colo. Rev. Stat. Ann. § 24-60-2602 (West); Nev. Rev. Stat. Ann. § 506.010 (West).

202. *See* Buenger, *supra* note 2, at 262–65.

203. 2022 Va. Acts ch. 6 (amending Va. Code Ann. § 46.2-1239.1 (West)).

204. D.C. Code §§ 9–1117.01 to –1117.05 (1991); Md. Code Ann., Transp. § 25-301 (West).

205. Va. Code Ann. § 46.2-1239.1 Art. III (West).

Maryland enacted legislation to acknowledge material discrepancies in amendments to the Potomac River Compact that it and Virginia had previously enacted.[206] The Potomac River Compact establishes the Potomac River Fisheries Commission,[207] which manages and conserves fisheries on the Potomac River.[208] In 2007 and 2013, each state passed legislation to amend the compact in relation to commissioner compensation, fishing violation fines, and oyster inspection taxes; however, Maryland's legislation did not mirror Virginia's.[209] The discrepancies between the amendments were significant enough that each state has since treated the compact differently.[210] Maryland's legislation corrects these discrepancies by clarifying the meaning of the amendments and their effectiveness.

Louisiana amended its legislation enacting the Southern Rapid Rail Transit Compact that adds additional powers and authorities for the Southern Rail Commission (SRC).[211] This compact originally created the SRC to study the feasibility of rapid rail transit service between the member states.[212] The SRC was mentioned above in relation to the IIJA.[213] The compact amendments alter the SRC's duties, purpose, and powers.[214] Two of the amendments are identical and expand the SRC's purpose and duties to include taking "all steps that [the SRC] may deem necessary and appropriate in order to establish and maintain [passenger rail service]."[215] The third amendment adds more commission powers, including the power to prepare grant applications and to enter into agreements with various passenger rail service entities.[216] None of the other SRC members passed substantially similar legislation, so the amendments may not yet be effective.[217]

In the same bill, Louisiana also directed its Department of Transportation to plan the scope, schedule, and budget to secure approvals and permits to begin intrastate passenger rail service between Baton Rouge and New Orleans.[218] The findings in the legislation for intrastate rail service specifically mentions the IIJA funds,[219] but the direction to the Department of Transportation only states that the Department may apply for funds generally, with no mention of the IIJA.[220]

New Hampshire enacted the new Interstate Compact for the Placement of Children (ICPC),[221] which becomes effective when thirty-five states have adopted the new ICPC,[222] in accordance with the threshold

206. 2022 Md. Laws ch. 471.
207. Va. Code Ann. § 28.2-1001 (West); Md. Code Ann., Nat. Res. § 4-306 (West).
208. Va. Code Ann. § 28.2-1001 Art. II (West).
209. Maryland Senate, Judicial Proceedings Comm., Testimony of Senator Jill P. Carter in Favor of SB466, 444th Sess. (Mar. 1, 2022), https://mgaleg.maryland.gov/cmte_testimony/2022/ehe/1f383uZMMDakuhr0YJ5uLXvCGku6jtMEi.pdf.
210. *Id.*
211. 2022 La. Acts ch. 764, § 1.
212. Southern Rapid Rail Transit Compact, art. I; *see* La. Stat. Ann. § 48:1671.A.
213. *See supra* notes 147–48 and accompanying text.
214. 2022 La. Acts ch. 764, § 1.
215. *Id.*
216. *Id.*
217. The SRC compact does not specify whether or how it may be amended. Typically, all member states must enact the same or substantially similar amendments. *See* Buenger, *supra* note 2, at 26.
218. 2022 La. Acts ch. 764 § 2.
219. *Id.* § 2.A(1).
220. *Id.* § 2.B(1).
221. 2022 N.H. Laws ch. 324:2.
222. *Id.* ch. 324:4.

requirement in the new ICPC.[223] This contingency is necessary because New Hampshire remains a member of the current ICPC until the new ICPC becomes effective, which may be many years away.

While this bill enacting the new ICPC was working its way through the New Hampshire General Court, New Hampshire Governor Sununu sent a letter to other governors urging them to adopt the new ICPC.[224] Governor Sununu is not the only advocate for the new ICPC. In 2018, the Conference of Chief Justices approved a resolution encouraging states to enact the revised ICPC and urging the new interstate commission to include a representative of the Conference of Chief Justices and Conference of State Court Administrators.[225] New Hampshire's enactment of the new ICPC was a response to a particular missing child case, not the Conference of Chief Justices recommendation.[226]

New Hampshire's law also amended its application of the current ICPC relating to placement of children with parents. As discussed above, there is a significant split among the states about whether the current ICPC applies to non-custodial, out-of-state parents.[227] New Hampshire's new law states that the ICPC does not apply to parents if they prove to the court a substantial relationship with the child and the court makes a written finding that placement is in the best interest of the child.[228] These provisos are not found in the current ICPC; however, these provisos seem to be implementing provisions for the current ICPC that do not change or impair New Hampshire's implementation of the compact.

Vermont also enacted legislation to join the new ICPC.[229] Vermont's law includes a provision like New Hampshire's that triggers repeal of the old ICPC once thirty-five states have enacted the new ICPC; however, Vermont's law makes the new ICPC effective eighteen months after thirty-five states enact the compact.[230] This delay in the effective date is not in the new ICPC model legislation.[231] Because the other states that have enacted the new ICPC will repeal the current ICPC upon the thirty-fifth state's enactment of the new ICPC, Vermont will have a gap in time in which it uses the current ICPC, along with just fifteen states (or fewer), before it joins the thirty-five states that adopt the new ICPC. Vermont's legislation also may not count toward the thirty-five-state threshold, as it would not be effective upon the thirty-fifth state enactment. Thus, Vermont could miss the opportunity to be involved in the first ICPC commission meetings; develop initial rules and bylaws; select commission staff; and participate in other events during the new commission's first eighteen months.

In contrast to the silence in the new ICPC regarding transition between the current and new ICPCs, in 2015, the National Council of State Boards of Nursing approved a new "enhanced" Nurse Licensure

223. The New ICPC – Final Draft 2009, Art. XIV.B is available at *The New ICPC is Not in Effect Until Passage by 35 States*, Am. Pub. Human Servs. Ass'n, https://aphsa.org/AAICPC/ICPC.aspx (last visited Dec. 29, 2022).

224. New Hampshire Governor Chris Sununu, Press Release, Governor Chris Sununu Writes to Fellow Governors Urging Updates to Interstate Compact for the Placement of Children (ICPC) (May 9, 2022), https://www.governor.nh.gov/news-and-media/governor-chris-sununu-writes-fellow-governors-urging-updates-icpc (a link to Governor Sununu's letter is in the press release) [hereinafter Sununu Press Release].

225. Conference of Chief Justices, Resolution 6, In Support of the Revised Interstate Compact for the Placement of Children (Jan. 31, 2018), https://ccj.ncsc.org/__data/assets/pdf_file/0017/28043/01312018-support-revised-interstate-compact-placement-children.pdf.

226. Sununu Press Release, *supra* note 223.

227. *See supra* notes 85–92 and accompanying text.

228. 2022 N.H. Laws 324:5.

229. 2022 Vt. Acts & Resolves ch. 101 §§ 1, 2.

230. *Id.* § 3.

231. New ICPC, *supra* note 222.

Compact to replace the existing Nurse Licensure Compact initially approved in 1998. Article X of the new Nurse Licensure Compact specifies the following transition requirements:

> a. This Compact shall become effective and binding on the earlier of the date of legislative enactment of this Compact into law by no less than twenty-six (26) states or December 31, 2018. All party states to this Compact, that also were parties to the prior Nurse Licensure Compact, superseded by this Compact, ("Prior Compact"), shall be deemed to have with- drawn from said Prior Compact within six (6) months after the effective date of this Compact.[232]

This provision provided the states approximately three years to adopt the new compact, specified alternative effective dates so that early-adoption states would know with reasonable certainty when the new compact becomes effective, and terminated the states' participation in the original compact on a date certain to ensure states would only be members of one compact. Without a similar provision in the new ICPC, states that have not adopted the new ICPC will still use the current ICPC after the new ICPC goes into effect, which may hinder placements across state lines where the sending and receiving states are using different ICPCs.

4. Withdrawal from Compacts

South Carolina repealed its membership in the Interstate Insurance Product Regulation Compact (Insurance Compact).[233]The Insurance Compact provides a single point of filing for insurance products that meet uniform standards approved by the Interstate Insurance Product Regulation Commission (Insurance Commission). When the Insurance Commission approves a product, that product may be used in all the member states unless a member state has elected to opt out of a specific uniform standard.[234] The South Carolina Department of Insurance issued Bulletin 2022-03,[235] which explained the reason for withdrawal in the following way:

> Withdrawal from the Interstate Compact was recommended due to a conflict between a recently enacted South Carolina statute and the Interstate Compact law for long-term care insurance. After the re-enactment of the Interstate Compact in 2016, the South Carolina General Assembly enacted S.C. Code Ann. Section 38-72-75, S.C. Code of Laws, which requires all long-term care premium rate schedules to be filed with the South Carolina Department of Insurance (SCDOI) and makes those filings subject to the review and approval of the director or his designee.

Bulletin 2022-03 also explains that the filings previously approved by the Interstate Compact are not affected by the withdrawal.[236] The Insurance Compact became effective in 2006; this is the first time that a state has withdrawn from the Compact, so the short- and long-term effects of withdrawal, if any, are unknown.

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232. Nurse Licensure Compact art. X (2015), https://www.ncsbn.org/public-files/NLC_Final_050415.pdf.

233. 2022 S.C. Acts 195 § 16 (repealing Title 38, chapter 95).

234. Interstate Insurance Product Regulation Compact, Art. VII.3, https://www.insurancecompact.org/sites/default/files/legacy/documents/compact_statute.pdf (last visited Jan. 5, 2023).

235. Michael Wise, S.C. Dep't of Ins., Bull. No. 2022-03, Withdrawal from the Interstate Insurance Product Regulation Compact (2022), https://doi.sc.gov/DocumentCenter/View/13818/Bulletin-Number-2022-03-Withdrawal-from-the-Interstate-Compact?bidId=.

236. *Id.*

Indiana passed a law that requires the legislature to regularly evaluate compacts to which Indiana is a member and to determine whether the state should remain or withdraw from those compacts.[237] Under the new law, the state's Interim Study Committee on Government will review compacts on a biennial basis.[238] The committee will evaluate all compacts that have been operational for at least two years and recommend to the legislative council whether to continue membership in each compact.[239] Concurrently, Indiana gave itself more homework by joining three compacts in the same year in which this compact oversight law passed.[240]

5. Other State Legislation Involving Interstate Compacts

Kentucky enacted a joint resolution that directs state licensing boards to consider joining interstate compacts or establishing reciprocity procedures with other states for the purpose of increasing the mental health workforce in Kentucky.[241] Regarding compacts, state legislatures, not agencies or boards, enact compacts,[242] so the language of the resolution just suggests that the boards cooperate to develop interstate compacts for the legislature to enact. Three of the boards listed in the resolution—medical licensure, nursing, and professional counselors—already have interstate compacts facilitating multistate licensing, and Kentucky is a member of all three.[243] Indeed, Kentucky enacted the Counseling Compact on the same date as the resolution.[244]

IV. One Final Thing

A passionate batch of train lovers exchanged their favorite memories of Metro travel for a chance to join the November 15, 2022, inaugural journey of the Silver Line Extension to the Washington Metrorail.[245] The Washington Metropolitan Area Transit Authority (WMATA) invited passengers to share a favorite travel memory from the existing Metro rail for a chance to win a silver ticket for the first ride on the long-awaited new route.[246] The $3 billion extension provides access to the Washington Dulles International Airport and six more stations in Northern Virginia.[247] This festive first trip marked the end of a tumultuous relationship over the project between two compact entities: WMATA and the Metropolitan

237. 2022 Ind. Legis. Serv. P.L. 114-2022 (H.E.A. 1075) (West).

238. *Id.*

239. *Id.*

240. Indiana joined the following compacts in 2022: Psychology Interjurisdictional Compact, 2022 Ind. Acts no. 65; Interstate Medical Licensure Compact, 2022 Ind. Acts no. 60; and the Audiology and Speech-Language Pathology Compact, 2022 Ind. Acts no. 149.

241. 2022 Ky. Acts ch. 114.

242. *See* Buenger, *supra* note 2, at 35.

243. Interstate Medical Licensure Compact, https://www.imlcc.org (last visited Dec. 29, 2022); Nurse Licensure Compact, https://www.ncsbn.org/compacts/nurse-licensure-compact.page (last visited Dec. 29, 2022); Counseling Compact, https://counselingcompact.org (last visited Dec. 29, 2022).

244. 2022 Ky Acts ch. 127. The resolution and Counseling Compact legislation were both enacted on April 8, 2022.

245. Press Release, Washington Metropolitan Area Transit Authority, Metro Customers Invited to Ride the First Passenger Train to Six New Silver Line Stations (Nov. 7, 2022), https://www.wmata.com/about/news/Metro-customers-invited-to-ride-the-first-passenger-train-to-six-new-Silver-Line-stations.cfm.

246. *Id.*

247. *Overview New Rail Connections to Dulles International Airport, Reston, Herndon, and Eastern Loudoun County*, Washington Metro. Area Transit Auth., https://www.wmata.com/rider-guide/silver-line-extension/overview.cfm (last visited Dec. 29, 2022).

Washington Airports Authority (MWAA).[248] MWAA managed both phases of construction for the Silver Line—a project that began in 2009[249] and took significantly more time and money than anticipated.[250] Now that the extension is complete, WMATA will manage the new line, which provides a significant contribution to passenger rail service to Washington, D.C., Virginia, and Maryland.[251]

248. During MWAA's construction of the Silver Line, a whistleblower complaint prompted WMATA's General Manager to request that WMATA's Inspector General investigate alleged construction defaults caused by MWAA's contractor. The IG's resulting report found extensive concrete defects. *See* WMATA Office of the Inspector General, Special Project Report: Dulles Silver Line Project (Phase II) Evaluation and Analysis Precast Concrete 1 (Wash. Metro. Area Transit Auth., 2020), https://wmataoig.gov/wp-content/uploads/2021/03/Special-Project-Silver-Line-Concrete-Panel-Report.pdf. The contractor settled a claim with the Department of Justice and Commonwealth of Virginia for violations of the False Claims Act and Virginia Fraud Against Taxpayers Act, among other claims. Consolidated Complaint, *U.S. and VA ex rel., Davidheiser v. Univ. Concrete Products Corp.*, No. 1:16-cv-316-TSE-IDD (E.D. Va. 2019), ECF No. 33. MWAA and WMATA eventually reached an agreement for MWAA to cure the defects—a necessary step given that MWAA needed WMATA's approval of the project for MWAA to transfer responsibility of the line to WMATA. *See generally* Jordan Pascale, *All of Your Silver Line Questions, Answered*, dcist (Nov. 14, 2022, 2:16PM), https://dcist.com/story/22/11/14/metro-silver-line-questions (scroll down to *What took so long?*).

249. *Project Profile: Dulles Corridor Metrorail Project*, U.S. Dep't of Transp. Fed. Highway Admin., https://www.fhwa.dot.gov/ipd/project_profiles/va_dulles_corridor.aspx (last visited Dec. 19, 2022).

250. Sarah Y. Kim, *Update: Silver Line To Receive Additional $250M For Completion, Airports Authority Says*, dcist (July 19, 2022), https://dcist.com/story/22/07/19/silver-line-cost-additional-250-million.

251. Press Release, Washington Metropolitan Area Transit Authority, Silver Line Extension Transferred to Metro's Control (June 23, 2022), https://www.wmata.com/about/news/silver-line-extension-transferred.cfm.

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Municipal Market Evolution Reflecting the Constitutional Underpinnings of the Law of Public Finance

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The United States has one of the largest subsovereign debt markets in the world,[1] and the municipal securities market—its structure, and its regulation—is markedly different from the corporate securities market. Although the distinctions are readily apparent, the historical and legal basis for the distinctions is less so. All legal entities, public and private, are creatures of statute, but municipal entities, which include municipalities and other governmental entities, are units of government that derive their authority from state general laws and state and federal constitutions.[2] Many of the powers, privileges, and protections of municipal entities run deeper than the state laws that purport to define them, as they are firmly rooted in constitutional and common law and have essential attributes of sovereignty that cannot be transferred or encumbered. This history helps explain the different historic growth patterns of the corporate and municipal securities markets, and it should help inform future market evolution, whether designed to address the perceived lack of consistency in debt structure, transparency in terms of municipal entities disclosure, or otherwise. For those interested in pruning or shaping both markets, that same history is also instructive as to those actions likely to encourage core market strengths and those more likely to hinder them.

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1. In 2020, the U.S. municipal bond market had approximately $4.0 trillion of bonds outstanding and average daily trading of approximately $12 billion. SIFMA 2021 Capital Markets Fact Book (2021).

2. For purposes of this article, we use the U.S. Census Bureau's government categorizations: states, general purpose governments, and special purpose governments, the latter being established to fulfill only a limited number of purposes. U.S. Census Bureau, Government Finance and Employment Classification Manual 1-1 (2006). Similarly, to avoid using terms like "political subdivision," which have different meanings in different contexts, we sometimes use the term "municipal entity" to distinguish governmental units from private business corporations, even though the term is intended to include all forms of state and local government entities.

I. A SHORT REPRISE OF AMERICAN CONSTITUTIONAL HISTORY

A. Introduction

Before the adoption and ratification of the Constitution of the United States in 1789, the concept of "general purpose government" was already well entrenched in the daily lives of Americans.[3] The thirteen original colonies had been operating as independent states since the signing of the Declaration of Independence[4] and the adoption of the Articles of Confederation, under which state governments possessed plenary legislative power limited by applicable state constitutions or charters.[5] The federal Constitution, by comparison, is generally understood as a limited grant of express and implied powers (i.e., not plenary) to the national government by the states.

B. Rejection of England's Unitary System of Government, Failure of the Articles of Confederation, and Adoption of the U.S. Constitution

England's system of government was and remains centralized. In such a unitary system, large amounts of power reside with Parliament.[6] Replication of that concentration of power and its correlative risk of tyranny was deemed dangerous in 1777, and the original Articles of Confederation expressly rejected Britain's unitary system in favor of a confederation system, with strong states and a weak national government.[7] Indeed, the framers of the Articles of Confederation were so protective of the individual states' needs, as well as each state's independence, that the national government did not possess the

3. The first American municipalities arose in the colonies largely as an outgrowth of early settler history. The Mayflower Compact of 1620, signed by the Pilgrims and settlers before even reaching North American shores, established a set of rules based on the principle of self-governance. This notion of self-determination, and construction of a constitution as a compact among the people, is a cornerstone of the current governmental system. As the colonies evolved, all thirteen colonies began to formalize the structure for general purpose governments, generally following Virginia's lead and adopting the English system of counties (now called parishes in Louisiana and boroughs in Alaska). Establishment of general purpose township governments was less uniform. Following the end of the Revolutionary War and the signature of the Treaty of Paris, the young country struggled to plan for westward expansion through a series of land ordinances that ultimately became the Northwest Ordinance of 1787. Those ordinances established 6x6 square mile survey townships, which later served as the basis for many civil townships. Each township was divided into thirty-six sections with a sixteen-section center area generally reserved for school purposes to facilitate public education and make schools easily accessible on horseback to all township residents. Particularly in the Midwest, this system remains largely intact today. For more information, see, for example, *Creating the United States: Road to the Constitution*, Libr. of Cong., https://www.loc.gov/exhibits/creating-the-united-states/road-to-the-constitution.html (last visited Jan. 2, 2023) and *Foundations of American Government*, Indep. Hall Ass'n, https://www.ushistory.org/gov/2.asp (last visited Jan. 2, 2023).

4. The Declaration of Independence para. 32 (U.S. 1776) (declaring, interestingly, the independence not of the "United States of America" as a national entity but rather as "Independent States" with the right to, among other things, "levy War, conclude Peace, contract Alliances, establish Commerce, and to do all other Acts and Things which Independent States may of right do").

5. Thomas M. Cooley, A Treatise on the Constitutional Limitations Which Rest upon the Legislative Power of the States of the American Union (1903). It is an interesting historical note that Rhode Island and Connecticut each operated, initially and well into the 1800s, without a formal state constitution, relying instead on an English Royal Charter document and the "Fundamental Orders of Connecticut," respectively, to inform their republican forms of government. Additionally, the tax and debt limits of many current state constitutions are the result of the evolution of public policy and were not components of the initial versions of these documents.

6. Additionally, in a unitary system, the national government is sovereign, and states and other subsovereigns possess only delegated powers.

7. *See, e.g.*, *Foundations of American Government*, *supra* note 3.

power to regulate interstate commerce or collect taxes, among other things.[8] This confederation, or "firm league of friendship" as it is declared in the Articles,[9] failed in many respects. By 1787, the Constitutional Convention had been convened to replace it,[10] and the U.S. Constitution was drafted. With it, America's federal system was established. Some powers were delegated to the national government and simultaneously protected by principles of supremacy; other powers were reserved to the states.[11]

Support for this structure was initially neither unanimous nor uniform. The tensions within the compromises that the Nationalists and the Federalists made to draft the Constitution and form this system of government are evident in the Constitution itself and, in many respects, remain ongoing today.[12]

C. Evolution of State and General Purpose Government Powers over Time

Delineation of U.S. governmental power and authority began with debate and disagreement about the drafts of both the Articles of Confederation and the U.S. Constitution. Evolution of governmental power has continued since that time, and the paths taken, and reasons therefor, are instructive.

Evolution of Federalism. As originally envisioned in 1789, states and the national government were co-sovereign, each with their own powers and obligations. In the 1950s, Morton Grodzins was the first to use a layer cake metaphor to describe this early "dual federalism" period in our history.[13] Over time, the U.S. system became more complex. In response to the Great Depression, under the New Deal, many federal grant-in-aid programs were established at the federal level that were administered at the state level. The layer cake became a marble cake and an era of "cooperative federalism" began. The federalism pendulum has swung back and forth repeatedly in the last century.[14] The new constant, however, is strength through interdependence. The federal government now depends on states and their input to achieve its goals,[15] and state spending is now inextricably linked to federal matching funds and conditional grants.

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8. Alfred H. Kelly & Winfred A. Harbison, The American Constitution: Its Origins and Development 76–81 (1991).

9. Articles of Confederation art. III (1781).

10. The period before, during, and after the Constitutional Convention was filled with public and private debate, with competing views espoused, most notably, by Alexander Hamilton, a committed Nationalist, and James Madison, a committed Federalist, coming together to publish a compilation of essays supporting the final U.S. Constitution, entitled *The Federalist: A Collection of Essays Written in Favour of the New Constitution, As Agreed upon by the Federal Convention September 17, 1787* (1788) (commonly referred to as the *Federalist Papers*).

11. Unlike the unitary system, states in the American federal system are not administrative units with delegated powers but independent polities with independent powers.

12. *See, e.g.*, Eugene Boyd & Michael K. Fauntroy, Cong. Rsch. Serv., RL30772, American Federalism, 1776 to 2000: Significant Events (2000).

13. *See, e.g.*, Paul E. Peterson, *The Changing Politics of Federalism*, *in* Evolving Federalisms: The Intergovernmental Balance of Power in America and Europe 25–42 (Craig Parsons & Alasdair Roberts eds., 2003).

14. *See* Boyd & Fauntroy, *supra* note 12.

15. *See, e.g.*, Miriam Seifert, *States, Agencies, and Legitimacy*, 67 Vand. L. Rev. 443, 443–59 (2014); David S. Rubenstein, *Administrative Federalism as Separation of Powers*, 72 Wash. & Lee L. Rev. 171, 171–255 (2015). The concept of subsidiarity provides a theoretical foundation for why it is important for the federal government to rely on states to achieve its goals. *See generally* Jerome M. Organ, *Subsidiarity and Solidarity: Lenses for Assessing the Appropriate Locus for Environmental Regulation and Enforcement*, 5 U. St. Thomas L.J. 262, 264 (2008) ("The principle of subsidiarity posits that the common good is best served when decision-making regarding actions and activities is delegated to the local entity—to the smallest organization—best able to make the decision."); George A. Bermann, *Taking Subsidiarity Seriously: Federalism in the European Community and the United States*, 94 Colum. L. Rev. 331, 339–41 (1994) (explaining that subsidiarity expresses a preference for governance at the most local level consistent

Evolution of State Sovereignty. The U.S. Constitution contemplates a system where police powers reside with sovereign states, not the federal government.[16] Following ratification of the Constitution in 1789, the principles of sovereignty and sovereign immunity charted an evolutionary course not dissimilar to that of federalism and one sometimes intertwined with public finance. For example, after the Revolutionary War, many states attempted to repudiate their war debts. In 1792, Alexander Chisholm attempted to sue the State of Georgia in the U.S. Supreme Court over payments due for goods supplied to Georgia during the American Revolutionary War. The State of Georgia claimed that, as a sovereign state, it could not be sued without granting its consent to the suit and refused to appear.[17] The Supreme Court disagreed in the 1793 decision *Chisolm v. Georgia*, holding that under Article III, Section 2 of the then relatively new Constitution, a state could be sued in federal court, thereby eliminating the claim of state sovereign immunity.[18] On the legal front, backlash against this decision led to adoption of the Eleventh Amendment, embedding the concept of state sovereign immunity firmly into the Constitution.[19] Simultaneously on the political front, the concept of a national bank and federal assumption of state debts was floated.[20]

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with achieving a government's stated purposes based on the values of self-determination and accountability, political liberty, flexibility, preservation of identities, diversity, and respect for internal divisions of component states). One scholar further explains subsidiarity in the following way:

> According to the philosopher John Finnis, the principle of subsidiarity has its source in the fact that "[h]uman good requires not only that one receive and experience benefits or desirable states; it requires that one do certain things, that one should act, with integrity and authenticity; if one can obtain the desirable objects and experiences through one's own action, so much the better." Because of the danger that the political order or intermediary associations may stifle individual self-constitution, the principle
>
> . . . affirms that the proper function of association is to help the participants in the association to help themselves or, more precisely, to constitute themselves through the individual initiatives of choosing commitments (including commitments to friendship and other forms of association) and of realizing these commitments through personal inventiveness and effort in projects (many of which will, of course, be co-operative in execution and even communal in purpose).
>
> Subsidiarity informs not only the relationship between an individual and an association of which he may be a member. In the context of multiple layers of larger and smaller associations, the subsidiarity principle, as stated by John Paul II in the encyclical Centesimus annus, requires that "a community of a higher order should not interfere in the internal life of a community of a lower order, depriving the latter of its functions, but rather should support it in case of need and help to co-ordinate its activity with the activities of the rest of society, always with a view to the common good." Accordingly, "neither the state nor any larger society should substitute itself for the initiative and responsibility of individuals and intermediary bodies."
>
> Peter Widulski, *Bakke, Grutter, and the Principle of Subsidiarity*, 32 Hastings Const. L.Q. 847, 854–55 (2005) (citations omitted). The concept of subsidiarity provides not only a theoretical foundation for coordination of relations between the federal government and the states but also a theoretical framework for coordination of relations between the states and their local units of government.

16. U.S. Const. amend X. It should be noted that "police" in eighteenth century vernacular did not just mean law enforcement but rather is derived from the Latin *polita*, meaning civil administration. For more historical and etymological information, see Santiago Legarre, *The Historical Background of the Police Power*, 9 U. Pa. J. Const. L. 745 (2007).

17. *See* Boyd & Fauntroy, *supra* note 12.

18. Chisolm v. Georgia, 2 U.S. 419 (1793).

19. *See* Cong. Rsch. Serv., The Constitution of the United States of America; Analysis and Interpretation (cent. ed.) (2017).

20. *See id.*; Boyd & Fauntroy, *supra* note 12.

The Alexander Hamilton (the first U.S. Secretary of the Treasury) contingent[21] prevailed, and the federal government assumed state debts.[22] Fears receded, and issues of state sovereign immunity lay largely dormant for many years. Following a second series of state repudiations of Civil War reconstruction debts, the Supreme Court again stepped into immunity issues, expanding interpretation of the Eleventh Amendment to bar federal question claims against states in *Hans v. Louisiana*.[23]

Fast forward to the Rehnquist Court, which significantly expanded state sovereign immunity concepts in *Seminole Tribe v. Florida*[24] and *Alden v. Maine*,[25] where the Court made it clear that Congress's Article I constitutional authority to abrogate immunity of the states under the Eleventh Amendment is limited.[26]

Evolution of the Republican States. Regarding state and general purpose governments, the Constitution requires only that the "United States shall guarantee to every State in this Union a Republican Form of Government."[27] To steal a phrase from biology: diversity begets stability; however, in the evolution of states' republican forms of government, it may be that diversity begets more diversity. The Constitution did not dictate the details of the republican form of government, and individual states were left to evolve on their own in a somewhat parallel but not identical manner. The thirteen original states evolved from the thirteen original colonial governments. Many subsequently admitted states began as organized territories created by the federal government,[28] while others began via separation from an existing state[29]

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21. Alfred H. Kelly, Winfred A. Harbison, & Herman Belz, The American Constitution: Its Origins and Development 125 (7th ed. 1991).

22. It is interesting to note that Alexander Hamilton established the first national bank, which served as the vehicle to assume state debts. Following his election, in 1833 President Andrew Jackson caused all federal funds to be withdrawn from the national bank, and its federal charter expired in 1836. National banks did not exist again in any meaningful fashion until the New Deal. The transfer of deposits to state banks enabled credit-funded land and infrastructure speculation, fueling inflation, which ultimately led to the Panic of 1837. The demise of a national bank also necessitated the development of public debt markets at the state and local government level. By 1843, cities had $25 million in bonds outstanding, and the municipal securities market had emerged in a fashion that is still recognizable today.

23. Hans v. Louisiana, 134 U.S. 1, 14–15 (1890). It should be remembered that this immunity does not apply at the local government level. See Lincoln County v. Luning, 133 U.S. 529 (1890), for the correlative decision with respect to municipal bond repudiation. Per the Supreme Court, "The eleventh amendment limits the jurisdiction only as to suits against a state." *Id.* at 530.. For an interesting essay on state debt crises as potential drivers of sovereign immunity law, see Ernest A. Young, *Its Hour Come Round at Last? State Sovereign Immunity and the Great State Debt Crisis of the Early Twenty-First Century*, 35 Harv. J.L. & Pub. Pol. 593, 593–622 (2012).

24. Seminole Tribe of Fla. v. Florida, 517 U.S. 44 (1996).

25. Alden v. Maine, 527 U.S. 706 (1999).

26. *Id.* at 758.

When Congress legislates in matters affecting the States, it may not treat these sovereign entities as mere prefectures or corporations. Congress must accord States the esteem due to them as joint participants in a federal system, one beginning with the premise of sovereignty in both the central Government and the separate States. Congress has ample means to ensure compliance with valid federal laws, but it must respect the sovereignty of the States.

Id.

27. U.S. Const. art. IV.

28. One example is the Nebraska Territory, which became Kansas, Nebraska, Montana, and the Dakotas.

29. Maine separated from Massachusetts in 1820, and West Virginia was separated from Virginia at the beginning of the Civil War.

or entered statehood already as a sovereign entity.[30] One state, California, entered statehood as a result of the ceding of land from Mexico to the United States.[31]

From these varied origins, state constitutions and legislative structures were formed, some following the lead of earlier states and some creating a different path based upon influences of early settlers.[32] While republican in form, the distinctions among the states are many, including the fact that four states are called commonwealths and that state legislative bodies may be known as "legislatures," "assemblies," or in the case of Nebraska (the only unicameral legislature), the "senate." The states each have their own constitutions, many of which are similar to the U.S. Constitution. While that similarity aids understanding of where state constitutional rights are grounded, the relationship between each state and its political subdivisions is not always consistent with the Tenth Amendment. This dichotomy is discussed later in more detail.[33]

Implications for Municipal Securities Markets. The municipal securities markets are fundamentally different than the corporate markets.[34] First, in the corporate arena, there is a level of general legislative uniformity not found in the municipal arena. This uniformity allows for a level of homogenization of standard types of corporate securities not seen with municipal securities. Second, due to different state constitutions, fundamental differences exist in the power and authority of the same units of government (such as cities) in different states. A city in one state may be authorized to issue bonds for purposes prohibited for a city in a different state. These differences are not oversights or mistakes. They are the natural outgrowth of fundamental principles of our federal Constitution. They are also premised on the truth that, as governments, certain essential attributes of sovereignty cannot be conveyed or hypothecated.[35] As noted above, certain aspects of government are more than just property rights, and

30. The Republic of Texas and the Vermont Republic. For more information on the history of state and state constitutional development, see Randy J. Holland, Stephen R. McAllister, Jeffrey M. Shaman, & Jeffrey S. Sutton, State Constitutional Law: The Modern Experience (2010).

31. Peverill Squire, The Evolution of American Legislatures: Colonies, Territories, and States, 1619–2009, at 1–10 (Janet M. Box-Steffensmeier & David Canon eds., 2012).

32. Louisiana, for example, which the U.S. purchased from France in 1803, fashioned its state laws after the civil law system used by European countries and colonies not founded under British law, hence these laws are not based upon English Common Law. *See, e.g.*, Holland et al., *supra* note 30.

33. *See* discussion *infra* Section II.B.

34. For a good discussion on the fundamental differences between business corporations, states, and general purpose governments in the area of finance, see Robert A. Fippinger, The Securities Law of Public Finance ch. 1 (3d ed. 2011) (updated Nov. 2020); *see also* Gov. Acct. Stds. Bd., Concepts Statement No. 1 Objectives of Financial Reporting (1987), https://gasb.org/page/PageContent?pageId=/standards-guidance/pronouncements/summary-of-concepts-statement-no-1.html&isStaticPage=true; Gov. Acct. Stds. Bd., Why Governmental Accounting and Financial Reporting Is—And Should Be—Different (2017), https://www.gasb.org/page/PageContent?pageId=/reference-library/whitepaper.html&isPrintView=true.

35. In *A.L.A. Schechter Poultry Corp. v. United States*, the Supreme Court stated that "Congress is not permitted to abdicate or to transfer to others the essential legislative functions with which it is thus vested." A.L.A. Schechter Poultry Corp. v. United States, 295 U.S. 495, 529 (1935). Particularly when it comes to state and local governmental powers constituting the residual sovereignty retained under the Tenth Amendment, a large body of state-level, private non-delegation doctrine law prohibits or significantly restricts the delegation of these powers to private parties, especially legislative, taxation, police (in the broad original constitutional sense of the word), and eminent domain powers not based in contract or real property rights. *See* James M. Rice, *The Private Nondelegation Doctrine: Preventing the Delegation of Regulatory Authority to Private Parties and International Organizations*, 105 Calif. L. Rev 540, 539–72 (2017). The impact of this limit in the municipal securities market is sometimes self-evident and sometimes more

their delegation is therefore significantly limited. Furthermore, the U.S. securities markets rely heavily on the unique U.S. interrelationships among the different layers of American governments. As U.S. Supreme Court Justice Anthony Kennedy so eloquently described it, "The Framers split the atom of sovereignty."[36] What is important in the evaluation of the municipal securities market today, however, is not the exact boundaries of national or state powers on any given day, but the undeniable conclusion that these powers are stronger when deployed together, and stronger when deployed consistently with fundamental constitutional principles of governmental power and authority.

II. A BRIEF CONSTITUTIONAL LAW REFRESHER

A. Constitutional Principles Particularly Relevant to the Development of U.S. Governmental Structures and the Law of Public Finance

The United States has one of the most complicated systems of national, state, and local governments anywhere in the world,[37] with levels of autonomy, power, and control varying widely by jurisdiction. This complexity did not happen by accident. It is firmly embedded in important principles of republicanism and the U.S. Constitution, and the intentional outgrowth of this system's original dual federalism construct, including, in particular, intentional tensions between and among certain constitutional and pre-ratification sovereignty principles.

Both constitutionally based and non-constitutional legal principles are referenced in this article. The following terminology is important to aid further discussion:

Non-Constitutional Principles.

Fundamental State Sovereign Immunity. Sovereign immunity is the inability of a governmental unit to be sued without its consent. The sovereign immunity of *states*, a common law principle that pre-dates the Constitution,[38] which is generally understood to apply in *state* court, as federal courts frequently deal with both constitutional and common law immunity under the Eleventh Amendment label described below.

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obtuse. For instance, market participants cannot short positions in the municipal securities market like the corporate securities market, as tax exemption is not an assignable contract right. It is an attribute of essential sovereignty. See, *e.g.*, Securities Exchange Act Release No. 33743 (Mar. 9, 1994), 59 Fed. Reg. 12767, 12769 n.24 (Mar. 17,1994) (citing I.R.C. § 6045(d)).

36. U.S. Term Limits, Inc. v. Thornton, 514 U.S. 779, 838 (1995).

37. *See, e.g.*, Steven G. Calabresi & Nicholas K. Terrell, *The Number of States and the Economics of American Federalism* (Nw. Univ. Sch. of Law Faculty Working Paper No. 187, 2009), https://scholarlycommons.law.northwestern.edu/cgi/viewcontent.cgi?article=1186&context=facultyworkingpapers.

38. State sovereign immunity is a pre-ratification attribute of sovereignty, described by the U.S. Supreme Court as extending "to everything which exists by its own authority, or is introduced by its permission . . . ." McCulloch v. Maryland, 17 U.S. 316, 429 (1819). It is a doctrine of English law originating in medieval theories that the "king could do no wrong." The rights of American colonies were first derived from the authority of the British king. When the king's authority was extinguished with the Revolution, the new states rose to the level of sovereigns. The essential attributes of sovereignty, separate and distinct from the Constitution, were recognized by Justice Holmes in *Kawanakoa v. Polyblank*. Kawanakoa v. Polyblank, 205 U.S. 349, 353–54 (1907). "[T]he rights that exist are not created by Congress or the Constitution, except to the extent of certain limitations of power." *Id.*; *see also* Alden v. Maine, 527 U.S. 706 (1999). For a more robust discussion of these nuanced principles, see Fippinger, *supra* note 34, § 16:1 *et seq*.

Comity Doctrine. Also a concept external from the Constitution, the international law principle that co-equal sovereigns respect each other's laws, judgments, and interests.[39]

The Right to a Remedy. With roots in the Magna Carta, the principle that "it is a general and indisputable rule, that where there is a legal right, there is also a legal remedy by suit or action at law, whenever that right is invaded."[40]

Express Provisions and Constitutionally Based Principles.

Bankruptcy Clause. The provision of the Constitution that provides "[t]he Congress shall have Power [t]o . . . establish . . . uniform Laws on the subject of Bankruptcies throughout the United States . . . ."[41]

Commerce Clause. The provision of the Constitution providing that Congress shall have power "[t]o regulate Commerce with foreign Nations, and among the several States, and with the Indian Tribes . . . ."[42]

Contracts Clause. Applicable only to *states and local governments*, the provision of the Constitution providing that "[n]o State shall . . . pass any . . . law . . . impairing the Obligation of Contracts."[43]

Due Process Clause. Derived from the Fifth (generally) and Fourteenth (states, specifically) Amendments, the provisions of the Constitution providing that no person shall be deprived "of life, liberty, or property, without due process of law."[44]

Enforcement Clause. The provision of the Fourteenth Amendment to the Constitution providing that "[t] he Congress shall have power to enforce, by appropriate legislation, the provisions of this article,"[45] giving it power to adopt laws aimed at ensuring due process and equal protection, also commonly referred to as its Fourteenth Amendment section 5 power.

Equal Protection Clause. Derived from the Fifth and Fourteenth Amendments, the provisions of the Constitution providing people with "the equal protection of the laws."[46]

Supremacy Clause. The provision of the Constitution providing that "[t]his 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. . . ."[47]

Takings Clause. Derived from the Fifth Amendment, made applicable to states through the Fourteenth Amendment, the provisions of the Constitution affirming that private property shall not "be taken for public use, without just compensation."[48]

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39. For an interesting discussion of application of the principles of comity to federal-state relations, see Gil Seinfeld, *Reflections on Comity in the Law of American Federalism*, 90 Notre Dame L. Rev. 1309, 1309–43 (2015).
40. Marbury v. Madison, 5 U.S. 1, 163 (1803) (quoting 3 William Blackstone, Commentaries *23).
41. U.S. Const. art. I, § 8.
42. *Id.* art. I, § 8, cl. 3.
43. *Id.* art. I, § 10, cl. 1.
44. *Id.* amend. XIV, § 1, cl. 2.
45. *Id.* amend XIV, § 1, cl. 5.
46. *Id.* amend XIV, § 1, cl. 2.
47. *Id.* art. VI, cl. 2.
48. *Id.* amend. V.

Tenth Amendment. The provision of the Constitution providing that "[t]he powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people."[49]

Eleventh Amendment Sovereign Immunity. The provision of the Constitution providing that "[t]he Judicial power of the United States shall not be construed to extend to any suit in law or equity, commenced or prosecuted against one of the United States by Citizens of another State, or by Citizens or Subjects of any Foreign State."[50] Eleventh Amendment sovereignty applies in *federal* court, though it is often conflated with pre-ratification principles of state sovereign immunity in *state* court. The Eleventh Amendment does not apply to a municipal government or other government entity, unless either (a) such entity is deemed to be an "arm of the State" or (b) it is determined that the State is the real party in interest.[51]

Reserved Powers Doctrine. The judicial doctrine, based on constitutional sovereignty concepts, that a government cannot surrender essential attributes of its sovereignty, such as police or eminent domain powers.

Reciprocal Immunity Doctrine. The historical judicial doctrine, based on constitutional sovereignty concepts that, just as a state may not tax the federal government, the federal government may not tax the means and instrumentalities of a state.

Anti-Commandeering Doctrine. The judicial doctrine, based on constitutional Tenth Amendment concepts, that a government cannot impose affirmative duties on state legislative or executive branch officials.

B. Constitutional Tensions Particularly Relevant to the Development of U.S. Governmental Structures and the Law of Public Finance

The law of public finance is replete with examples of the counter-balancing tensions embedded in the U.S. Constitution by its framers. The current law of public finance is a complex weave, but four repeating threads, plaited in two distinct directions, are identified and described here.

The Tenth Amendment and the Supremacy Clause, Often in Conflict.

As noted above, the exact boundaries of federalism have shifted in both directions over time. In a string of cases beginning with *National Labor Relations Board v. Jones and Laughlin Steel Corp*, the Supreme Court expanded federal power in 1937.[52] In 1976, in *National League of Cities v. Usery*, the Supreme Court, by a majority opinion penned by future Chief Justice Rehnquist, checked this expansion, limiting the power of Congress under the Commerce Clause to impair state sovereignty.[53] Less than ten years later, in *Garcia v. San Antonio Metropolitan Transit Authority*, the Supreme Court overruled *Usery.*[54] Fast-forwarding to the 1990s, the federalism landscape again shifted with decisions in *New York v. United States* (invalidating a federal law requiring states with inadequate environmental laws to "take title" to certain radioactive waste),[55] and *Printz v. United States* (a 1997 decision invalidating a provision of the

49. *Id.* amend. X.

50. *Id.* amend XI.

51. For an excellent description of the history and scope of the sovereign immunity defense as applicable to public finance, see Fippinger, note 34, § 16:1 *et seq*.

52. N.L.R.B. v. Jones, 301 U.S. 1 (1937); *see also* United States v. Darby, 312 U.S. 100 (1941).

53. Nat'l League of Cities v. Usery, 426 U.S. 833 (1976).

54. Garcia v. San Antonio Metro. Transit Auth., 469 U.S. 528 (1985).

55. New York v. United States, 505 U.S. 144, 175 (1992).

Brady Handgun Violence Prevention Act requiring state officials to run background checks on prospective handgun purchasers).[56] These latter cases generally stand for the principle that the federal government cannot affirmatively commandeer state legislative or executive branches. In 2018, in *Murphy v. NCAA*,[57] the Court invalidated a federal law prohibiting states from authorizing sports gambling, clarifying that anti-commandeering rules apply equally to both affirmative requirements and prohibitions adopted by Congress under its Commerce Clause powers. In Justice Alito's majority opinion, he notes, "The anti-commandeering doctrine may sound arcane, but it is simply the expression of a fundamental structural decision incorporated into the Constitution, i.e., the decision to withhold from Congress the power to issue orders directly to the States."[58]

There will always be Federalists and Nationalists. For purposes of this article, the exact boundaries at any given time are largely irrelevant. Rather, what is interesting is the impact that this ever-present tension has had historically in the development of the municipal securities market and assessing the tensile strength of future developments.

Sovereign Immunity and the Commerce Clause, Often in Conflict.

The principles of sovereign immunity embodied in both common law and the Eleventh Amendment have faced challenges under competing constitutional concepts, including the Bankruptcy Clause, the Enforcement Clause, and the Commerce Clause. The tension, obviously, is between the respected sovereign rights of states and the counterbalancing supreme rights of the federal government, under the Constitution, to abrogate those rights.

The case law is clear that when the tension is between the Eleventh Amendment and the Bankruptcy Clause[59] or between the Eleventh Amendment and the Due Process or Equal Protection Clauses,[60] sovereign immunity generally does not withstand the challenge. The tension between the Eleventh Amendment and the Commerce Clause, however, is a more interesting story[61] and one unique to public finance that does not have a real parallel in corporate finance.[62] From *Hans v. Louisiana*[63] through *Seminole Tribe of Florida v. Florida*[64] and Justice Kennedy's majority opinion in *Alden v. Maine*,[65] it has been clear that "the powers delegated to Congress under Article I of the United States Constitution do not include the power to subject nonconsenting States to private suits for damages in state courts.[66] Sovereign immunity boundaries are still being defined today, with the Supreme Court, in 2020, striking down a federal copyright law abrogating state sovereign immunity in *Allen v. Cooper*.[67] These boundaries will

56. Printz v. United States, 521 U.S. 898, 944–45 (1997).
57. Murphy v. Nat'l Collegiate Athletic Ass'n, 138 S. Ct. 1461 (2018).
58. *Id.* at 1475.
59. *See, e.g.*, Cent. Va. Cmty. Coll. v. Katz, 546 U.S. 356 (2006).
60. *See, e.g.*, Fitzpatrick v. Bitzer, 427 U.S. 445 (1976).
61. *See, e.g.*, Miles McCann, *State Sovereign Immunity*, Nat'l Ass'n of Att'ys Gen. (Nov. 11, 2017), https://www.naag.org/attorney-general-journal/state-sovereign-immunity.
62. Chapter 16 of Fippinger, *supra* note 34, is entitled "The Sovereign Immunity Defense." A portion, § 16:2:2, has a thorough and thoughtful analysis of abrogation powers, before and after 1996, under the Commerce Clause, together with a discussion of abrogation powers, by contrast, under the Bankruptcy Clause and under section 5 of the Fourteenth Amendment. The reader is encouraged to review these materials, which are not repeated here.
63. Hans v. Louisiana, 134 U.S. 1 (1890).
64. Seminole Tribe of Fla. v. Florida, 517 U.S. 44 (1996).
65. Alden v. Maine, 527 U.S. 706 (1999).
66. *Id.* at 712.
67. Allen v. Cooper, 140 S. Ct. 994 (2020).

continue to have an interesting impact on the continued evolution of the municipal market regulatory framework.

III. HISTORICAL EVOLUTION OF THE PUBLIC FINANCE MARKET

The Constitutional principles and tensions outlined in Part II above have informed development of key aspects of public finance law from the beginning, as detailed below in this Part III, including a proliferation of differing state approaches to general law matters, as well as the evolution of the federal bankruptcy, securities, and tax laws applicable to the municipal securities market.

A. Differing State Approaches to the Power and Authority of Political Subdivisions and Local Governments

Introduction

The framers of the Constitution designed a federal government that is dependent on the states, while the states are free to self-govern (with certain limitations).[68] The federal government derives its power from those expressly listed (or implied) in the Constitution, and the Tenth Amendment reserves to the states all the powers that are not given to (or prohibited by) the federal government in the Constitution. Most state constitutions are consistent with the U.S. Constitution; however, with respect to the concept of state sovereignty, some states did not take the same approach to their political subdivisions that the federal Constitution took toward states. Through adoption of the Constitution, the federal government was created by and empowered by the states. Likewise, through the fifty state constitutions and state laws, political subdivisions of the states (and other local government entities) were created and empowered, but not on a consistent basis across jurisdictions. The U.S. Supreme Court in *Atkins v. Kansas* stated that local governments are mere political subdivisions of the states for the purpose of exercising a part of the states' powers.[69] Understanding that local governments are creatures of state governments, the next two sections discuss the existing dichotomy in local governments' powers and authority.

History of Dillon's Rule

The doctrine commonly referred to as Dillon's Rule is based on decisions by Justice Dillon, including the Supreme Court of Iowa decision in 1868, *City of Clinton v. Cedar Rapids and the Missouri River Railroad Co*.[70] The City of Clinton filed an injunction in Iowa state court to restrain the Cedar Rapids and the Missouri River Railroad Company from building a railroad line through any city streets. The railroad company argued it was acting under the power granted to it by the state, which permitted it to construct a railroad line across the entire State of Iowa. The Supreme Court of Iowa ruled that the city did not possess the power to prevent the construction of a railroad and that the railroad company did not need to obtain the city's consent to build the railroad line.[71] Iowa Supreme Court Justice John Dillon stated:

> A municipal corporation possesses and can exercise the following powers and no others: First, those granted in express words (from the state); second, those necessarily implied or necessarily incident to the powers expressly granted; third, those absolutely essential to the declared objects and purposes of the corporation-not simply convenient, but indispensable; and fourth, any fair doubt as to the

68. Jon D. Russell & Aaron Bostrom, Federalism, Dillon Rule and Home Rule (Jan. 2016), https://alec.org/wp-content/uploads/2016/01/2016-ACCE-White-Paper-Dillon-House-Rule-Final.pdf.

69. Atkins v. Kansas, 191 U.S. 207, 220 (1903).

70. City of Clinton v. Cedar Rapids & Mo. R.R. Co., 24 Iowa 455 (1868).

71. *Id.*

existence of a power is resolved by the courts against the corporation.[72]

To summarize, under Dillon's Rule, local governments possess only the power that the state governments specifically give them and whether such authorization exists is likely to be construed against the local government.

Under Dillon's Rule, states give local governments the power to take actions, such as zoning, planning, parts of taxation, and other activities where government closest to the people is most effective. If a local government wants to exceed the scope of power delegated by the state, the local government will have to ask the state for permission to do so. Some local government leaders contend that they are handcuffed by Dillon's Rule and that it prohibits and hinders growth within the municipality. Others contend that Dillon's Rule provides consistency in law across the state and avoids renegade local political legislation.[73]

History of Home Rule (the Cooley Doctrine)

The origin of Home Rule in the United States can be traced to Judge Thomas Cooley of the Michigan Supreme Court who, in 1871, stated that local governments possess some inherent rights of self-government. This sentiment was included in Judge Cooley's concurring opinion in *People ex rel. Leroy v. Hurlburt*,[74] where the court invalidated a state law that purported to appoint members to a board of public works for the City of Detroit. The court found that while the state had the power to legislatively dictate whether the board members would be elected by local citizens or appointed by the local government, the state had no power to actually appoint members of that board.[75]

Home Rule generally permits local governments the authority to self-govern to the extent that enacted local laws do not conflict with and are not prohibited by state laws and constitutions. Under Home Rule, local governments can make a wide range of legislative decisions that have not been addressed by the state. The first state to pass a Home Rule charter was Missouri in 1875.[76] During the next few decades, states such as California, Washington, Minnesota, Colorado, Virginia, Oregon, Oklahoma, Michigan, Arizona, Ohio, Nebraska, and Texas all adopted some form of the Home Rule. Currently, more than forty states have adopted some form of Home Rule. [77]

In Florida, the adjustment from Dillon's Rule to Home Rule for cities and charter counties came at a time after World War II, during which the population began to drastically increase. The legislature was flooded with local legislative bills asking for permission from municipalities to solve local issues.[78] This surge led to a Home Rule provision being included in the 1968 constitutional revision, but the conversion to Home Rule did not apply uniformly to all local governments. In Florida, only cities and counties that have adopted charters (so-called "charter counties") possess expansive Home Rule powers. Other local government bodies in Florida possess only those powers that are bestowed upon them by the Florida Legislature. In fact, at least thirty-one states apply a combination of Dillon's Rule and Home Rule.[79]

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72. Russell & Bostrom, *supra* note 68, at 2 (referencing 1 John F. Dillon, Commentaries on the Law of Municipal Corporations 173 (2d ed. 1873)).
73. *Id.*
74. People *ex rel.* Leroy v. Hurlburt, 24 Mich. 44, 93–113 (1871).
75. *Id.*
76. Russell & Bostrom, *supra* note 68, at 6.
77. *Id.*
78. City of Boca Raton v. State, 595 So. 2d 25, 27 (Fla. 1992).
79. Russell & Bostrom, *supra* note 68, at 8.

The Value and Challenge of Divergent State Approaches

Understanding the diversity of state approaches to delegating power to local governments to govern within their borders helps to explain the tremendous diversity that developed in the U.S. municipal securities market. Because the scope of powers, privileges, and protections for any given public corporation is a function not only of its authorizing statute but also its particular state's constitution and constitutional delegation of taxing, spending, and police powers; Home Rule principles; and Dillon's Rule scope, municipal securities issuers have widely divergent powers with respect to a number of seemingly unrelated matters today. Examples include (1) the meaning of "general obligation" indebtedness;[80] (2) the ability of states, general purpose governments, and special purpose governments to execute bank loans;[81] (3) the availability of securitization and monetization authority;[82] (4) the availability of bankruptcy protection;[83] and (5) the availability and scope of statutory lien protections. The rationale for a particular state's approach is often found in the state's constitution and its case law.

The lack of uniformity in these and other areas prevents credit "homogenization" and requires municipal bond investors to review the provided disclosure with respect to each particular issuer, as well as to understand the distinctions between similarly titled bond issues of different issuers in different states. Ultimately, however, this diversity of legal premise and scope of authority among various states and their local jurisdictions is fundamentally intertwined with the very deliberate constitutional definition of federalism.

The diversity of state law approaches to a myriad of legal issues has been a challenge since the Declaration of Independence. In an effort to bring some uniformity to laws among the various jurisdictions, a group of lawyers met in the late 1890s to discuss the prospect of "a greater unanimity of law throughout the country in those matters in which such unanimity is both desirable and possible."[84] Their quest became the basis for the creation of the Uniform Law Commission in 1892.[85] The Commission released the first uniform act, the "Uniform Negotiable Instruments Law" in 1896.[86] Since its establishment, the Commission has published more than 300 uniform laws and model legislation, more than 100 of which have been adopted in at least one state.[87] Perhaps the most widely adopted uniform law is the Uniform

80. *See, e.g.*, Nat'l Ass'n of Bond Laws., General Obligation Bonds: State Law, Bankruptcy and Disclosure Considerations (2014), https://www.nabl.org/wp-content/uploads/2023/02/20140831-NABL-Report-on-General-Obligation-Bond-Considerations.pdf.

81. *See, e.g.*, Nat'l Ass'n of Bond Laws., Municipal Bankruptcy: A Guide for Public Finance Attorneys (3d ed. 2015), https://www.nabl.org/wp-content/uploads/2023/02/20150827-NABL-Primer-on-Municipal-Bankruptcy_3rd-Edition.pdf.

82. *See, e.g.*, *P3 Infrastructure Delivery: Principles for State Legislatures*, Nat'l Conf. of State Legislatures (July 2017), https://www.ncsl.org/Portals/1/HTML_LargeReports/P3_Infrastructure_1.htm.

83. *See, e.g.*, Nat'l Ass'n of Bond Laws., Direct Purchases of State or Local Obligations by Commercial Banks and Other Financial Institutions (2017), https://www.nabl.org/wp-content/uploads/2023/02/20170720-NABL-Direct-Purchase-Report.pdf.

84. Robert A. Stein, Forming A More Perfect Union: A History of the Uniform Laws Commission (2013), https://higherlogicdownload.s3.amazonaws.com/UNIFORMLAWS/b7c515db-1895-4387-bb2d-ee99e58c0066/UploadedFiles/z2VTbVJSwqAhFymN7LnQ_Forming%20a%20More%20Perfect%20Union.pdf.

85. *Id.*

86. *Uniform Commercial Code*, Unif. L. Comm'n, https://www.uniformlaws.org/acts/ucc (last visited Jan. 13, 2023).

87. 2020–2021 Guide to Uniform and Model Acts, Unif. L. Comm'n (2022), https://www.uniformlaws.org/HigherLogic/System/DownloadDocumentFile.ashx?DocumentFileKey=a3443fdb-39c0-dd91-b9b9-ef7405181b6f&forceDialog=0.

Commercial Code, some version of each article of which has been adopted in every state.[88] The goal of uniform laws is not necessarily that the laws of all states will be identical because each state, when considering and adopting a version of a uniform law, will make adjustments for its particular jurisdiction. The value of a uniform law (to lawyers in particular) is, very simply, the ability to understand how the laws of each state vary from the uniform law. The uniform laws that have been the most widely adopted govern areas where predictability and fairness are viewed as necessary in the context of the growing mobility of people and commerce in the country.[89]

Consider the value of uniform laws such as the Uniform Commercial Code and the Uniform Enforcement of Foreign Judgments Act, but also the value of such socially related acts as the Uniform Child Custody Jurisdiction and Enforcement Act and the Uniform Interstate Family Support Act, all of which have been adopted in most states (with some variations).[90] Does the diversity of public finance laws across the country raise such challenges that a set of uniform laws would be desirable? Is organic law diversity so great as to make such a uniform approach impossible? Would some aspect of public finance laws be more manageable in the context of a uniform or model law, such as enforcement provisions and/or statutory lien laws?[91]

Development and Expansion of the U.S. Municipal Securities Market

The first reported issuance of municipal bonds in the United States was by the City of New York in 1812, when it issued general obligation bonds to finance the construction of a canal, followed by forty-two separate bond issues to fund construction of the Erie Canal.[92] Over the next fifty or so years, municipal bonds were issued to fund other infrastructure projects, such as public education facilities and railroad construction across the country.[93] The railroad bonds were, perhaps, the first "public-private partnership" bonds issued, with the primary obligor being the railroad company with municipal assistance through the local government's credit or guarantee.[94] The economic downturn (or "panic") in 1873 resulted in numerous railroad insolvencies and municipal bond defaults.[95] In 1870, total local government debt is estimated to have been around $500 million, with twenty percent in default as a result of the economic downturn and railroad defaults.[96] In the reaction to the assistance provided by local governments to private companies and the resulting fiscal difficulties, a flurry of state constitutional limitations and prohibitions were enacted across the country, not all with the same degree of restriction. These constitutional restrictions included prohibiting the pledging of public credit to private entities, limiting tax millage rates or budgetary expenditures, and limiting debt maturities, among others.[97] As an alternative to outright prohibitions, some states enacted procedural requirements, such as voter approval, as a means to restrict local government debt issuance.[98]

88. *Id.* at 44–51.
89. *Id.*
90. *Id.*
91. *See* discussion *infra* Section III.C.
92. Jenna Ross, *From Coast to Coast: How U.S. Muni Bonds Help Build the Nation*, Visual Capitalist (Nov. 4, 2019), https://www.visualcapitalist.com/municipal-bonds-build-nation.
93. *Id.*; John A. Dove, *Financial Markets, Fiscal Constraints, and Municipal Debt: Lessons and Evidence from the Panic of 1873*, 10 J. Inst. Econ. 71, 71–106 (2014).
94. Dove, *supra* note 93.
95. *Id.* at 75.
96. *Id.* at 76.
97. *Id.* at 78.
98. *Id.* at 79.

Although these restrictions did somewhat slow the growth of the municipal securities market, they did not curtail its growth, and, in some respects, the restrictions enhanced the municipal securities market by encouraging more conservative fiscal debt policies, thus enhancing investor confidence.[99] Restrictions on tax millage also cleared the path for non-tax supported debt (e.g., revenue bonds). From that first reported issuance in 1812 through 1890, the total volume of outstanding state and local government obligations grew to $2 billion.[100] In 1996, the total volume of outstanding municipal debt was $1.26 trillion, and in 2019 it was $3.85 trillion.[101] The following table reflects the growth of the municipal securities market since 1950.

B. Growth of the Municipal Securities Market

The growth in the size of the municipal securities market has also been a function of the growth in the number of municipal issuers, as well as the transition from primarily general-obligation debt to predominately revenue-backed debt. With the introduction of special purpose governmental entities (e.g., special districts), the number of municipal issuers is estimated by various regulatory agencies at approximately 50,000 in 2020.[102]

State and Local Debt Outstanding[103]

Year	$ in billions
1950	24.4
1960	70.8
1970	144.4
1980	350.3
1989*	784.0
2000	1,480.7
2005	3,099.3
2010	3,968.3
2015	3,840.4
2020	3,949.9

*1990 data not available

C. Bankruptcy Law

Municipal bankruptcy is another legal arena where constitutional principles and tensions have driven legislative evolution in a direction quite different than that applicable in the corporate markets. Governmental units cannot liquidate under federal bankruptcy, and a municipal bankruptcy under

99. *Id.* at 97.

100. Pub. Secs. Ass'n, Fundamentals of Municipal Bonds (Gordon L. Calvert ed., 3d ed. 1990).

101. *Fixed Income Outstanding*, SIFMA, https://www.sifma.org/resources/research/fixed-income-chart (last visited Jan. 13, 2023).

102. See, for example, the May 4, 2020, joint statement by then U.S. Security and Exchange Commission Chairman Jay Clayton and Office of Municipal Securities Director Rebecca Olson, *The Importance of Disclosure for Our Municipal Markets*, SEC (May 4, 2020), https://www.sec.gov/news/public-statement/statement-clayton-olsen-2020-05-04.

103. Compiled from Pub. Secs. Ass'n, *supra* note 100, and SIFMA, *supra* note 101. Data based upon fixed income account information compiled by the Federal Reserve System.

Chapter 9, Title 11, of the United States Code, is quite different in scope than a corporate bankruptcy under Chapter 11, Title 11, of the United States Code. These differences are based in part on the fact that municipalities are not simply creatures of statute. Their organizational status runs deeper and is rooted in federal and state constitutional tenants creating them as stewards of the people's public property and limiting their power and authority by the public purpose doctrine, that is, that public monies can only be used for public purposes. It is in the municipal bankruptcy context that these differences and the further balancing of state and federal sovereignty is perhaps most visible, in part because it was the subject of litigation since inception. Since the nineteenth century, the judicial system has made clear a fundamental distinction between public and private corporations; property held by municipalities for public purposes generally cannot be attached for the payment of municipal debts.[104] Furthermore, even given broad constitutional authority, there are significant subject areas in which the federal government is without authority to act. The first municipal bankruptcy statute, adopted in 1934, was invalidated by the U.S. Supreme Court in the *Ashton* case, on grounds that it violated the Tenth Amendment.[105] In response to *Ashton*, Congress tweaked the legislation's contents and adopted a new municipal bankruptcy statute in 1937. The 1937 statute was upheld by the U.S. Supreme Court two years later in *United States v. Bekins*.[106] The *Bekins* Court, quoting extensively from the House of Representatives Committee Report on the 1937 Act,[107] blessed a framework that is still in existence today, affirming the primacy of a federal framework of adjustments in voluntary bankruptcy proceedings adopted by Congress not under Commerce Clause powers but under the Bankruptcy and Supremacy Clauses, which contain limitations designed to assure that the federal process does not unduly interfere with independent states' rights and powers to legislate policy with respect to the making and enforcement of contracts.[108]

The structural differences between corporate and municipal bankruptcies are striking and reflective of constitutional rights and powers differences. Among the most fundamental in a current-day Chapter 9 case are the following: (1) only a debtor[109] can initiate a Chapter 9 case and only can do so if there is authority at the state level; (2) no creditor can force a filing; (3) municipalities cannot be liquidated; (4) there is no bankruptcy estate in a Chapter 9 case; (5) there is an "insolvency" requirement that does not exist in other chapters of the Bankruptcy Code;[110] (6) post-petition (after the filing of the bankruptcy petition), municipalities, not judges or creditors, control operations, decisions, finances, and restructuring plans (subject to applicable law); and (7) post-petition, with a few minor exceptions, there is no creditor access to general municipal assets and no ability to force creditor distributions.[111] Three particular attributes warrant further discussion here.

104. "Property held for public uses . . . and generally everything held for governmental purposes, cannot be subjected to the payment of the debts of the City. . . . The power of taxation is legislative and cannot be exercised otherwise than under the authority of the legislature. . . . If no such authority exists, the remedy is by appeal to the legislature." Meriwether v. Garrett, 102 U.S. 472, 501 (1880).

105. Ashton v. Cameron Cnty. Water Imp. Dist. No. 1, 298 U.S. 513, 532 (1936).

106. United States v. Bekins, 304 U.S. 27, 54 (1938).

107. *Id.* at 51 ("It is the opinion of the committee that the present bill removes the objections to the unconstitutional statute, and gives a forum to enable those distressed taxing agencies which desire to adjust their obligations and which are capable of reorganization, to meet their creditors under necessary judicial control and guidance and free from coercion, and to affect such adjustment on a plan determined to be mutually advantageous.").

108. *Id.*

109. States themselves cannot file for bankruptcy under Chapter 9, and local governments can only pursue Chapter 9 relief if authorized by their host states.

110. 11 U.S.C. § 109(c)(2).

111. *Id.* § 109(c)(3); 11 U.S.C. §§ 903, 941.

First and most importantly, Chapter 9 is permissive (i.e., left to state law). As of 2012, twenty-seven states had granted some access channels (state law authorization for federal bankruptcy) for certain types of municipalities, and twenty-three states had not authorized access at all.[112] In his *Opinion Regarding Eligibility*,[113] relating to the City of Detroit bankruptcy, Judge Steven W. Rhodes sets forth a thorough analysis of the importance of this permissiveness to the conclusion that Chapter 9 does not violate the Tenth Amendment. He highlights that "[t]he federal government cannot and does not compel states to authorize municipalities to file for chapter 9 relief, and municipalities are not permitted to seek chapter 9 relief without specific state authorization."[114] Judge Rhodes distinguishes the holdings in *New York v. United States*[115] and *Printz v. United States*,[116] noting that state consent differentiates unconstitutional commandeering from federal programs where states voluntarily agree to legislate according to federal terms in exchange for federal benefits or forbearance. Through this consent, states have access to an impairment of contract remedy not otherwise available. Judge Rhodes quotes the *Bekins* Court, in part, as follows: "The State acts in aid, and not in derogation, of its sovereign powers. It invites the intervention of the bankruptcy power to save its agency which the State itself is powerless to rescue. Through its cooperation with the national government the needed relief is given."[117]

Second, Section 903 of the Bankruptcy Code expressly provides that the Bankruptcy Code "does not limit or impair the power of a State to control, by legislation or otherwise, a municipality of or in such State in the exercise of the political or governmental powers of such municipality, including expenditures for such exercise . . . ."[118] Legislative history on the scope of this provision is sparse, but, in the City of Stockton, California, and Detroit bankruptcies, the courts helped clarify, distinguishing state laws establishing pension protections, categorized in each case as *contracts* subject to impairment under the Supremacy Clause, from voting, taxing, and regulatory approval laws, categorized as sovereign *powers*, protected and preserved even within a Chapter 9 proceeding.[119]

Third, Section 904 of the Bankruptcy Code expressly provides that "the court may not, by any stay, order, or decree, in the case or otherwise, interfere with . . . any of the *property or revenues* of the debtor; or . . . the debtor's use or enjoyment of any income-producing property."[120] In connection with the Puerto Rico PROMESA[121] proceeding and treatment of its Highways and Transportation Authority, the First Circuit

112. H. Slayton Dabney, Jr., et. al, Municipalities in Peril: The ABI Guide to Chapter 9 (2012).

113. *In re* City of Detroit, Mich., 504 B.R. 191 (Bankr. E.D. Mich. 2013).

114. *Id.* at 241.

115. *See* New York v. United States, 505 U.S. 144, 175 (1992); Printz v. United States, 521 U.S. 898, 944–45.

116. *See id.*

117. *In re City of Detroit, Mich.*, 504 B.R. at 241.

118. 11 U.S.C. § 903.

119. "While § 903 protects the basic incidents of state sovereignty—described as 'political and governmental' powers—from encroachment, contractual relations as between state and municipality are generally outside the ambit of 'political or governmental' powers." See *In re* City of Stockton, 526 B.R. 35, 38 (Bankr. E.D. Cal. 2015). Similarly, "[b]ecause the state and local officials must authorize the filing of a chapter 9 petition, 11 U.S.C. §109(c)(2), and because they retain control over 'the political and governmental powers' of the municipality, these state officials remain fully politically accountable to the citizens of the state and municipality. *See* New York v. United States, 505 U.S. at 186 ('The States thereby retain the ability to set their legislative agendas; state governmental officials remain accountable to the local electorate.')." *In re City of Detroit, Mich.*, 504 B.R. at 242.

120. 11 U.S.C. § 904.

121. PROMESA is not a Chapter 9 case, but many of the Chapter 9 (and other bankruptcy provisions) were incorporated into PROMESA.

U.S. Court of Appeals issued an opinion,[122] concluding that the Bankruptcy Code, *in and of itself*, does not mandate the application of pledged special revenues to debt during the pendency of a proceeding. In other words, the Bankruptcy Code (as incorporated into PROMESA), in and of itself, does not provide the mandated payment protection of "special revenue" bonds that many in the municipal bond market had presumed existed. Section 928 preserves the prepetition pledge lien but does not mandate bond payments. In light, perhaps, of the unique nature of Puerto Rico's local Moratorium Act (normal local statutory payment obligations were not fully applicable thereunder), the question with respect to special revenue was whether Sections 922 and 928 (as incorporated into PROMESA) mandated, *in and of themselves*, application of special revenues during pendency. The decision, though initially contrary to the expectations of some regarding the protection of special revenue bonds, can be read as generally consistent with the deference of Chapter 9 to sovereignty principles and applicable local laws.

As a result of these constitutionally based principles and unlike in the corporate bankruptcy context, other than through its general ability to withhold plan confirmation, the federal system can do little to compel particular municipal behavior. Rather, the Bankruptcy Code, through the power of the Supremacy Clause, shares with local governmental units a federal power that states are prohibited under the Contracts Clause from giving local governmental units the power to impair contracts.[123] The sovereign rights of our constitutional democracy instruct and inform this unique structure and balance.

D. Securities Law: The 1933 and 1934 Act Exemptions, Prior Crises, the Tower Amendment, and Evolution of the Current Regulatory Approach

In his magisterial *The History of the Decline and Fall of the Roman Empire*, Edward Gibbon describes Rome's steady loss of hegemony in Europe, Africa, and Asia as stemming from a series of sieges and sacks on Rome by the Visigoths, the Vandals, and other uncivilized bands of invaders.[124] The gradual regulation of the municipal securities market over the last century, too, can be said to be marked by a series of sieges on the largely unregulated market mounted in response to four crises in the market—namely, the New York City debt default[125] of the 1970s, the Washington Public Power Supply System debt default[126] of the 1980s, the Orange County debt default[127] of the 1990s, and the Jefferson County debt default (and subsequent bankruptcy)[128] of the 2000s. Four sieges but—thus far—no sack. What is the explanation for this? The explanation lies in the constitutional principles outlined above and the defense of the market mounted by stakeholders through a battlement known as the Tower Amendment.[129] The size and diversity of the municipal market itself also account for its steadfastness against regulatory encroachment.

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122. *In re* Fin. Oversight & Mgmt. Bd. for Puerto Rico, 919 F.3d 121 (1st Cir. 2019).

123. For a more thorough analysis, see Nat'l Ass'n of Bond Laws., *supra* note 83.

124. *See generally* 4 Edward Gibbon, The History of the Decline and Fall of the Roman Empire (John B. Bury ed., 1986).

125. *See* SEC, Staff Report on Transactions in Securities of the City of New York (1977), https://www.sec.gov/info/municipal/staffreport0877.pdf.

126. *See* SEC, Staff Report On the Investigation in the Matter of Transactions in Washington Public Power Supply System Securities (1988).

127. *See* SEC, Report on Investigation in the Matter of County of Orange, California as it Relates to the Conduct of the Members of the Board of Supervisors (1996), https://www.sec.gov/litigation/admin/3436761.txt.

128. Jim White, *The Municipal Advisor Under Dodd-Frank*, Porter White, & Co. (Sept. 8, 2016), https://pwco.com/the-municipal-advisor-under-dodd-frank.

129. The Tower Amendment is part of Section 15B(d) of the Securities Exchange Act of 1934, is codified at 15 U.S.C. § 78o-4(d), and provides as follows:

The importance of the Tower Amendment in the history of municipal securities market regulation is best understood in the context of the history of regulation of all U.S. securities markets. An avalanche of securities laws was enacted by the U.S. Congress in the 1930s after collapse of the U.S. stock market in 1929, including the Securities Act of 1933,[130] the Securities Exchange Act of 1934,[131] and the Trust Indenture Act of 1939.[132] Municipal securities were exempt from the 1933 Act, and the legislative history does not contain an extensive debate on the exemption's propriety. The December 1933 *Yale Law Journal* (Volume XLIII, No. 2) states simply, "Constitutional problems and political expediency may have dictated the exemption of securities issued by states and their political subdivisions and certain instrumentalities thereof."[133] This is consistent with the doctrine of reciprocal tax immunity which existed at the time. The 1933 Act House Report provides:

> The line drawn . . . corresponds generally with the line drawn by the courts as to what obligations of States, their units and instrumentalities created by them are exempted from Federal taxation. By such a delineation, any constitutional difficulties that might arise with reference to the inclusion of State and municipal obligations are avoided.[134]

The 1934 Act excludes municipal securities from the registration requirement.[135] Further, the Trust Indenture Act of 1939 exempts municipal bonds as securities exempt from the 1933 Act.[136]

The 1975 amendments to the Securities Acts were drafted in response to the New York City financial crisis. Notwithstanding that crisis, the Senate committee report on the amendments provides that, apart from the anti-fraud provisions, municipal securities remain exempt from substantive requirements, "for the Committee is not aware of any abuses which would justify such a radical incursion on states' prerogatives," a clear reference to the underlying constitutional threads.[137]

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(1) Neither the [U.S. Securities and Exchange] Commission nor the [Municipal Securities Rulemaking] Board is authorized under this chapter, by rule or regulation, to require any issuer of municipal securities, directly or indirectly through a purchaser or prospective purchaser of securities from the issuer, to file with the Commission or the Board prior to the sale of such securities by the issuer any application, report, or document in connection with the issuance, sale, or distribution of such securities.

(2) The Board is not authorized under this chapter to require any issuer of municipal securities, directly or indirectly through a municipal securities broker, municipal securities dealer, municipal advisor, or otherwise, to furnish to the Board or to a purchaser or a prospective purchaser of such securities any application, report, document, or information with respect to such issuer: Provided, however, that the Board may require municipal securities brokers and municipal securities dealers or municipal advisors to furnish to the Board or purchasers or prospective purchasers of municipal securities applications, reports, documents, and information with respect to the issuer thereof which is generally available from a source other than such issuer. Nothing in this paragraph shall be construed to impair or limit the power of the Commission under any provision of this chapter.

130. Thomas L. Hazen, Treatise on the Law of Securities Regulation §§ 1:16 –1:20 (May 2021 update).

131. *Id.*

132. *Id.*

133. William O. Douglas & George E. Bates, *The Federal Securities Act of 1933*, 43 Yale L.J. 171, 183 n.53 (1933).

134. H.R. Rep. No. 73-85 (1033), *reprinted in* Legislative History of the Securities Act of 1933 and Securities Exchange Act of 1934 (J.S. Ellenberger & Ellen P. Mahar eds., 1973).

135. *Cf.* Fippinger, *supra* note 34, § 10A:2.

136. S. Rep. No. 76-1016 (1939).

137. S. Rep. No. 94-75, at 95 (1975).

The U.S. Congress has enacted other federal securities laws since the 1930s in response to perceived abuses (e.g., the Sarbanes-Oxley Act of 2002 was enacted in response to the Enron, Worldcom, and other corporate scandals,[138] and the Dodd-Frank Act of 2010 was enacted in response to the 2007–2008 financial crisis[139]). Full and fair disclosure is the guiding principle of the federal securities laws; no assessment of meritworthiness of securities is made under the federal securities laws.[140]

Although securities issued by corporate issuers have been subjected to almost all federal securities laws since 1933,[141] securities issued by the U.S. government have almost completely escaped regulation,[142] and securities issued by state and local governments (that is, municipal securities) occupy a middle ground, as they generally are exempt from the registration requirements of the federal securities laws but are subject to the antifraud provisions of the federal securities laws.[143]

Although there may be debate over the extent to which issuers of municipal securities were covered by the federal securities laws prior to the mid-1970s,[144] and although it enacted the Tower Amendment as part of the same legislative package, the U.S. Congress's enactment of other provisions in the Securities Acts Amendments of 1975 in response to the New York City fiscal crisis clearly was a congressional incursion on the municipal securities market. Market observer Robert Doty explains the legislative bargain of the Securities Acts Amendments of 1975 in the following way:

> In those Amendments, which among other things, created the Municipal Securities Rulemaking Board (MSRB), Congress enacted the Tower Amendment. The Tower Amendment prohibits the [U.S. Securities and Exchange Commission (SEC)] (and the MSRB) from requiring pre-sale filings of municipal bond offerings and imposes more stringent prohibitions on the MSRB.
>
> At the same time, as a part of the bargain, Congress also amended the definition of "person" in Section 3(a)(9) of the Securities Exchange Act of 1934 to extend the definition to "a government or political subdivision thereof." What may appear to have been a minor statutory change gave affirmative congressional authority—a green light—to the SEC for post-offering pursuit of state and local governmental entities and their officials not only for acts of fraud in violation of SEC Rule 10b-5, but also pursuant to Section 17(a)(2) and (3) of the Securities Act of 1933 for negligence.[145]

Doty goes on to say that "[i]n the absence of affirmative authority to regulate municipal securities issuers directly—through pre-offering review and pre-offering disclosure mandates or more than generalized guidance—the Commission is now, both in effect and in reality, "regulating" by enforcement—post-offering review."[146] In other words, a Congressional sacking of the municipal securities market (that is, grant of authority to the SEC to undertake pre-offering review and/or to promulgate pre-offering

138. Hazen, *supra* note 130, § 1:22.
139. *Id.* § 1:23.
140. *Id.* § 1:17.
141. *Id.* § 1:12. For a humorous angle on what an offering document for securities issued by the U.S. government might look like, see Philip R. Davis, *U.S. Treasury Bonds Prospectus, Would You Invest?*, Mkt. Oracle (Apr. 14, 2010), http://www.marketoracle.co.uk/Article18633.html.
142. Hazen, *supra* note 130, § 4:11.
143. *Id.*
144. Robert Doty, *Expanding Municipal Securities Enforcement: Profound Changes for Issuers and Officials*, page 12, Bond Buyer (July 12, 2016).
145. *Id.* at 2.
146. *Id.* at vi–vii.

disclosure mandates) was averted only by furnishing the SEC's Enforcement Division with legislative tools to lay siege to the market through post-offering enforcement proceedings.[147] In 2007, in the aftermath of the SEC's enforcement actions against the City of San Diego and Orange County in his native California, SEC Chairman Christopher Cox summarized the post-1975 regulatory environment of the municipal securities market in the following way:

So while the SEC has anti-fraud authority—allowing us to come in and clean up messes like these after the fact—neither we nor any other federal regulator has the authority in the municipal market that we have in the corporate securities market to insist on full disclosure of all material information to investors at the time the securities are being sold. . . . We'd all prefer a sign saying "Bridge Out Ahead" to an ambulance at the bottom of the canyon. Yet our current tools in the area of municipal offerings are more like the ambulance that arrives to pick up the pieces.[148]

Although the Tower Amendment limits the SEC's authority to regulate municipal securities issuers directly, the Securities Acts Amendments of 1975 created the MSRB and granted new authority to the SEC that has been used to regulate brokers, dealers, and municipal securities dealers directly. As illustrated by the second and third sieges on the municipal securities market (that is, the SEC's rulemaking in response to the Washington Public Power Supply System debt default of the 1980s and the Orange County debt default of the 1990s, respectively), the SEC also has used its authority under the 1975 Amendments to regulate municipal securities issuers indirectly.

In response to the Washington Public Power Supply System debt default, the SEC in 1989 promulgated the primary market disclosure rules of SEC Rule 15c2-12, which generally require brokers, dealers, and municipal securities dealers to obtain, review, and deliver to investors official statements in connection with primary offerings of municipal securities.[149] In response to the Orange County debt default, the SEC in 1994 amended and expanded SEC Rule 15c2-12 to require brokers, dealers, and municipal securities dealers to ensure, in connection with primary offerings of municipal securities, that issuers and certain other obligated persons agree to make periodic financial and event filings first with the cumbersome and now obsolete Nationally Recognized Municipal Securities Information Repositories (NRMSIRs) and, since 2009, with the MSRB's Electronic Municipal Market Access (EMMA) system.[150]

Congress got back into the business of laying siege to the municipal securities market with its enactment of the Dodd-Frank Wall Street Reform and Consumer Protection Act in 2010. The act's nearly 900 pages overhauled many aspects of the U.S. financial and securities markets in response to the financial

147. *Cf. id*. at vii.

148. Christopher Cox, *Speech by SEC Chairman: Integrity in the Municipal Market, Address at the Biltmore Hotel*, SEC (July 18, 2007), https://www.sec.gov/news/speech/2007/spch071807cc.htm; *see also* SEC, Disclosure and Accounting Practices in the Municipal Securities Market (2007), https://www.sec.gov/news/press/2007/2007-148wp.pdf. Chairman Cox's comparison of the municipal securities market with the corporate securities market needs to be tempered with an understanding of two principal differences between these markets, namely, (1) as a result of the constitutional principles discussed in this paper, municipal securities by their nature are far less standardized than the financial products that have evolved in the corporate securities market, and, as a result, the prospect of meaningful municipal securities standardization across the municipal market may well be a practical impossibility; and (2) municipal issuers generally are creditworthy and stable and issue only debt securities.

149. SEC Release 34-26100, Proposed Rule: Amendments to Municipal Securities Disclosure – Rule 15c2-12 (Sep. 22, 1988); SEC Release 34-26985, Final Rule: Amendment to Municipal Securities Disclosure – Rule 15c2-12 (Jul. 10, 1989); *see* Fippinger, note 34, § 9:4.

150. *Id.*

crisis beginning in 2007,[151] and, although numerous municipal securities market participants, including Jefferson County, Alabama,[152] were players in this crisis, the Dodd-Frank Act effected few changes in the municipal securities market. The principal changes included (1) protection of municipal issuers through regulation of municipal advisors;[153] (2) protection of municipal issuers participating in interest rate and other derivatives transactions;[154] (3) modification of the composition of the MSRB's board of directors;[155] (4) expansion of the MSRB's mission to include issuer protection;[156] and (5) expansion of aider and abettor liability from an actual-knowledge standard to a recklessness standard.[157]

Although the Dodd-Frank Act did not effectuate a sack of the municipal securities market (that is, grant authority to the SEC to undertake pre-offering review and/or to promulgate pre-offering disclosure mandates), the act mandated studies of the market that may, ultimately, lead to an attempted sack.[158] One of these studies, the U.S. Government Accountability Office (GAO) Municipal Securities: Options for Improving Continuing Disclosure,[159] reported that one path for improvements would be to repeal the Tower Amendment and repeal the exemption of municipal securities from the registration requirements under the 1933 Act.[160] This report ignores the constitutional principles outlined both in this article and by the Congressional Research Service.[161] It also ignores the interrelationship between public and private securities enforcement[162] and the fact that a true public finance parallel to corporate market enforcement could not be created legislatively due to the sovereign immunity of all states. On or about the date that the GAO released its study, the SEC released its *Report on the Municipal Securities Market*,[163] in which

151. *See* Fippinger, *supra* note 34, § 1:7.6.
152. White, *supra* note 128.
153. *See* Fippinger, *supra* note 34, § 1:7.6.
154. *Id.* § 4:4.
155. *Id.* § 10:3.2[B].
156. *Id.* § 10:3.2[D].
157. *See* Doty, *supra* note 144.
158. Dodd-Frank Wall Street Reform and Consumer Protection Act, H.R. 4173, 111th Cong. §§ 976, 977 (2010).
159. U.S. Gov't Accountability Off., GAO-12-265 Municipal Securities: Overview of Market Structure, Pricing, and Regulation (2012); https://www.gao.gov/products/gao-12-265.
160. U.S. Gov't Accountability Off., *supra* note 159, at 23–26.?
161. *See* Kenneth R. Thomas, Cong. Rsch. Serv., RL30315, Federalism, State Sovereignty, and the Constitution: Basis and Limits of Congressional Power (2013), https://sgp.fas.org/crs/misc/RL30315.pdf.
162. *See* Elisse B. Walter, *The Interrelationship Between Public and Private Securities Enforcement*, Harv. L. Sch. F. on Corp. Governance & Fin. Regul. (Dec. 11, 2011), https://corpgov.law.harvard.edu/2011/12/11/the-interrelationship-between-public-and-private-securities-enforcement. Then SEC Commissioner Elisse B. Walter stated, "The impact of changes in the parameters or existence of private actions on the enforceability of the federal securities laws is simply not well understood. And yet, it is critical to investors, our securities markets, and our economy overall that these laws remain fully enforceable." *Id.*
163. SEC, Report on the Municipal Securities Market (2012), https://www.sec.gov/news/studies/2012/munireport073112.pdf [hereinafter 2012 SEC Report].

the SEC outlined both legislative[164] and regulatory[165] proposals for overhauling the municipal securities market. Finally, in 2016, perhaps responding to the GAO study and the SEC report, legislation was introduced in the U.S. Congress that would overhaul the municipal securities market.[166]

The 2016 legislation received very little support in the U.S. Congress,[167] but calls for legislative overhaul of the municipal securities market have, at times, gained widespread congressional support since the New York City debt default of the 1970s.[168] Market stakeholders typically have been able to defeat these legislative efforts by demonstrating that, through voluntary efforts,[169] market participants do a more than passable job policing themselves. But what if members of the U.S. Congress no longer believed market participants were capable of regulating themselves? What if a siege turned into a sack and the SEC was granted authority to undertake pre-offering review and/or to promulgate pre-offering disclosure mandates? Would the sack succeed in the face of a constitutionally mounted defense?

SEC Commissioner Elisse B. Walter addressed this constitutional question in 2009, remarking, "No one seriously questions anymore the Constitutional right of the federal government to regulate municipal issuers."[170] In light of recent U.S. Supreme Court jurisprudence on states' rights, is Commissioner Walter

164. The SEC Report outlines legislation that would (1) authorize the SEC to regulate disclosure and financial statements; (2) authorize the SEC to require municipal securities issuers to have their financial statements audited; (3) provide a mechanism to enforce compliance with continuing disclosure; and (4) amend the municipal securities exemptions in the Securities Act and Exchange Act to eliminate the availability of such exemptions to conduit borrowers who are not municipal entities under Section 3(a)(2) of the Securities Act. 2012 SEC Report, *supra* note 163, at 134–39.

165. The SEC Report outlines changes to SEC Rule 15c2-12 that would (1) amend the definition of "final official statement" to include required disclosure about the terms of the offering, including the plan of distribution, any retail order period, and the price of the municipal securities in the initial issuance; (2) mandate more specific types of disclosures in municipal securities official statements and ongoing disclosures, including event disclosures relating to issuance of new debt, primary offering disclosures relating to risks of the municipal securities, and disclosures about underlying obligors; (3) provide a method to address noncompliance issues regarding continuing disclosure undertakings, including possibly by adding conditions that would require issuers to have disclosure policies and procedures in place regarding their disclosure obligations, including those arising under continuing disclosure undertakings; and (4) improve the accessibility of disclosures, including the use of shortened or summary official statements and increased use of websites. *Id.* at 139–40.

166. H.R. 6488 was introduced by Rep. Gwen Moore (D-WI) and adopted some of the proposals advanced in the 2012 SEC Report, including eliminating registration exemptions for conduit borrowers; having direct SEC regulation of annual disclosures and event filings, offering document content, and accounting methods; and establishing mandatory disclosure controls and systems. The legislation also granted the SEC broad discretion to establish exemptions and standards and permitted the SEC to recognize standard-setting bodies for municipal disclosure and accounting standards. H.R. 6488 (114th): Municipal Securities Disclosure Act of 2016 (Dec. 8. 2016), *H.R. 6488*, GovTrack.us, https://www.govtrack.us/congress/bills/114/hr6488 (last visited Jan. 13, 2023).

167. *Id.*

168. *See* Fippinger, *supra* note 34, §§ 1:7.1, 9:2.2; Am. Bar Ass'n Section of State & Local Gov't L., Am. Bar Ass'n Section of Bus. L. Comm. on Fed. Regul. of Sec., & Nat'l Ass'n of Bond Laws., Disclosure Roles of Counsel in State and Local Government Securities Offerings 21–22 (2009).

169. *See* 2012 SEC Report, *supra* note 163, at 56–58.

170. Elisse B. Walter, SEC Commissioner, Regulation of the Municipal Securities Market: Investors Are Not Second-Class Citizens, Speech at Tenth Annual A. A. Sommer, Jr. Corporate, Securities and Financial Law Lecture New York, New York (Oct. 18, 2009) (transcript available at https://www.sec.gov/news/speech/2009/spch102809ebw.htm).

correct? The answer to this question depends on the answer to two subsidiary questions. First, what is a "municipal issuer"? Second, what does Commissioner Walter mean by the term "regulate"?

On the question of what constitutes a municipal issuer, interpreting Eleventh Amendment sovereign immunity principles, the courts generally have distinguished between states and their departments and agencies on the one hand and states' political subdivisions (for example, cities and counties) on the other hand. Courts have concluded that, in the federal courts, the former enjoy Eleventh Amendment sovereign immunity and the latter do not.[171] However, even with respect to states, the courts generally have found that, although states are not subject to suit by private litigants in the federal courts, they are subject to administrative and enforcement actions brought by the SEC in the federal courts.[172] Hence, both states and their political subdivisions should be viewed as municipal issuers.

On the question of what constitutes regulation, the courts generally have found that the SEC has the authority to regulate municipal issuers (both states and their political subdivisions) through post-offering review of their actions and inactions (that is, through administrative and enforcement actions brought by the SEC).[173] However it is unclear, whether, by rule or legislation, the SEC could regulate municipal issuers through pre-offering review and/or promulgation of pre-offering disclosure mandates.

Inclusion of the Tower Amendment provisions in the 1975 amendments to the Securities Acts was premised, in part, on Congress's policy determination that there were no widespread abuses in the municipal securities market that necessitated a radical departure from the historical approach to regulating the market.[174] But that is not the full story. There is evidence that Congress also expressed concerns about limits on its power to regulate municipal issuers through pre-offering review and/or promulgation of pre-offering disclosure mandates.[175] These limits are most likely embodied in the U.S. Supreme Court's Tenth Amendment anti-commandeering caselaw.

In the most recent of these cases, the Supreme Court explained the anti-commandeering principle in the following way:

The legislative powers granted to Congress are sizable, but they are not unlimited. The Constitution confers on Congress not plenary legislative power but only certain enumerated powers. Therefore, all other legislative power is reserved for the States, as the Tenth Amendment confirms. And conspicuously absent from the list of powers given to Congress is the power to issue direct orders to the governments of the States. The anticommandeering doctrine simply represents the recognition of this limit on congressional authority.[176]

The Court went on to explain that adherence to the anti-commandeering principle is important for the following three reasons: (1) it serves to protect liberty by creating a healthy balance of power between the states and the federal government that reduces the risk of tyranny and abuse from either front; (2) it

171. Fippinger, *supra* note 34, § 16:4.
172. *Id.* § 16:2.6.
173. *Id.*
174. *Id.* §§ 9:4, 10:3.6[D].
175. Note, *Federal Regulation of Municipal Securities: Disclosure Requirements and Dual Sovereignty*, 86 Yale L.J. 919 (1977).
176. *See* Murphy v. Nat'l Collegiate Athletic Ass'n, 138 S. Ct. 1461 (2018).

promotes political accountability; and (3) it prevents Congress from shifting the costs of regulation to the states.[177]

In another of these anti-commandeering cases involving the Brady Handgun Violence Prevention Act, the Supreme Court amplified the political accountability and cost-shifting point when it noted:

> By forcing state governments to absorb the financial burden of implementing a federal regulatory program, Members of Congress can take credit for 'solving' problems without having to ask their constituents to pay for the solutions with higher federal taxes. And even when the States are not forced to absorb the costs of implementing a federal program, they are still put in the position of taking the blame for its burdensomeness and for its defects. . . . Under the present law, for example, it will be [the county sheriff involved in the litigation] and not some federal official who stands between the gun purchaser and immediate possession of his gun. And it will likely be [the sheriff], not some federal official, who will be blamed for any error (even one in the designated federal database) that causes a purchaser to be mistakenly rejected.[178]

Based on these arguments, the Court held that "[t]he Federal Government may neither issue directives requiring the States to address particular problems, nor command the States' officers, *or those of their political subdivisions*, to administer or enforce a federal regulatory program."[179]

Given the logic of the anti-commandeering cases, federal legislation granting authority to the SEC to undertake pre-offering review and/or to promulgate pre-offering disclosure mandates without concomitant federal funding could well face constitutional scrutiny. It would force state governments and their political subdivisions to absorb the financial burden of implementing a federal regulatory program and would command the states' officers, or those of their political subdivisions, to administer or enforce a federal regulatory program. Such legislation could also be subject to scrutiny under principles of state sovereign immunity, in light of issues regarding private rights of action.

There is an understandable logic in the desire to have components of the capital securities markets regulated similarly. When it comes to the municipal and corporate securities markets, however, that logic fails when countered with a nuanced understanding of the unique constitutional underpinnings of the municipal securities market. The call for further regulation of the municipal market is not grounded in market realities. Rather, it is largely a symmetrical solution in search of a problem.

E. Tax Law: Imposition of a Federal Income Tax, Reciprocal Immunity, South Carolina v. Baker and Evolution of the Current Approach

The United States Constitution, as originally adopted (including the Bill of Rights), barely addresses taxes that may be imposed by the national government. Congress is given the power to lay and collect taxes, duties, imposes, and excises to pay debts and provide for the common defense and general welfare of the country,[180] and "direct taxes"[181] must be apportioned among the several states according to their respective

177. *Id.* at 1477.

178. Printz v. United States, 521 U.S. 898, 930 (1997) (citations omitted).

179. *Id.* at 935 (emphasis added).

180. U.S. Const. art I, § 8; *see also id.* § 9, cl. 4.

181. This is hardly a clear term. The holding in *Pollock v. Farmers' Loan & Trust Co.*, 157 U.S. 429 (1894), discussed below, apparently rests, in part, upon a conclusion that a "direct tax" is a tax upon a person, while an "indirect

numbers (e.g., population).[182] By contrast, the states' reserved powers, including taxation, were recognized in the Tenth Amendment.[183]

The limits of the state's authority to impose taxes was at issue in the 1819 Supreme Court case *McCulloch v. Maryland*.[184] In that case, Chief Justice John Marshall held that the State of Maryland could not impose taxes on a congressionally chartered bank (the Second Bank of the United States) because the "power to tax involves, necessarily, a power to destroy."[185] Marshall stated that the creation of the bank was an appropriate and legitimate exercise of power by Congress pursuant to Article I, Section 8, of the Constitution and that, although the states retained the power of taxation, the Constitution and the laws made in pursuance thereof are supreme and cannot be controlled by the states. And so, the Supreme Court recognized the doctrine of mutual or reciprocal immunity.[186]

Although the doctrine of immunity recognized by *McCulloch* only applies to immunity of the federal government and was designed to prevent the states from destroying the federal government through taxation, it quickly led to an understanding of the mutual doctrine of immunity. In *Collector v. Day*,[187] the Court held that the taxing power of the national government could not be used to interfere with the essential workings of state governments and stated that a tax created by Congress on incomes of over $1,000 could not be imposed on a state judge in Massachusetts because it constituted a burden on an instrumentality of the state government.

As described earlier in this article, municipal bonds have been issued since the early 1800s, and the tax exemption for interest on municipal bonds predates the first Internal Revenue Code in 1913. The question of whether the federal government should tax interest on municipal bonds was first raised following the passage of the Wilson-Gorman Tariff Act of 1894, which imposed the first general income tax, including on interest income from state and local bonds. It has been argued[188] that the doctrine of mutual immunity was a basis for the decision in *Pollock v. Farmers' Loan & Trust Co.*, in which the Supreme Court held that the 1894 federal income tax was invalid as applied to income derived from municipal bonds. In fact, a close reading of *Pollock* suggests that the problem was that these taxes were a direct taxation scheme—taxes imposed upon persons and not property—and not properly apportioned among the states as required by Article I, Section 2.[189]

Nonetheless, *Pollock* created a problem for proponents of a federal income tax—if incomes taxes were required to be apportioned based upon population, one could readily imagine that the tax rate paid by

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tax" is a tax upon property. *See, e.g.*, Flint v. Stone Tracy Co., 220 U.S. 107 (1911) (holding that a tax on corporate income was an indirect tax).

182. U.S. Const. art I, § 2.

183. Apparently, the states also reserved the power to incur debt and to control how subsovereigns, such as cities and counties, incurred debt.

184. McCulloch v. Maryland, 17 U.S. 316 (1819).

185. *Id.* at 327.

186. Congress later provided for State non-discriminatory taxation on shares of national banks held by individuals. H.R. 395, 38th Cong. (1864).

187. Collector v. Day, 78 U.S. 113 (1870), *overruled by* Graves v. People of State of New York *ex rel.* O'Keefe, 306 U.S. 466 (1939); *see also* Ambrosini v. United States, 187 U.S. 1 (1902).

188. *See, e.g.*, Carter Glass, III, *A Review of Intergovernmental Immunities from Taxation*, 4 Wash & Lee L. Rev. 48 (1946).

189. Pollock v. Farmers' Loan and Trust Co., 158 U.S. 601, 695 (1871) (Brown, J., dissenting) (stating that the majority's "decision involves nothing less than the surrender of the taxing power to the moneyed class").

persons in states with higher per capita incomes would be less than the tax rate paid by persons in states with lower incomes and that national taxes would be perceived as being unfairly imposed. Accordingly, in 1913 the Sixteenth Amendment was proposed and adopted. The Sixteenth Amendment states that "[t]he Congress shall have the power to lay and collect taxes on incomes, from whatever source derived, without apportionment among the several States, and without regard to any census or enumeration."[190]

It was noted by several state governors at the time the Sixteenth Amendment was proposed that the language "from whatever source derived" might allow the federal government to impose taxes on income derived from municipal bonds, with some arguing that, if the language could be so interpreted, the amendment should be defeated.[191] The language "without apportionment among the several States" would have been sufficient to overrule *Pollock*. Still, the Sixteenth Amendment was adopted with the language "from whatever source derived," and there have been arguments since then as to whether the Sixteenth Amendment would override the concept of mutual immunity.[192] It is interesting to note that there was a proposal, commented on by Andrew Mellon, Secretary of the Treasury, to amend the Constitution to specifically permit Congress to tax municipal bonds, which was adopted by the House but defeated in the Senate in 1924.[193]

Over the next several decades, the doctrine of mutual immunity took a number of hits in the courts. Some of the decisions rested upon the taxed activity's remoteness from essential state or local governmental services, while other decisions focused on the relative burden imposed on the state or local government as a result of the tax. In *South Carolina v. United States*, the Supreme Court held that a federal liquor license tax could be imposed on a liquor dispensary system conducted by the State of South Carolina, apparently because the operation of package liquor stores was not an ordinary function of government.[194] In *Metcalf & Eddy v. Mitchell*, the Court held that the salary of an engineer employed by a state is subject to federal income taxation.[195] There, the Court noted that the taxing power of either a state or the federal government, when exercised in an admittedly necessary and proper manner, unavoidably has some economic effect upon the other. The Court concluded that the burden imposed upon the state was remote and could be ignored. Other cases drastically limited the immunity of states from federal taxation.[196] In *Helvering v. Gerhardt*, the Court, when discussing taxation of New York Port Authority employee salaries, said that it should be left to Congress to delineate the scope of a state's immunity from federal taxation and that any implied immunity from federal taxation should be narrowly limited.[197] Finally,

190. U.S. Const. amend XVI.

191. *See, e.g.*, Edward S. Corwin, *Constitutional Tax Exemption: The Power of Congress to Tax Income from State and Municipal Bonds*, 13 Nat'l Mun. Rev. 51, pt. 4 (1924). To complete the history lesson, it is important to note that, following adoption of the Sixteenth Amendment, the Revenue Act of 1913 (ch. 16, 38 Stat. 114), establishing the Internal Revenue Code, was adopted, excluding municipal bond interest from gross income for purposes of income taxation. The exclusion has remained a feature of the Internal Revenue Code ever since.

192. It is interesting to note that the doctrine arose in the context of trying to prevent the states from destroying the federal government, while the arguments that have been made against taxation of interest on municipal debt by the federal government are largely based on the idea that the federal government would otherwise destroy the states.

193. Andrew W. Mellon, Taxation: The People's Business ch.VIII (1924).

194. South Carolina v. United States, 199 U.S. 437 (1905).

195. Metcalf & Eddy v. Mitchell, 269 U.S. 514 (1925).

196. *See supra* text accompanying note 188.

197. Helvering v. Gerhardt, 304 U.S. 405 (1938); *see also* Graves v. People of State of New York *ex rel.* O'Keefe, 306 U.S. 466 (1938).

in *New York v. United States*, the Court ruled that the State of New York was not immune from taxes imposed by Congress upon mineral waters.[198]

As stated earlier, the Internal Revenue Code of 1913 provided a specific exemption from taxation of interest on state and local government bonds.[199] This exemption was carried through to the Internal Revenue Code of 1954 with little or no restrictions on the extent of the exemption. In the late 1960s, the section was amended to prevent states from borrowing funds at a lower tax-exempt interest rate for the purpose of (a) investing the proceeds at a higher taxable investment rate ("tax arbitrage") or (b) making loans for private business use ("industrial development bonds" or, later, "private activity bonds"), in each case with a slew of exceptions and special rules. However, these restrictions did not give rise to general concerns about the exempt status of municipal debt.

In 1982, however, the Internal Revenue Code of 1954 was amended by the Tax Equity and Fiscal Responsibility Act (TEFRA)[200] to, among other things, restrict the use of so-called "bearer bonds" in an effort to combat income-tax evasion and money laundering. Prior to TEFRA, corporate and government debt could be issued in "bearer" form, meaning that whoever possessed the bond was the owner and thus entitled to payment, and no record of ownership or transfer of ownership was required to be maintained. TEFRA restricted the ability of corporate debt issuers to deduct interest payments on bearer debt obligations and also imposed an excise tax on the unregistered obligation.[201] With regard to municipal bonds, TEFRA required that in order for interest on a municipal bond to be exempt, it must be issued in registered form.[202] The imposition of this seemingly minor restriction led to a challenge by the State of South Carolina and provided the opportunity for the Court to finally and directly address the ability of the federal government to tax interest derived from municipal bonds.

In *South Carolina v. Baker*, South Carolina brought suit against the federal government, claiming that the federal government did not have the power to tax interest on unregistered bearer bonds issued under TEFRA.[203] The state argued that its ability to issue tax-free bonds was guaranteed by *Pollock*. In a seven to one decision, the Court found that its decisions since *Pollock* had weakened *Pollock*, that *Pollock* should be explicitly overruled, and that state bond interest is not immune from a nondiscriminatory federal tax. The Court noted that TEFRA imposed no direct tax upon the states, but rather upon the bondholders, and that the tax was nondiscriminatory because the restrictions on unregistered bearer bonds were imposed upon private corporations and the federal government, as well as state governments.

Four attributes of the *South Carolina v. Baker* case are worthy of note and dissection: (1) the factual issue at hand; (2) the two distinct holdings; (3) the different perspectives of the justices comprising the majority; and (4) how the holdings fit in the constantly evolving fabric of constitutional law.

1. The *South Carolina v. Baker* decision includes the broad finding that a nondiscriminatory tax on the interest earned on state bonds does not violate the intergovernmental tax immunity doctrine.[204] At issue before the Court, however, was only the taxation of the interest on municipal bonds issued as unregistered bearer instruments. The Court noted that the TEFRA registration requirement was intended to address income tax evasion concerns posed by unregistered bearer bonds and that the

198. New York v. United States, 326 U.S. 572 (1946).
199. See *supra* note 191.
200. Pub. L. 97–248, 96 Stat. 324 (1982).
201. *Id.*
202. *Id.*
203. South Carolina v. Baker, 485 U.S. 505 (1988).
204. *Id.* at 526.

requirement encompassed debt obligations issued by the United States, states, and private corporations. The TEFRA provision was non-discriminatory and affected all unregistered debt obligations, not just municipal bonds.[205]

2. The *South Carolina v. Baker* decision has two separate holdings. The first is that the TEFRA registration requirement does not violate the Tenth Amendment by effectively compelling states to issue bonds in registered form.[206] The second holding is that taxing interest on unregistered state bonds does not violate the doctrine of intergovernmental tax immunity.[207]
3. The *South Carolina v. Baker* decision was 7–1, with the four-justice majority decision written by Justice Brennan, coupled with partial concurrences by Justices Scalia and Rehnquist whose perspectives were different. In his concurrence, Chief Justice Rehnquist observed that the conclusion that the TEFRA registration would have a *de minimis* impact on the states "should end, rather than begin, the Court's constitutional inquiry" and that "the Court unnecessarily casts doubt on the protective scope of the Tenth Amendment."[208] In his concurrence, Justice Stevens observes that "neither the Court's decision today nor what I have written in the past expresses any opinion about the wisdom of taxing the interest on bonds issued by state or local governments."[209]
4. The *South Carolina v. Baker* decision was issued just three years after the Court in *Garcia* overruled *National League of Cities*. The Court cites *Garcia* as holding that Tenth Amendment limits on congressional powers are structural and that states must find their protection through the national political process,[210] a holding that Justice Scalia did not read in *Garcia*. Fast-forward a decade and, regardless of its then-implied scope, the Court's decisions in *New York*[211] and *Printz*[212] walk *Garcia* back, establishing clear anti-commandeering limitations on Commerce Clause powers. Fast-forward to 2018, and the Court further flushes out the anti-commandeering standards in *Murphy v. NCAA*.[213]

It is clear the doctrine of full reciprocal tax immunity did not survive *South Carolina v. Baker* intact. What was historically viewed by some as a constitutionally protected municipal bond tax exemption became, at some level, merely a statutorily protected one. *South Carolina v. Baker* did not, however, change the fundamental structure of dual sovereignty in this country. In her dissent, Justice O'Connor, stated:

> The Court never expressly considers whether federal taxation of state and local bond interest violates the Constitution. Instead, the majority characterizes the federal tax exemption for state and local bond interest as an aspect of intergovernmental tax immunity, and it describes the decline of the intergovernmental tax immunity doctrine in this century. But constitutional principles do not depend upon the rise or fall of particular legal doctrines. This Court has a continuing responsibility "to oversee the Federal Government's compliance with its duty to respect the legitimate interests of the states." *Garcia, supra,* at 469 U.S. 581 (O'CONNOR, J., joined by Powell and REHNQUIST, JJ., dissenting).[214]

205. *Id.* at 508–10.
206. *Id.* at 515.
207. *Id.* at 526.
208. *Id.* at 529.
209. *Id.* at 528.
210. *Id.* at 512.
211. New York v. United States, 505 U.S. 144 (1992).
212. Printz v. United States, 521 U.S. 898 (1997).
213. *See supra* note 57 and accompanying text.
214. *Baker*, 485 U.S. at 530.

So, after *South Carolina v. Baker*, does anything remain of a constitutionally implied exemption for interest on municipal bonds from federal taxation? The immediate consequence of *South Carolina v. Baker* was confirmation of the federal requirement that only registered municipal bonds would have the benefit of tax exemption. Would the Court's decision have been the same if the question presented was full federal taxation of interest on all municipal bonds, thus leaving states and local governments unable to finance essential governmental improvements without diverting additional resources away from other governmental services to pay the increased interest costs? Does the "power to tax" really provide the unfettered "power to destroy" when applied in the dual sovereignty context? Would the current Supreme Court, with some members ostensibly following the lead of Justices Scalia, Rehnquist, and Stephens, resuscitate the implied exemption and draw a line against the full elimination of the federal income tax exemption for all municipal bonds?

It can be argued that the Sixteenth Amendment was not intended to specifically allow taxation of municipal bond interest given the speeches and writings at the time of its adoption and at the time of the proposed amendment specifically allowing Congress to tax municipal interest.[215] Nevertheless, the Sixteenth Amendment's language and its interpretations in the courts are mostly clear that in general terms, the Amendment means what its text says—that Congress may tax income "from whatever source derived."

IV. WHERE DOES THE MUNICIPAL MARKET GO FROM HERE?

As outlined in this article, the structure and regulation of the U.S. subsovereign debt market is largely the result of the power-sharing dual sovereignty envisioned by the framers of the U.S. Constitution. The deliberate tension inherent in this latticework generally creates a strong, counter-balanced governmental system, and its related subsidiarity generally creates efficient, effective, and locally endorsed taxing and spending decisions. Constitutional federalism protects this structure. Administrative federalism, the consideration of state input by federal agencies,[216] informally reinforces the strength that is built when state and national powers are deployed collaboratively.

The municipal bond market is strong,[217] but future demands on the market will arise from the need to make substantial investments in public infrastructure[218] to providing flexible funding for cash flow needs.

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215. *See, e.g.*, Evans v. Gore, 253 U.S. 245, 260–61 (1920):

> True, Governor Hughes of New York, in a message laying the amendment before the legislature of that state for ratification or rejection, expressed some apprehension lest it might be construed as extending the taxing power to income not taxable before, but his message promptly brought forth from statesmen who participated in proposing the amendment such convincing expositions of its purpose, as here stated, that the apprehension was effectively dispelled, and ratification followed.

216. Exec. Order No. 13,132, 3 C.F.R. 206 (1999) requires agencies to consult with states when developing regulations with federalism impacts. Some scholars argue that courts should limit deference to federal agencies made without such state input.

217. In its 2012 report entitled *Municipal Securities—Overview of Market Structure, Pricing and Regulation*, the United States Governmental Accountability Office estimated the size of the entire market for municipal securities at $3.7 trillion, with individuals holding seventy-fiver percent of the total debt outstanding. 2012 SEC Report, *supra* note 163. According to SIFMA, in comparison, the corporate bond market is approximately $4.0 trillion, and the entire corporate securities market is approximately $47.2 trillion. SIFMA, 2021 Capital Markets Fact Book (2021).

218. According to the Congressional Budget Office, in the decade from 2007 to 2016, states and local governments invested $64 billion (in 2017 dollars) in transportation and water infrastructure, averaging $43 billion in tax-exempt bonds, $9 billion in loans by state banks, $8 billion (in 2009–2010) in tax credit bonds, and $4 billion

Given the significant need for capital, structural and regulatory expansion of the market's financing mechanisms to address this need should be tailored to promote economic efficiency, market capacity, and reliable legal enforceability. A learned student of American history will understand that these ends are dependent on the combined, coordinated efforts of federal, state, and local governments.

Accordingly, any legislation or regulation to further shape municipal markets necessarily involves a nuanced analysis of dual sovereignty and a focus on the valuable benefits of encouraging core municipal bond market strengths. In *Preserving the Federal-State-Local Partnership: The Role of Tax-Exempt Financing*, an October 1989 report to Congressman Beryl F. Anthony, Jr. by the Anthony Commission on Public Finance, the Commission noted:

> The Anthony Commission believes the federal government should establish a policy to work with state and local governments in a partnership to provide public services. The federal government must recognize that its judicially unfettered power to control the tax exemption of state and local government bonds must be exercised with the full recognition of the impact on state and local taxpayers as well as on the federal Treasury. State and local governments cannot fulfil their responsibilities to provide public services and meet federal standards and mandates without the cooperation of the Congress and the Administration. Specifically, the federal government should preserve tax exemption so that public services and projects can be provided at the lowest possible cost.[219]

Homogenous corporatization of public finance is neither viable[220] nor optimal. After all, when states and municipal governments are able to effectively access an efficient municipal finance market and issue debt at an attractive cost, they are able to finance more infrastructure and programs than they could otherwise, relieving a burden on the United States government. In addition, it continues to allow the states to determine how best to operate and where best to apply the subsidy received from tax-exemption and registration exemption, to continue to operate as the laboratories of self-government across the nation.

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in federal credit programs. Cong. Budget Off., Federal Support for Financing State and Local Transportation and Water Infrastructure (2018), https://www.cbo.gov/system/files/2018-10/54549-InfrastructureFinancing.pdf. Despite these investments, the American Society of Civil Engineers has given the U.S. infrastructure a cumulative grade of C-. *2020 Infrastructure Report Card*, ASCE, www.infrastructurereportcard.org (last visited Nov. 29, 2022).

219. Anthony Commission on Public Finance, Preserving the Federal-State-Local Partnership: The Role of Tax-Exempt Financing 12 (1989).

220. As noted earlier, alignment of the municipal bond market with the corporate securities market is essentially untenable. Even if identical regulatory frameworks existed, the distinct constitutional nature of individual states and municipalities, as detailed in this article, means that identical bond markets could not exist. Public-private partnership transactions and municipal bankruptcy-remote transactions look quite different both from state to state, and between the United States and other countries. Public purpose and reserved powers doctrines inform the primary role of governments and would slow down corporatization.

Decarbonizing Decentralized Currency: How Decentralized Datacenter Overlay Zones Could Ensure Bitcoin Mining's Clean Transition to the United States

Kevin Philip Donovan*

Abstract

Written during the transition of Bitcoin mining power to the United States in the wake of China's Summer 2021 Bitcoin ban, this article explores how United States policymakers could incentivize Bitcoin miners to help, rather than hinder, United States climate and electricity goals. While Bitcoin mining's high electricity consumption has traditionally been seen as problematic from an environmental and grid reliability perspective, this article proposes a win-win solution for Bitcoin mining, the environment, and grid reliability by synergizing mining operations with renewable energy projects. Where Bitcoin miners require an abundance of inexpensive electricity, remote renewable energy projects—particularly wind farms—have the potential to produce excess electricity that is either unprofitable or risks grid overload. By implementing overlay zoning with the locational, renewable, and demand-response considerations that this article proposes, policymakers can incentivize electricity-intensive Bitcoin mining operations to co-locate near remote renewable energy projects, fostering a mutually beneficial relationship that will support, rather than threaten, United States climate and electricity goals.

I. Introduction

The past decade has seen an eruption of value in crypto currencies, with Bitcoin at the forefront, trading at a price of over $60,000 per coin at its peak in November 2021.[1] With this eruption in value has come a similarly drastic increase in the electricity demand required to manage the secured transactions for these cryptocurrencies, with Bitcoin also a leader in the amount of electricity needed to support its transactions.[2] Despite its growing popularity, Bitcoin's electricity consumption continues to be one of its top criticisms due to environmental concerns over the cryptocurrency's reliance on inexpensive and unclean energy sources (e.g., coal).[3] During the summer of 2021, China banned Bitcoin mining, citing environmental concerns as one of its reasons and creating a displacement of what was once seventy-five percent of

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1. *See* Kat Tretina & John Schmidt, *Top 10 Cryptocurrencies in November 2021*, Forbes (Nov. 1, 2021, 10:32 AM), https://www.forbes.com/advisor/investing/top-10-cryptocurrencies (recognizing Bitcoin as the top performing cryptocurrency with an over $1.7 trillion market cap, followed by Ethereum in second as a $520 billion market cap); *Bitcoin (BTC)*, NASDAQ (Dec. 13, 2021, 8:32 PM), https://www.nasdaq.com/market-activity/cryptocurrency/btc (reporting the price per coin of bitcoin at $68,205 on November 8, 2021).

2. Leigh Matthews, *The 15 Most Sustainable Cryptocurrencies for 2021*, LeafScore (Nov. 19, 2021), https://www.leafscore.com/blog/the-9-most-sustainable-cryptocurrencies-for-2021 (explaining how cryptocurrencies that use different proofing mechanisms from Bitcoin are more energy efficient).

3. Vaughn Golden, *Environmental Concerns Arise over Energy Needed to Mine Bitcoin*, NPR (May 7, 2021, 5:03 AM), https://www.npr.org/2021/05/07/994539614/environmental-concerns-arise-over-energy-needed-to-mine-bitcoin.

Bitcoin's mining capacity.[4] In the wake of China's ban, miners quickly relocated to the United States, with the country emerging as the top location for Bitcoin mining operations in the world.[5]

This transition to the United States brings with it some climate and electricity consumption concerns, as the United States' abundance of inexpensive fossil fuels poses an attractive energy option for Bitcoin miners relocating to the region.[6] While banning Bitcoin mining in the United States—or regulating it to the degree that effectively bans mining—might prevent mining operations from interfering with United States internal climate goals, Bitcoin's history of resiliency makes it likely that miners would simply relocate elsewhere, possibly to countries with less clean energy than the United States and, in turn, still threaten global climate goals that the United States has pledged to support.[7]

Fortunately, with its steady growth of renewable power sources and abundance of opportunities for clean, inexpensive electricity, the United States is uniquely positioned to transition Bitcoin's electricity use towards renewable energy.[8] Although the solution this article proposes will not solve Bitcoin's high-electricity-consuming tendencies, it likely will help mitigate the negative externalities of Bitcoin mining and lay a roadmap for policymakers to incentivize miners towards supporting, rather than hindering, United States electricity goals. Furthermore, there is also the potential that cryptocurrencies like Bitcoin could replace or modify traditional banking and financial institutions,[9] and, despite Bitcoin's high energy consumption, recent reports have suggested that the cryptocurrency's energy consumption is significantly less than the banking and gold industries, suggesting that if Bitcoin replaced traditional financial institutions, it may lead to less overall electricity consumption.[10]

This article explores Bitcoin mining's transition to the United States and answers three important questions: First, why does Bitcoin mining's transition to the United States pose a threat to United States climate and electricity goals? Second, in what ways can Bitcoin mining synergize with renewable energy development to support, rather than hinder, these goals? And third, how can policymakers incentivize Bitcoin miners towards this mutually beneficial outcome, rather than a reliance on fossil fuels?

This article aims to answer these questions in three parts: First, this article will explain why Bitcoin mining uses so much electricity, how it funds and locates its facilities, and the threat that Bitcoin mining

4. Alun John et al., *U.S. Becomes Largest Bitcoin Mining Centre After China Crackdown*, Reuters (Oct. 19, 2021), https://www.reuters.com/technology/us-becomes-largest-bitcoin-mining-centre-following-china-ban-2021-10-13.

5. *See* John et al., *supra* note 4.

6. *See infra* Section II.C.

7. Umberto Bacchi & Beh Lih Yi, *Analysis: China's Bitcoin Crackdown Sparks Fears of Dirtier Cryptomining*, Reuters (June 28, 2021, 8:07 PM), https://www.reuters.com/article/us-crypto-currency-china-climate-analysi/analysis-chinas-bitcoin-crackdown-sparks-fears-of-dirtier-cryptomining-idUSKCN2E5037 (predicting that, after China's ban, "cryptocurrency production will pick up elsewhere as Chinese miners sell off their machines or seek refuge abroad—often in countries with less renewable energy").

8. *See infra* Section III.

9. *See How Blockchain Could Disrupt Banking*, CB Insights (Feb. 11, 2021), https://www.cbinsights.com/research/blockchain-disrupting-banking (highlighting how cryptocurrency technology has "a massive opportunity to disrupt the $5T+ banking industry by disintermediating the key services that banks provide").

10. Namcios, *Research: Bitcoin Consumes Less Than Half The Energy of the Banking or Gold Industries*, Nasdaq (May 17, 2021, 2:14 PM), https://www.nasdaq.com/articles/research%3A-bitcoin-consumes-less-than-half-the-energy-of-the-banking-or-gold-industries (reporting on Bitcoin's energy consumption (113.89 TWh per year) compared to banking (263.72 TWh per year) and gold (240.61 TWh per year)); *see also Cambridge Bitcoin Electricity Consumption Index: Comparisons*, Univ. of Cambridge, https://ccaf.io/cbeci/index/comparisons (last visited Nov. 23, 2021).

operations pose to United States climate and electricity goals if policymakers do not intervene.[11] Second, this article will explore how Bitcoin mining operations can work in mutual benefit with renewable energy development and, in particular, wind energy, mitigating Bitcoin's threat to climate and electricity goals.[12] Third, this article will propose the implementation of Decentralized Datacenter Overlay Zones as an actionable solution for incentivizing Bitcoin mining towards a mutually beneficial, clean energy transition to the United States.[13]

II. A Bit of a Problem for the United States

A form of cryptocurrency, Bitcoin was designed as "an alternative payment system that would operate free of central control but otherwise be used just like traditional currencies."[14] By implementing block chain technology that is verified through a decentralized network of "miners," Bitcoin aims to ensure the integrity of its digital currency and its transactions through a proofing mechanism conducted by these miners.[15] While Bitcoin was initially met with skepticism and primarily viewed as a tool to avoid government involvement in criminal black market dealings, the cryptocurrency has rapidly grown in value and prominence.[16] Over the past eleven years, Bitcoin has grown from a price per coin of $0.08 in July 2010 to commanding a price of $68,205 on November 8, 2021.[17] It has evolved from attracting criminals to attracting large institutional investors like BlackRock and Fidelity[18] and from being viewed as purely speculative to being listed on the New York Stock Exchange as a futures exchange-traded fund.[19]

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11. *See infra* Section II.

12. *See infra* Section III.

13. *See infra* Section IV.

14. Matthew Sparkes, *What Is Bitcoin and How Does It Work?*, NewScientist, https://www.newscientist.com/definition/bitcoin (last visited Oct. 28, 2021); the founder of Bitcoin, operating under the alias Satoshi Nakamoto, "explicitly stated that the reason for creating this digital cash system is to remove the third party intermediaries that are traditionally required to conduct digital monetary transfers." Mac, *Why Was Bitcoin Created?*, Medium (Oct. 14, 2017), https://medium.com/bitcoin-blockchain-explained/why-was-bitcoin-created-20ab3a65d952.

15. *See infra* Section II.A.

16. Hailey Lennon, *The False Narrative of Bitcoin's Role in Illicit Activity*, Forbes (Jan. 19, 2021, 9:37 PM), https://www.forbes.com/sites/haileylennon/2021/01/19/the-false-narrative-of-bitcoins-role-in-illicit-activity/?sh=34d9d4163432 (detailing that, despite popular misconception, "[i]n 2020, the criminal share of all cryptocurrency activity fell to just 0.34%").

17. John Edwards, *Bitcoin's Price History*, Investopedia (Sept. 21, 2021), https://www.investopedia.com/articles/forex/121815/bitcoins-price-history.asp.

18. *See* Lawrence Wintermeyer, *Institutional Money Is Pouring into the Crypto Market and It's Only Going to Grow*, Forbes (Aug. 12, 2021, 4:10 PM), https://www.forbes.com/sites/lawrencewintermeyer/2021/08/12/institutional-money-is-pouring-into-the-crypto-market-and-its-only-going-to-grow/?sh=369e51c71459 (describing the "eye-watering $17 billion worth of capital flooding into the [crypto] space this year alone"); *see also* Anthony Tellez, *Fidelity Buys 7.4% of Bitcoin Mining Company Marathon Digital Holdings Across Multiple Funds*, Forbes (Aug. 4, 2021, 2:43 PM), https://www.forbes.com/sites/anthonytellez/2021/08/04/fidelity-buys-74-of-bitcoin-mining-company-marathon-digital-holdings-across-multiple-funds/?sh=1433303f26f2.

19. Greg Iacurci, *Bitcoin Futures ETF May Be a Costly Way to Get Long-Term Crypto Exposure*, CNBC (Oct. 27, 2021), https://www.cnbc.com/2021/10/27/bitcoin-futures-etf-may-be-a-costly-way-to-get-long-term-crypto-exposure.html (reporting on ProShares' Bitcoin ETF as "the second-biggest trading debut for any ETF on record when it launched Oct. 19"). Bitcoin was even adopted as legal tender in El Salvador in September 2021. Joe Hernandez, *El Salvador Just Became the First Country to Accept Bitcoin as Legal Tender*, NPR (Sept. 7, 2021, 4:57 PM), https://www.npr.org/2021/09/07/1034838909/bitcoin-el-salvador-legal-tender-official-currency-cryptocurrency.

While this article does not provide an analysis of Bitcoin's impressive growth trajectory or ability to overcome setbacks, recognizing Bitcoin's resiliency is an important factor for understanding how it poses a threat to United States climate and electricity goals, as the cryptocurrency is not likely to go away any time soon and may operate at a price that is not necessarily reflected in its cost. This section lays the initial framework for this understanding by first explaining why Bitcoin uses so much electricity. Next, this section will explore the economics of Bitcoin mining, the political and economic factors pushing Bitcoin mining operations to the United States, and why this transition threatens United States climate and electricity goals.

A. Bitcoin's Insatiable Appetite for Electricity

Over the past decade, Bitcoin's electricity consumption has grown to more than 121.36 terawatt-hours (TWh) per year—more than half of a percent of the entire world's electricity use.[20] This level of electricity consumption is more than the consumption of "Argentina (121 TWh), the Netherlands (108.8 TWh), and the United Arab Emirates (113.20 TWh),"[21] and is so much that "the processes involved in a single Bitcoin transaction could provide electricity to a British home for a month."[22] Bitcoin's high electricity consumption is ingrained in its own design and can be largely attributed to the process that it requires to verify transactions and incentive mechanisms that it provides to miners.[23] In fact, "Bitcoin's own website claims that 'Bitcoin Mining is intentionally designed to be resource-intensive and difficult so that the number of blocks found each day by miners remains steady over time, producing a controlled finite monetary supply.'"[24]

The electricity-intensive process that Bitcoin uses to verify transactions is the proof-of-work consensus mechanism, which requires a decentralized network of computers (miners) to complete math problems until one computer correctly guesses a sixty-four-digit hexadecimal number (hash).[25] Once this number is discovered by one miner, it is then easily verified by the other miners, confirming a set of Bitcoin transactions in the process and awarding a set number of new Bitcoin currency and transaction fees to

20. Cristina Criddle, *Bitcoin Consumes 'More Electricity Than Argentina*,' BBC News (Feb. 10, 2021), https://www.bbc.com/news/technology-56012952.

21. *Id.*; Argentina has a population of over forty-five million people, implying that Bitcoin utilizes more power than forty-five million people. *Population, Total – Argentina*, World Bank, https://data.worldbank.org/indicator/SP.POP.TOTL?locations=AR (last visited Oct. 28, 2021).

22. Jon Truby, *Decarbonizing Bitcoin: Law and Policy Choices for Reducing the Energy Consumption of Blockchain Technologies and Digital Currencies*, 44 Energy Res. & Soc. Sci. 399, 399 (2018) (footnotes omitted). "The average energy consumption for one single Bitcoin transaction in 2021 could equal several hundreds of thousands of VISA card transactions." Raynor de Best, *Energy Consumption of a Bitcoin (BTC, BTH) and VISA Transaction as of October 2021*, Statista (Oct. 21, 2021), https://www.statista.com/statistics/881541/bitcoin-energy-consumption-transaction-comparison-visa.

23. Audrey Carroll, *The Other Side of the (Bit)Coin: Solutions for the United States to Mitigate the Energy Consumption of Cryptocurrency*, 12 Geo. Wash. J. Energy & Env't L. 53, 56 (2021).

24. *See* Truby, *supra* note 22, at 401.

25. Jake Frankenfield, *Proof of Work (PoW)*, Investopedia (July 22, 2021), https://www.investopedia.com/terms/p/proof-work.asp. The network is decentralized not only in that mining operations are neither co-located nor governed by any single authority, but also in that any person who buys computer hardware capable of mining and downloads free mining software that enables their hardware to mine can be a Bitcoin miner. *See Bitcoin Mining Guide - Getting Started with Bitcoin Mining*, Bitcoinmining.com, https://www.bitcoinmining.com/getting-started (last visited, Nov. 11, 2021). Due to the power requirements necessary to have a feasible chance of mining a Bitcoin, however, many miners join mining pools to increase their odds. *See id.*

the first miner that guessed the correct hash.[26] While mining Bitcoin was once a process that could be accomplished by a home computer, Bitcoin's mining algorithm increases the difficulty of this guess work as more miners enter the network, ensuring approximately one hash is solved every ten minutes.[27]

This increase in difficulty has led to only high-electricity-consuming, advanced mining computers being able to solve a hash, and, due to Bitcoin's winner-takes-all incentive mechanism, the more computers utilized (and more electricity expended), the more likely a miner will be rewarded.[28] By requiring large amounts of energy to verify a single transaction, Bitcoin prevents any single miner from double-spending a coin.[29] By making it economically unfeasible that any single miner could ever control fifty-one percent or more of the computing power required to verify transactions, Bitcoin mitigates the risk that any single miner could reproduce the digital information in a coin and deceptively spend the same Bitcoin twice, thus preventing "double-spending."[30] Although less electricity intensive proofing mechanisms exist in other cryptocurrencies,[31] due to Bitcoin's decentralized nature, changing it would require "the cooperation of nearly all its users," and therefore it is unlikely that Bitcoin will change to a less energy intensive proofing mechanism.[32]

Bitcoin's anti-inflationary nature further adds to its price per coin and thus incentive for mining. When Bitcoin was first created, "miners would earn 50 bitcoins" for every successful hash guessed.[33] This payout for mining is the only way "to release new cryptocurrency into circulation"[34] and is halved every four years, meaning that, as of "May 11, 2020, just 6.25 new [Bitcoin] are created" with every hash correctly guessed.[35] While this halving may result in a lower mining yield, halving has consistently correlated with massive increases in price per coin.[36] Despite lower yield for miners, higher Bitcoin price from decreased market supply leads to higher transaction fees, with miners now earning a single Bitcoin in transaction

26. Jacob Huston, *The Energy Consumption of Bitcoin Mining and Potential for Regulation*, 11 Geo. Wash. J. Energy & Env't L. 32, 34 (2020).

27. Euny Hong, *How Does Bitcoin Mining Work?*, Investopedia (May 5, 2022), https://www.investopedia.com/tech/how-does-bitcoin-mining-work.

28. *See* Huston, *supra* note 26 (describing how the advent of application specific integrated circuit (ASIC) miners has made it infeasible for standard computers to successfully mine for Bitcoin).

29. Jake Frankenfield, *Understanding Double-Spending and How to Prevent Attacks*, Investopedia (June 30, 2020), https://www.investopedia.com/terms/d/doublespending.asp.

30. *Id.*

31. *See* Carroll, *supra* note 23, at 56–57 (explaining why other proofing mechanisms like proof-of-stake and proof-of-authority utilize less electricity than proof of work).

32. *Can Bitcoin be Regulated?*, Bitcoin.org, https://bitcoin.org/en/faq#can-bitcoin-be-regulated (last visited Oct. 27, 2021).

33. John Divine & Mark Reeth, *What Is Bitcoin Halving and Why Does It Matter?*, US News (Feb. 26, 2021), https://money.usnews.com/investing/investing-101/articles/bitcoin-halving-101-what-is-it-and-why-does-it-matter.

34. Hong, supra note 27 (referring to miners as "basically "minting" currency").

35. *See* Divine, *supra* note 33.

36. *See id.* ("The first halving occurred on Nov. 28, 2012, when the price of a Bitcoin was a mere $12—one year later, Bitcoin had skyrocketed to around $1,000. On July 9, 2016 the second halving took place—Bitcoin had fallen to $670 per coin by then, but it shot up to $2,550 by July 2017. In December of that year, Bitcoin peaked at a then all-time high of roughly $19,700.").

fees alone.[37] As the value of Bitcoin rises, the profitability of mining increases, and "it is expected that [electricity] consumption will continue to rise as the price rises."[38]

B. Bitcoin Economics

Understanding the economics of Bitcoin is not only necessary to understand why the cryptocurrency uses so much electricity but is also necessary to understand how to correctly incentivize miners towards renewables via the Decentralized Datacenter Overlay Zones that this article proposes below. While transaction fees and the reward of newly minted Bitcoin are the financial incentives for mining,[39] electricity cost, facility costs, and mining hardware costs are the primary expenditures associated with Bitcoin mining.[40] This article will focus on the first two expenditures, electricity cost and facility costs, as they provide policymakers with the best opportunity to incentivize miners towards renewables.

Electricity cost is the "key driver" in Bitcoin mining operations,[41] and studies have reported that an electricity price average of approximately $0.05 per kilowatt hour is necessary to remain profitable in mining operations.[42] With the average electricity price across all sectors in the United States being $0.1165 per kilowatt hour in August 2021,[43] Bitcoin miners would be unprofitable without special deals or incentives to operate.[44] As explored below, revived coal mines and flared natural gas are enticing options for profitable electricity rates for miners in the United States;[45] however, low-cost renewables like wind energy could also provide profitable electricity rates for miners.[46]

"[C]limate, cost of electricity, distance to a power station, and lastly, whether or not there are opportunities to partner with the local government" are all important factors in determining the ideal location for a Bitcoin mining facility.[47] After China banned Bitcoin mining,[48] finding hosting facilities has become the biggest struggle for miners because of the time and difficulty it takes to build the "massive co-location data center[s]" required for mining.[49] Facility costs can include "overheads for the maintenance of the mining farm, such as infrastructure costs and cooling facilities,"[50] but also includes the cost of

37. Liam Frost, *Bitcoin Miners Now Earn 1 BTC in Fees Per Block*, Decrypt (Feb. 15, 2021), https://decrypt.co/57740/bitcoin-miners-now-earn-1-btc-in-fees-per-block.

38. *See* Truby, *supra* note 22, at 405 (footnote omitted).

39. *See supra* Section II.A.

40. Yo-Der Song & Tomaso Aste, *The Cost of Bitcoin Mining Has Never Really Increased*, Frontiers Blockchain, Oct. 22, 2020, at 3.

41. *Id.*

42. *See* Criddle, *supra* note 20; *see also* Malcolm Cannon & Jordan Tuwiner, *Is Bitcoin Mining Profitable or Worth It in 2021?*, Buy Bitcoin Worldwide (Sept. 6, 2021), https://www.buybitcoinworldwide.com/mining/profitability.

43. *Electric Power Monthly*, U.S. Energy Info. Admin. (Aug. 2021), https://www.eia.gov/electricity/monthly/epm_table_grapher.php?t=epmt_5_6_a (listing the average price per kilowatt hour as $0.1399 for residential, $0.116 for commercial, and $0.0765 for industrial customers).

44. *See* Cannon & Tuwiner, *supra* note 42 (explaining that "with the typical home electricity price in the USA, of $0.12 kWh, you would be running [Bitcoin mining] machines at a loss").

45. *See infra* Section II.C.

46. *See infra* Section III.

47. Eva Xiao, *Cheap Electricity Made China the King of Bitcoin Mining. The Government's Stepping In.*, Tech in Asia (Aug. 22, 2017), https://www.techinasia.com/inner-mongolia-bitcoin-mine.

48. *See infra* Section II.C.

49. *Bitcoin Miners Thwarted by Data Center Crunch*, Bloomberg (July 7, 2021), https://www.datacenterknowledge.com/business/bitcoin-miners-thwarted-data-center-crunch.

50. *See* Song & Aste, *supra* note 40.

permitting and siting a mining facility. A major cost for any datacenter is building permits and taxes,[51] and difficulties in obtaining local permits can be severe enough to cause mining operations to go bankrupt from inability to build or expand.[52]

As explored below, the economics of Bitcoin pose a potential threat to United States climate and electricity goals when drawn towards inexpensive fossil fuel sources for power,[53] but also can pose a solution when utilized to bolster renewable energy development.[54] The decentralized nature of Bitcoin mining operations affords policymakers and utilities the opportunity to offer lower electricity prices for demand response that would not be available with other high-electricity-consuming operations.[55] The financial burden of siting mining facilities also can be leveraged by policymakers to incentivize building facilities in areas that mitigate negative externalities while also collocating near clean energy sources.[56] This article will explore these solutions in depth below and propose Decentralized Datacenter Overlay Zones as a means for policymakers to accomplish these mutually beneficial goals.

C. A Potentially Problematic Transition to the United States

Bitcoin's progressively increasing electricity consumption from its skyrocketing price per coin has resulted in political backlash in former mining centers, making the United States the successor home for Bitcoin mining. In September 2021, "Chinese regulators declared that all crypto transactions and services were banned in the country."[57] After accounting for 75% of all Bitcoin computing power in 2019, by Summer 2021 China's Bitcoin power consumption had fallen to zero.[58] The United States has quickly grown its share of mining power in China's stead and "now accounts for the largest share of mining, some 35.4% of the global hash rate as of the end of August [2021]."[59] Miners are flocking to the United States for its "geographic, political, and jurisdictional stability[,]" along with its abundance of inexpensive electricity powered by renewables and fossil fuels.[60]

Though this migration to the United States poses opportunity for new industry and the economic growth and revenue that comes with it, Bitcoin mining also brings numerous environmental risks due to its high electricity consumption. Because electricity is one of the only costs involved in mining for Bitcoin, operations are typically drawn to inexpensive sources of power, which can lead miners to rely

51. *Data Center Costs*, OnePartner, https://www.onepartner.com/data-center-costs (last visited Oct. 27. 2021) (estimating the cost for data centers would be "$70 per square foot in building permits and local taxes," though noting that costs would vary significantly by location).

52. Martin Kidston, *Missoula County Clamps Down on Crypto Mining; Requires 100% New Renewable Power*, 8KPAX (Feb. 12, 2021, 11:23 AM), https://www.kpax.com/news/missoula-county/missoula-county-clamps-down-on-crypto-mining-requires-100-new-renewable-power (quoting a Bitcoin mining company's site manager stating that "[b]ecause millions were lost on expansion that we couldn't complete under emergency zoning, Hyperblock didn't have the reserves to sustain the cut in revenue, which ultimately led to bankruptcy").

53. *See infra* Section II.C.

54. *See infra* Section III.

55. *See infra* Section IV.

56. *See infra* Section IV.

57. Zheping Huang, *China's Biggest Crypto Platform Knows There's No Going Home*, Bloomberg (Oct. 5, 2021, 12:48 AM), https://www.bloomberg.com/news/articles/2021-10-05/china-s-biggest-crypto-platform-knows-there-s-no-going-home.

58. *See* John, *supra* note 4.

59. *See id.*

60. MacKenzie Sigalos, *How the U.S. Became the World's New Bitcoin Mining Hub*, CNBC (July 17, 2021, 9:43 AM), https://www.cnbc.com/2021/07/17/bitcoin-miners-moving-to-us-carbon-footprint.html.

on inexpensive fossil fuels, like coal and natural gas, to power operations when renewables cannot meet demand.[61] This reliance on fossil fuels has been poorly received by many past supporters, with Tesla halting cryptocurrency payments for its electric vehicles in May of 2021 due to environmental concerns, despite purchasing $1.5 billion in Bitcoin earlier that year.[62] During its crackdown on Bitcoin, China also stated environmental concerns as one of its reasons for implementing its ban, as the country saw demand for coal energy rise in areas where mining activity was concentrated.[63]

As Bitcoin mining transitions to the United States, inexpensive electricity suitors have already begun to threaten the country's climate goals. In states like Pennsylvania, New York, and Montana, struggling coal power plants have been revitalized by digital mining companies like Stronghold Digital Mining.[64] Stronghold's current coal power plant acquisition in Pennsylvania powers 1,800 cryptocurrency mining computers, and the company "plans to operate 57,000 miners by the end of 2022" by buying two additional coal waste power plants in the region.[65] In the wake of China's ban, the United States' oil and gas executives have also begun to take a direct interest in Bitcoin mining, having staged a meeting with "200 oil and gas execs and bitcoin miners" in August 2021.[66] Discussions at this meeting included utilizing Bitcoin mining to consume otherwise flared gas, as Bitcoin is a readily available consumer that does not require the construction of long pipelines.[67] Though Bitcoin mining could be seen as a solution for otherwise wasted natural gas, a mitigator of greenhouse gas emissions from flaring, and a way to make

61. *See* Criddle, *supra* note 20 (noting Bitcoin's average electricity price of $0.05 per kilowatt hour); Vaughn Golden, *Environmental Concerns Arise over Energy Needed to Mine Bitcoin*, NPR (May 7, 2021, 5:03 AM), https://www.npr.org/2021/05/07/994539614/environmental-concerns-arise-over-energy-needed-to-mine-bitcoin (explaining how Bitcoin's demand for power has led to a natural gas powerplant producing electricity solely dedicated to Bitcoin mining in New York).

62. Peter Hoskins, *Tesla Will No Longer Accept Bitcoin over Climate Concerns, Says Musk*, BBC (May 13, 2021), https://www.bbc.com/news/business-57096305 (quoting Tesla CEO Elon Musk stating that "Cryptocurrency is a good idea . . . but this cannot come at great cost to the environment").

63. Alfred Chang et al., *China's Crypto Mining Crackdown Followed Deadly Coal Accidents*, Bloomberg (May 25, 2021, 10:31 PM), https://www.bloomberg.com/news/articles/2021-05-26/china-s-crypto-mining-crackdown-followed-deadly-coal-accidents. There is also speculation that China banned Bitcoin because it "wants to run its own digital currency, their digital yuan." Kenneth Rapoza, *China's Bitcoin Mining Drama Is Over. Why Is Bitcoin Still a Dud?*, Forbes (June 18, 2021), https://www.forbes.com/sites/kenrapoza/2021/07/18/chinas-bitcoin-mining-drama-is-over-why-is-bitcoin-still-a-dud/?sh=338cc3d83e9e.

64. Olivia Solon, *Bitcoin Miners Align with Fossil Fuel Firms, Alarming Environmentalists*, NBC News (Sept. 25, 2021, 5:00 AM), https://www.nbcnews.com/tech/tech-news/bitcoin-miners-align-fossil-fuel-firms-alarming-environmentalists-n1280060; *see also* Brian Spegele & Caitlin Ostroff, *Bitcoin Miners Are Giving New Life to Old Fossil-Fuel Power Plants*, Wall St. J. (May 21, 2021, 7:00 AM), https://www.wsj.com/articles/bitcoin-miners-are-giving-new-life-to-old-fossil-fuel-power-plants-11621594803 (identifying an upstate New York coal power plant that "has been restarted, fueled by natural gas, to mine cryptocurrency. A once struggling Montana coal plant is now scaling up to do the same.").

65. Solon, *supra* note 64. Stronghold's burning of coal waste is not seen as all bad, however, and while it does add CO2 emissions into the atmosphere, "the state has decided it's better to have carbon dioxide emitted by a gob-burning power plant than to leave the stuff in polluting pits." Chris Helman, *'Green Bitcoin Mining': The Big Profits in Clean Crypto*, Forbes (Aug. 21, 2021, 6:03 AM), https://www.forbes.com/sites/christopherhelman/2021/08/02/green-bitcoin-mining-the-big-profits-in-clean-crypto/?sh=22dc5f3934ce.

66. MacKenzie Sigalos, *Bitcoin Miners and Oil and Gas Execs Mingled at a Secretive Meetup in Houston – Here's What They Talked About*, CNBC (Sept. 4, 2021, 8:33 AM), https://www.cnbc.com/2021/09/04/bitcoin-miners-oil-and-gas-execs-talk-about-natural-gas-mining.html.

67. *Id.*

flared gas profitable,[68] the cryptocurrency partnering with oil and gas companies raises concerns given the carbon emissions that fossil fuels release when compared to renewables.[69]

1. Federal and State Climate and Electricity Goals at Risk. A primary concern with Bitcoin's transition to the United States is the likelihood of its interference with the country's federal and state climate and electricity goals to reduce greenhouse gas emissions, transition to renewable energy sources, and conserve electricity.[70] While it is possible for Bitcoin to aid in these goals, given miners' current disposition towards cheap and readily available fossil fuels, it will likely be necessary for policymakers to incentivize miners towards renewable energy sources to protect climate goals. This section explores the different federal and state climate and electricity objectives threatened by the transition of Bitcoin mining operations to the United States.

By rejoining the Paris Agreement on his first day in office, President Biden signaled that the United States was refocused on its goal of "reaching net zero emissions economy-wide by no later than 2050."[71] Aimed at accomplishing this objective, in his first 100 days in office, President Biden announced "a new target for the United States to achieve a 50–52 percent reduction from 2005 levels in economy-wide net greenhouse gas pollution in 2030."[72] Though concrete federal mandates for reduced carbon emissions are lacking, the Biden administration's perhaps most concrete action towards achieving its pledges for reduced emissions is the $1.2 trillion Infrastructure Investment and Jobs Act that was signed into law on November 15, 2021.[73] This Act demonstrates the federal government's commitment to lowering carbon emissions by allocating funding to numerous renewable energy projects, including "$500 million for five clean energy demonstration projects" and "$6 billion in funding for battery storage."[74]

Separate from the federal government's carbon emissions policy, the objectives of the long-standing Energy Policy and Conservation Act of 1975, as amended, are also threatened by Bitcoin's electricity appetite.

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68. *Id.* (explaining how flares of natural gas are "only 75 to 90% efficient," whereas "[w]hen the methane is run into an engine or generator, 100% of the methane is combusted and none of it leeks or vents into the air").

69. *Natural Gas Explained*, U.S. Energy Info. Admin. (Sept. 24, 2020), https://www.eia.gov/energyexplained/natural-gas/natural-gas-and-the-environment.php ("About 117 pounds of carbon dioxide are produced per million British thermal units (MMBtu) equivalent of natural gas compared with more than 200 pounds of CO2 per MMBtu of coal and more than 160 pounds per MMBtu of distillate fuel oil.").

70. Renee Cho, *Bitcoin's Impacts on Climate and the Environment*, Colum. Climate Sch. (Sept. 20, 2021), https://news.climate.columbia.edu/2021/09/20/bitcoins-impacts-on-climate-and-the-environment (referencing Bitcoin's power consumption having "dire implications for climate change and achieving the goals of the Paris Accord because it translates into an estimated 22 to 22.9 million metric tons of CO2 emissions each year—equivalent to the CO2 emissions from the energy use of 2.6 to 2.7 billion homes for one year").

71. Press Release, White House, Fact Sheet: President Biden Sets 2030 Greenhouse Gas Pollution Reduction Target Aimed at Creating Good-Paying Union Jobs and Securing U.S. Leadership on Clean Energy Technologies (Apr. 22, 2021), https://www.whitehouse.gov/briefing-room/statements-releases/2021/04/22/fact-sheet-president-biden-sets-2030-greenhouse-gas-pollution-reduction-target-aimed-at-creating-good-paying-union-jobs-and-securing-u-s-leadership-on-clean-energy-technologies.

72. *Id.*

73. *See* Infrastructure Investment and Jobs Act, H.R. 3684, 117th Cong. (2021).

74. *See* Merrill Kramer, *Key Energy Provisions in Biden Administration $1.2 Trillion Infrastructure Investment and Jobs Act*, Nat'l L. Rev. (Nov. 17, 2021), https://www.natlawreview.com/article/key-energy-provisions-biden-administration-12-trillion-infrastructure-investment-and; *see also* Jesse D. Jenkins & Erin Mayfield, *Section-by-Section Summary of Energy and Climate Policies in the 117th Congress*, Princeton U. Zero Lab (last updated Aug. 2022), http://bit.ly/REPEAT-Policies.

As stated in 42 U.S.C. § 6201, part of this Act's purpose is the conservation of energy supplies and improvement of energy efficiency.[75] Congressional actions under this Act include the Corporate Average Fuel Economy standards that aim to conserve energy resources specifically through the automobile industry.[76] Welcoming Bitcoin's high-energy-consuming operations in the United States not only threatens carbon emissions goals, but also saps the nation of the very resources that it has long been trying to conserve.

At the state level, Renewable Portfolio Standards (RPS) often govern renewable objectives, with thirty states having implemented an RPS or other renewable/clean energy requirement.[77] RPS policies vary by state, with some states mandating utilities derive a certain amount of electricity from renewable or clean energy sources, whereas other states' RPS policies are simply suggestive.[78] Most states' requirements are listed in terms of a percentage of total energy produced,[79] with states like New York requiring that "the statewide electrical demand system will be zero emissions" by the year 2040.[80] These states will face challenges integrating Bitcoin mining operations into their RPS policies as they absorb growing mining operations. For example, New York's 2040 objectives conflict with fossil fuel powerplants recently restarted in upstate New York to fuel Bitcoin mining operations.[81]

In addition to RPSs, some states also have Energy Storage Target Solution (ESTS) goals. California, Oregon, New Jersey, New York, Nevada, and Virginia all have ESTS mandates or goals.[82] Energy storage can provide numerous benefits to state electric grids, including electricity supply and grid operations. In particular, states view energy storage goals as "necessary complements to state clean energy and environmental policies" by ensuring grid reliability.[83] As explained more below, Bitcoin's insatiable appetite for electricity paired with its decentralized nature makes it capable of ramping up and down electricity demand to assist with these goals by allowing for intermittent electricity sources to be added to the grid that might not directly correlate with peak demand.[84]

2. *Localized Issues with Bitcoin Mining Operations*. Beyond conflicts with state and federal policy objectives and climate standards, Bitcoin mining operations also have the potential to pose problems for the communities within which they reside. Many localities have local comprehensive climate plans with objectives similar to state RPS, like percentage reduction in greenhouse gas emissions and percentage requirements for renewable electricity,[85] and, as with state governments, Bitcoin mining's reliance on fossil

75. *See* 42 U.S.C. § 6201.

76. *See* Baruch Feigenbaum & Julian Morris, CAFE Standards in Plain English (Reason Found., 2017).

77. *State Renewable Portfolio Standards and Goals*, Nat'l Conf. State Legis. (Aug. 13, 2021), https://www.ncsl.org/research/energy/renewable-portfolio-standards.aspx.

78. Troy A. Rule, Renewable Energy: Law, Policy and Practice 133 (2008).

79. *See* Nat'l Conf. State Legis., *supra* note 77.

80. S.B. 6599, S. Assemb., 2019–2020 Reg. Sess., § 66-P (2) (N.Y. 2019).

81. *See* Spegele & Ostroff, *supra* note 64 (identifying an upstate New York coal power plant that "has been restarted, fueled by natural gas, to mine cryptocurrency").

82. Jason Burwen, *Energy Storage Goals, Targets, Mandates: What's the Difference?*, Energy Storage Ass'n (Apr. 24, 2020), https://energystorage.org/energy-storage-goals-targets-and-mandates-whats-the-difference.

83. *Id.*

84. *See infra* Section III.B.

85. *See, e.g.*, *Land Use Tool: Climate Plan*, Planning For Hazards, https://planningforhazards.com/climate-plan (last visited Nov. 24, 2021) (outlining the City of Denver's 2018 80x50 Climate Action Plan as an example of local comprehensive climate planning, where Denver's targets were to reduce carbon emissions by eighty percent by 2050 and achieve one hundred percent renewable electricity in municipal facilities by 2025, among other targets).

fuels would interfere with these goals.[86] Beyond the effects that mining can have on climate and electricity goals, however, localities must also deal with the localized negative externalities of mining facilities.

Missoula County, Montana, presents an excellent study of these negative externalities of Bitcoin mining, as the county has faced numerous issues over the past few years from mining operations, resulting in county action that has already begun to restrict further crypto mining development in the county.[87] The county cited high energy consumption, noise pollution, and electronic waste from crypto mining operations as factors leading to its establishment of a Cryptocurrency Mining Zoning Overlay District that this article will discuss in more detail below.[88] The county referred to the amount of energy consumed by mining operations as "grotesque,"[89] with crypto mining operations "at one point us[ing] as much energy as one-third of all households in Missoula County at any given moment."[90] This massive demand on the electrical grid led to concerns over possible fires caused by overtaxed transformers,[91] and, with proposed mining projects adding up to "1,000 megawatts of new electric load to the state," concerns over an "unprecedented increase in electrical load" grew as well.[92]

The transition of Bitcoin mining operations to the United States poses a real threat to state and federal climate and electricity goals and to localities and their electrical grids. With Bitcoin's increased popularity and resiliency, it is unlikely that the cryptocurrency will lose its relevance or financial backing any time soon, and its lucrative price per coin only lends further incentive for investors to grow mining operations. Bitcoin's electricity consumption is massive and only continues to increase, and its decentralized nature leaves little hope that the currency will change its high-electricity-consuming proofing algorithm on its own. While Bitcoin as a decentralized entity has no incentive to police itself, the United States policymakers could intervene before it is too late. While Bitcoin miners may currently be trending toward fossil fuels to power their operations, below this article discusses how policymakers can regulate and incentivize mining operations to utilize renewables that assist—rather than hinder—state and federal goals and mitigate negative externalities in localities.

III. Bitcoin Mining's Synergy with Renewable Energy

Bitcoin's insatiable appetite for electricity gives it the ability to "consume excess energy resources" while producing a profitable service and generating tax revenue.[93] This ability, though concerning in the context of fossil fuels, has the potential to accelerate the development of clean electricity sources by providing a consumer capable of constant high-electricity demand.[94] Between helping to solve the chicken-egg problem for new renewable energy project development and ensuring profitability for non-dispatchable clean electricity sources, Bitcoin mining's constant high-electricity demand has the potential to benefit

86. *See supra* Section II.C.1.

87. *See* Kidston, *supra* note 52 (stating that "Jason Vaughan, the former site manager for [crypto mining company] Hyperblock in Bonner, blamed [Missoula County's initial] regulations on the company's bankruptcy"); *see also* Missoula Cnty., Mont., Zoning Regulations ch. 5, § 5.10, ch. 13 (2022).

88. *See* Missoula Cnty. Cryptocurrency Mining Zoning Regulations, *supra* note 87; *see also infra* Section IV for further discussion on Missoula County's Cryptocurrency Mining Zoning Overlay District.

89. *See* Kidston, *supra* note 52.

90. Jordan Hansen, *Montana Cryptocurrency Zoning Law May Be Country's First*, Gov't Tech. (Apr. 8, 2021), https://www.govtech.com/policy/montana-cryptocurrency-zoning-law-may-be-countrys-first.html.

91. *Id.*

92. *See* Kidston, *supra* note 52.

93. *See* Xiao, *supra* note 47.

94. *See infra* Section III.

the development of clean energy sources.[95] This section first describes how Bitcoin mining could help renewable project development by acting as an anchor tenant for remote renewable projects, allowing projects to be built before transmission lines to high-population areas are constructed. Second, this section explores why Bitcoin is particularly suited to synergize with wind energy projects at this time and how collocating these two industries could incentivize further wind development by making wind projects more profitable.

A. A Solution to the Chicken-Egg Dilemma

The chicken-egg dilemma for renewable energy project development refers to the funding conundrum between constructing renewable energy projects and building transmission lines to connect those projects to the grid.[96] In this dilemma, renewable energy developers avoid committing funds to project development over concerns of how long it would take to build transmission lines and bring projects to profitability, whereas transmission line developers are often unable to construct lines to project sites until funds are committed.[97] Although "low-hanging fruit" areas do exist where optimal conditions for utility-scale renewable energy development are collocated near transmission lines, many of those areas are already developed, and, for states to reach their RPS goals, significant renewable energy development must occur in remote areas where transmission lines do not currently exist.[98]

Figure 1 below demonstrates the breadth of the transmission line problem in the United States for renewable energy development.[99] Within the figure, "[t]he Type I areas are those in which renewable resources could be cost effectively developed using existing technologies, but are not being developed due to transmission constraints."[100] Due to the time required for "land acquisition, permitting, and construction" for transmission lines, the chicken-egg dilemma leaves a substantial portion of the United States' wind, solar, and geothermal underdeveloped.[101]

95. *See infra* Section III.

96. Ernest E. Smith & Becky H. Diffen, *Winds of Change: The Creation of Wind Law*, 5 Tex. J. Oil Gas & Energy L. 165, 201 (2010).

97. *Id.*

98. Mike Jacobs, *U.S. States Hatch Solution to Transmission "Chicken-Egg" Dilemma*, Renewable Energy World (May 7, 2007), https://www.renewableenergyworld.com/wind-power/u-s-states-hatch-solution-to-transmission-chicken-egg-dilemma-48392/#gref (stating that states will have more difficulty finding wind development sites near transmission as they move above the ten percent electricity generation threshold for wind).

99. Samuel V. Brown et al., U.S. Dep't of Agric. Renewable Power Opportunities for Rural Communities 92 (2011).

100. *Id.* at 91.

101. *Id.* at 92; *see also* Smith & Diffen, *supra* note 96.

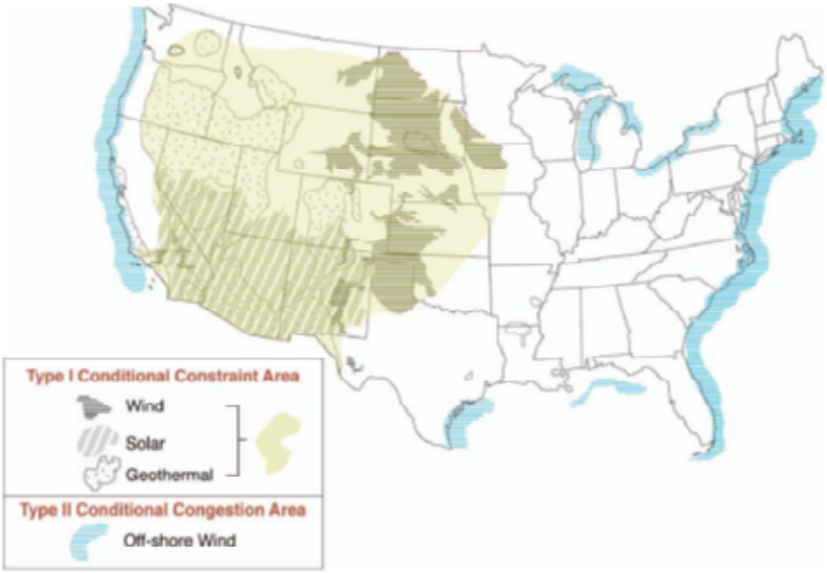

Figure 1 (U.S. Conditional Constraint Areas)[102]

By bringing the consumer to renewable projects, however, Bitcoin's locational flexibility, coupled with its high-electricity demand, makes it an optimal "anchor tenant" for renewable energy project development.[103] Unlike other high-electricity-consuming operations of similar size and scope,[104] Bitcoin mining requires relatively low personnel given its reliance on autonomous high-powered computers to conduct mining and can operate in rural locations so long as there is inexpensive electricity and internet connectivity.[105] By collocating Bitcoin mining operations with renewable sites, renewables project

102. *See* Brown et al., *supra* note 99, fig. 50 (referencing U.S. Dep't of Energy, National Electric Transmission Congestion Study (2009), https://www.energy.gov/sites/default/files/Congestion_Study_2009_ES.pdf).

103. Like anchor tenants for shopping centers that often receive lower rental rates per square foot to commit to a particular center, Bitcoin datacenters could commit to renewable energy projects for a competitive electricity rate. Brandon Carter, *What Is an "Anchor Tenant?*," Square Foot (Feb. 25, 2020), https://www.squarefoot.com/leasopedia/what-is-an-anchor-tenant. Where an anchor tenant for a shopping center might draw other tenants through its reputation, Bitcoin's placement would draw transmission lines by solving the chicken-egg dilemma, therefore giving renewable projects eventual access to more customers. *Id.*

104. *See Data Center Power Design and Features*, Digital Reality, https://www.digitalrealty.com/data-center-power (last visited Nov. 14, 2021) (detailing the large amounts of electricity required "to keep data centers running continuously and without interruption"); *see also* Gina Warren, *Hotboxing the Polar Bear: The Energy and Climate Impacts of Indoor Marijuana Cultivation*, 101 B.U. L. Rev. 979, 985–86 (2021) (equating the high electricity consumption of indoor marijuana cultivation to that of Internet datacenters while also explaining the "twenty-four-hour firm (continuous) energy demand" that indoor marijuana cultivation requires).

105. Pia Sigh, *Bitcoin Miners Flocked to an Upstate New York Town for Cheap Energy—Then It Got Complicated*, CNBC (June 24, 2021, 6:50 PM), https://www.cnbc.com/2021/06/24/bitcoin-miners-flocked-to-upstate-new-york-for-cheap-energy-then-it-got-complicated.html (noting that the city of Plattsburgh, New York, with one of the "biggest bitcoin operators in the world . . . generated only a handful of jobs"); *see supra* Section II.B for the locational considerations of siting a Bitcoin mining facility; *How Much Internet Speed Do You Need to Mine Bitcoin?*, Internet Advisor, https://www.internetadvisor.com/how-much-internet-speed-do-you-need-to-mine-bitcoin (last visited Oct. 28, 2021) ("[T]here have been instances in which systems have mined Bitcoins successfully with as low as ~500 Kbps, which is nothing—dial-up speeds.").

developers can ensure a degree of profitability for their projects while waiting for transmission lines to be built to high population centers and can provide Bitcoin miners with competitive electricity prices in return. Once transmission lines have been constructed and can connect projects to the grid, Bitcoin miners could either relocate to new project destinations or, as described in detail below, remain in their current location as an "energy buyer of last resort," continuing their mutually beneficial relationship by consuming excess electricity when demand is otherwise low and ramping down operations in electricity emergencies or during peak hours.[106]

B. Wind's Optimal Synergy with Bitcoin Mining

While expanding the development of any renewable energy source would assist the United States in achieving its climate and electricity goals, this section explores why wind energy is in an ideal position for a mutually beneficial relationship with Bitcoin mining operations. This synergy between Bitcoin mining and wind energy presents itself on multiple fronts. First, wind is abundant at times of the day that do not normally correlate with peak electricity use, meaning that wind often provides a surplus of electricity for which Bitcoin miners could pay reduced rates.[107] Second, wind farms are often located in rural areas that make it difficult to transmit electricity to large population centers and other consumers. In contrast, Bitcoin miners are generally free from issues when consuming energy in rural areas, and moving Bitcoin away from local areas could mitigate the negative externalities from mining centers.[108] Third, wind energy lacks the regulatory or technological hinderances that currently constrain other clean energy sources from scaling with demand, and Bitcoin's constant demand can allow for profitable scaling of wind, while its decentralized nature enables it to flux demand if necessary for energy emergencies.[109]

Unlike some renewable energy sources like geothermal and hydropower that are dispatchable,[110] wind and solar are intermittent, meaning that their "electrical energy is not continuously available due to external factors that cannot be controlled."[111] In the case of solar, intermittency revolves around the availability of sunlight to shine onto solar arrays,[112] which correlates much more closely with peak grid demand than wind.[113] Wind correlates with consumer demand less than solar because wind often blows strongest at night when most electricity consumers are asleep, resulting in the potential for negative wind prices and grid overload.[114] These overload problems are particularly prevalent given wind's "extremely low marginal cost."[115] Colocation of Bitcoin mining facilities with wind farms can solve this problem by providing constant demand for the electricity produced by wind farms. This relationship could mitigate grid overload problems by providing wind farms with a consumer capable of insatiable electricity consumption

106. See *infra* Section III.B; *see infra* Section IV.B.3.

107. *See infra* Section III.B.

108. *See infra* Section III.B.

109. *See infra* Section III.B.

110. *Hydropower Explained*, U.S. Energy Info. Admin. (Apr. 8, 2021), https://www.eia.gov/energyexplained/hydropower; *Geothermal Explained*, U.S. Energy Info. Admin. (Mar. 22, 2021), https://www.eia.gov/energyexplained/geothermal/use-of-geothermal-energy.php.

111. Jordan Hanania et al., *Intermittent Electricity*, Energy Educ. (Aug. 29, 2017), https://energyeducation.ca/encyclopedia/Intermittent_electricity.

112. *LG Solar FAQs*, LG Energy, https://www.lgenergy.com.au/faq/did-you-know/what-time-of-the-day-and-during-the-year-does-a-solar-system-work (last visited Nov. 24, 2021) (determining that the "highest solar generation during the day is usually from 11am to 4pm").

113. *See* Rule, *supra* note 78, at 357.

114. *Id.* at 80 (explaining how nighttime "gusts are so ferocious that grid operators give away power just to keep the system from overloading").

115. *Id.*

and providing Bitcoin miners with inexpensive electricity during non-peak times to lower their average electricity costs below the $0.05 threshold for profitability.[116] This availability of a customer like Bitcoin would, in turn, make wind farms more profitable, incentivizing more wind generation to be created for use during peak demand periods where utilities would otherwise often resort to utilizing fossil fuel powered "peaker" plants to keep power flowing to the grid.[117]

The often-rural location of wind farms also creates a transmission-loss disadvantage to the clean energy source that could be mitigated by the colocation of mining facilities.[118] As explained above, United States wind resources are often located far from high-electricity-consuming population centers and transmission lines.[119] Where the colocation of Bitcoin mining operations with wind farms can improve the likelihood of transmission lines being built,[120] this colocation can also provide wind farms with a transmission-efficient energy consumer even after a wind farm gains connection to the grid. "When electric current travels across a power line from point A to point B, some current is inevitably lost,"[121] and the U.S. Energy Information Administration estimates that transmission loss "equaled about 5% of the electricity transmitted and distributed in the United States from 2015 through 2019."[122] With wind farms often located in particularly rural areas, it reasonably follows that their loss from transmission is greater than the national average. However, the colocation of mining facilities with wind farms could mitigate transmission losses from long distance transmission lines.

Wind's impressive growth over the past decade has proved its resilience to regulatory difficulties and propensity to outweigh negative externalities. While clean energy sources like hydropower and nuclear have remained fairly stagnant in their growth in recent years due to regulatory and legal challenges with citing new facilities,[123] wind has grown astronomically. In fact, "[m]ore wind energy was installed in 2020

116. *See supra* Section II.B.

117. Sajith Wijesuriya, *The "Peakers": The Role of Peaking Power Plants and Their Relevance Today*, Sci. Pol'y Circle.

118. *Solar Energy vs. Wind Energy: Which Is Right for You?*, Energy Sage, https://news.energysage.com/solar-vs-wind-energy-right-home (last visited Nov. 14, 2021) (explaining that large utility scale operations tend to favor wind while homeowners prefer solar).

119. *See supra* Section III.A. These locational constraints have led to many Midwestern states under developing wind power. Rule, *supra* note 78, at 97 ("Additional transmission infrastructure would thus be needed to transport wind-generated power from new wind farms in those low-population states to metropolitan areas in other states.").

120. *See supra* Section III.A.

121. *See* Rule, *supra* note 78, at 17.

122. *How Much Electricity Is Lost in Electricity Transmission and Distribution in the United States?*, U.S. Energy Info. Admin. (May 14, 2021), https://www.eia.gov/tools/faqs/faq.php?id=105&t=3.

123. Large dam construction for hydropower has drastically reduced over the past few decades, and, as of 2011, "the median age of Corps hydropower facilities was forty-seven years." Gina S. Warren, *Hydropower: It's a Small World After All*, 91 Neb. L. Rev. 925, 937 (2013). Hydropower may be set for a comeback, though, due to pump storage hydropower, small hydropower development, and capacity increases for existing dams. *See* Rocío Uría-Martínez et al., Hydropower Market Reports (U.S. Dep't of Energy 2021). Nuclear energy's regulatory difficulties have led to the most recent nuclear powerplant taking almost forty-seven years to complete. Dave Flessner, *The End of an Era: TVA Gives up Construction Permit for Bellefonte Nuclear Plant After 47 Years*, Yahoo (Sept. 17, 2021), https://www.yahoo.com/now/end-era-tva-gives-construction-080000912.html. However, like hydropower, nuclear also shows promise to grow in the future as billionaires like Elon Musk and Bill Gates have begun investing in safer, more advanced nuclear technology. Catherine Clifford, *Elon Musk: It's Possible to Make 'Extremely Safe' Nuclear Plants*, CNBC (July 22, 2021, 1:15 PM), https://www.cnbc.com/2021/07/22/elon-musk-its-possible-to-make-extremely-safe-nuclear-plants.html; Catherine Clifford, *Bill Gates: Nuclear Power Will 'Absolutely' Be Politically Acceptable*

than any other energy source, accounting for 42% of new U.S. capacity."[124] Despite negative externalities like potential for bird and bat mortality in violation of the Endangered Species Act and lawsuits for nuisance or other statutory claims from turbine noise and aesthetic interference,[125] "[t]otal annual U.S. electricity generation from wind energy increased from about 6 billion kilowatt hours (kWh) in 2000 to about 338 billion kWh in 2020."[126] This resiliency and propensity to grow support wind energy's ideal pairing with Bitcoin mining centers, as it increases the likelihood that Bitcoin's colocation with wind energy will incentivize its further development, rather than simply reducing the amount of clean electricity available to other consumers.

Bitcoin's place as a constant high-demand consumer of wind power can increase its profitability and allow for further wind expansion. This expansion will not only lead states and the federal government closer to their climate and RPS goals but also has the potential to improve grid reliability and push states closer to meeting their ESTS goals as well.[127] Despite being far from the conventional idea of energy storage, Bitcoin's ability to consume all excess electricity makes it an "energy buyer of last resort," allowing for the grid to add more renewable energy knowing that there will be a consumer even during non-peak hours.[128] This model of absorbing excess electricity, while having the ability to act as an emergency demand-response source, has already started to be implemented in Texas, with hopes that new wind and solar projects enabled by this synergy will "ensure that there's enough power for extreme events like ice storms and summer heat waves."[129] Texas proves the mutual profitability of this arrangement, as current demand response contracts with the Texas grid have afforded one 150-megawatt crypto mining center an average power cost of "below 2 cents per kwh," well below the $0.05 per kilowatt hour requirement for Bitcoin mining profitability.[130]

Again—It's Safer Than Oil, Coal, Natural Gas, CNBC (Feb. 25, 2021, 10:02 AM), https://www.cnbc.com/2021/02/25/bill-gates-nuclear-power-will-absolutely-be-politically-acceptable.html.

124. Press Release, U.S. Dep't of Energy, DOE Releases New Reports Highlighting Record Growth, Declining Costs of Wind Power (Aug. 30, 2021), https://www.energy.gov/articles/doe-releases-new-reports-highlighting-record-growth-declining-costs-wind-power.

125. *See, e.g.*, Animal Welfare Inst. v. Beech Ridge Energy LLC, 675 F. Supp. 2d 540, 547–48 (D. Md. 2009) (analyzing the number of bat deaths from a particular wind farm project that violated the Endangered Species Act, estimating an "annual mortality rate of 47.53 bats per turbine"); Burch v. NedPower Mount Storm, LLC, 647 S.E.2d 879, 895 (W. Va. 2007) (holding that landowners were able to bring a nuisance claim against wind project developers for the noise that would be created by wind turbines near their property); Champlain Wind, LLC v. Bd. of Env't Prot., 129 A.3d 279, 284 (Me. 2015) (holding that the Maine Board of Environmental Protection did not act arbitrarily when it denied a wind project's development after determining that the project's visual detriment "would have an unreasonable adverse effect on the existing scenic character or existing uses related to the scenic character of the nine affected great ponds"); *see also Advantages and Challenges of Wind Energy*, U.S. Dep't of Energy, https://www.energy.gov/eere/wind/advantages-and-challenges-wind-energy (last visited Oct. 28, 2021).

126. *Wind Explained*, U.S. Energy Info. Admin. (Mar. 17, 2021), https://www.eia.gov/energyexplained/wind/electricity-generation-from-wind.php.

127. *See supra* Section II.C.1.

128. Satoshi Energy, *Special Report: Energy Backed Money*, Satoshi Energy (Dec. 11, 2020), https://research.satoshienergy.com/special-report-energy-backed-money.

129. *See* Helman, *supra* note 65. Likely referring to Winter Storm Uri that devastated Texas in February 2021 and prompted legislative reform to enhance electricity reliability in the state. Kevin Donovan, *Winter Storm Uri and the Future of Texas Electricity Reliability with James Coleman*, Hous. L. Rev. (Sept. 7, 2021), https://podcast.houstonlawreview.org/644674/9118226-winter-storm-uri-and-the-future-of-texas-electricity-reliability-with-james-coleman.

130. *See* Helman, *supra* note 65.

IV. Decentralized Datacenter Overlay Zones

Identifying that a mutually beneficial relationship between wind energy and Bitcoin mining can—and in some instances already does—exist is only the first step of this article's analysis. The next step is identifying how policymakers can incentivize Bitcoin miners to adopt this cooperative relationship with renewable energy sources like wind farms, rather than the alternative of pairing with less clean energy sources. Given Bitcoin's decentralized nature, typical environmental, social, and governance (ESG) pressures from shareholders or other related actors would likely be futile—as evidenced by Bitcoin's relatively quick recovery from Tesla's backlash regarding environmental concerns.[131] Where a company may try to attract environmentally conscious investors by lowering its carbon footprint and powering its facilities through renewable energy,[132] Bitcoin's decentralized nature makes it impossible to mandate what types of electricity miners use, and Bitcoin's incentive structure for miners relies solely on how much electricity is used, not what type.[133] Furthermore, outright heavy regulation or banning of Bitcoin mining in the United States would likely do nothing more than push miners to other countries with significantly less clean energy potential, resulting in continued climate impact contrary to Paris Agreement objectives.[134] This article's solution of creating Decentralized Datacenter Overlay Zones (DDOZs) to incentivize Bitcoin mining to utilize clean energy sources—particularly wind—addresses Bitcoin's unique position as a decentralized entity, while ensuring that United States climate and electricity goals are advanced.

A. An Overview of Overlay Zones

Under the Tenth Amendment to the United States Constitution, police powers are reserved to the states,[135] and it is under these police powers that states are granted the authority to enable local governments to enact zoning laws,[136] so long as these ordinances are not "clearly arbitrary and unreasonable, having no substantial relation to public health, safety, morals, or general welfare."[137] In the most general sense, localities use zoning laws to "divide land within the municipality into zones, or districts, and prescribe the land uses and the intensity of development allowed within each district."[138] A type of zoning law, an overlay zone is "a regulatory tool that creates a special zoning district, placed over existing base zone(s), which identifies special provisions in addition to those in the underlying base zones."[139] Commonly used

131. *See* Hoskins, *supra* note 62; Tretina & Schmidt, *supra* note 1.

132. *See* E. Napoletano, *Environmental, Social and Governance: What Is ESG Investing?*, Forbes (Mar. 1, 2020), https://www.forbes.com/advisor/investing/esg-investing.

133. *See supra* Section II.

134. *See* Bacchi & Lih Yi, *supra* note 7 (predicting that, after China's ban, "cryptocurrency production will pick up elsewhere as Chinese miners sell off their machines or seek refuge abroad—often in countries with less renewable energy"); *see also* Truby, *supra* note 22 (detailing the "serious threat" that cryptocurrency poses "to the global commitment to mitigate greenhouse gas emissions pursuant to the Paris Agreement").

135. U.S. Const. amend. X; *Police Powers*, Legal Info. Inst., Cornell L. Sch. (Dec. 2020), https://www.law.cornell.edu/wex/police_powers.

136. Patricia Salkin & Jennie Nolon, Land Use Law in a Nutshell 5–6 (3d ed. 2021).

137. Village of Euclid, Ohio v. Ambler Realty Co., 272 U.S. 365, 395 (1926). Courts have interpreted policing powers broadly and found that "where the validity of the zoning ordinance is debatable, the legislative judgment of the governing body must control." Woll v. Monaghan Township, 948 A.2d 933 (Pa. Cmmw. 2008), *appeal denied*, 600 Pa. 767 A.2d 962 (2009).

138. *Beginner's Guide to Land Use Law*, Pace U.L. Ctr. 5, https://law.pace.edu/sites/default/files/LULC/LandUsePrimer.pdf (last visited Jan. 21, 2023); *see also* John R. Nolon, *Zoning's Centennial: A Complete Account of the Evolution of Zoning into a Robust System of Land Use Law—1916–2016 (Part I)*, Zoning & Plan. L. Rep. at 1 (Oct. 2016), http://digitalcommons.pace.edu/lawfaculty/1036.

139. Douglas Miskowiak & Linda Stoll, *Planning Implementation Tools: Overlay Zoning*, Ct.r for Land Use Educ. (Nov. 2005), https://www.uwsp.edu/cnr-ap/clue/documents/planimplementation/overlay_zoning.pdf.

to protect a locality's natural resources and special features, overlay zones also can be an effective tool at incentivizing or deterring development of specific industries, depending on implementation.[140] Overlay zones allow localities to determine areas that would be particularly advantageous for certain industry development and to "expedite and streamline the permitting process" for development in those areas.[141] Over the past decade, overlay zones have proved to be incredibly effective tools for incentivizing the development of renewables; however, as briefly described below in the context of Missoula County's Bitcoin mining overlay, these laws also can suppress industry growth.[142] If implemented correctly, overlay zones have great potential to incentivize Bitcoin mining towards a clean energy solution, mitigating the potential negative impacts of Bitcoin mining's high electricity consumption, while also fostering further clean electricity development and increased grid reliability.

Klickitat County's Energy Overlay Zone ordinance provides an excellent example of how successful overlay zones can incentivize development. Klickitat's overlay zone was established with the purpose of providing "areas suitable for the establishment of energy resource operations"—particularly wind and solar development—and provided special permitting to expedite development.[143] Klickitat's ordinance proved to better attract renewable energy development than anticipated, resulting in seventeen operational or permitted wind projects in four years, versus the county's initial projection of four new wind projects in twenty years.[144]

On the other hand, Missoula County's February 2021 Cryptocurrency Mining Zoning Regulations took an exclusionary zoning approach that has discouraged further Bitcoin mining in the area.[145] Missoula's regulations establish multiple special conditions for cryptocurrency mining operations, such as requiring mining facilities to "develop or purchase sufficient new renewable energy to offset 100 percent of electricity consumed," limiting in which zoning districts mining facilities can be located, requiring review as a "conditional use" or "special exception," and requiring waste verification and handling by "a [Montana Department of Environmental Quality] licensed electronic waste recycling firm."[146] These restrictions quickly led to the bankruptcy of one mining operation in Missoula County and will likely make it economically unfeasible for new mining operations to plant roots in Missoula.[147]

B. Considerations for the Implementation of DDOZs

The Decentralized Datacenter Overlay Zones (DDOZs) that this article proposes will require a balance between the growth-oriented incentivization of Klickitat County's Energy Overlay Zone and the over-restrictiveness of Missoula County's Cryptocurrency Mining Zoning Regulations. DDOZs must be attractive enough to make mining economically feasible—if not more profitable than carbon producing alternatives—while still moving the needle towards federal and state climate and electricity goals and

140. *Id.*

141. *See* Rule, *supra* note 78, at 150.

142. *See supra* Section II.C.2.

143. Klickitat Cnty. Code § 19.39:1 (2015); Keith H. Hirokawa & Andrew B. Wilson, *Local Planning for Wind Power: Using Programmatic Environmental Impact Review to Facilitate Development*, 33 Zoning & Plan. L. Rep. 1, 5 (2010) (explaining that, under the Klickitat County ordnance, "wind power projects were permitted outright in the overlay zone, subject to site plan review, critical areas and regulations and site-specific SEPA requirements," going on to note that the planning for the zones would satisfy the State Environmental Policy Act (SEPA) requirements).

144. *See* Hirokawa & Wilson, *supra* note 143.

145. *See supra* Section II.C.2.

146. *See* Missoula County Cryptocurrency Mining Zoning Regulations, *supra* note 87 (requiring mining facilities to "develop or purchase sufficient new renewable energy to offset 100 percent of electricity consumed").

147. Kidston, *supra* note 52.

mitigating negative externalities in localities. Like Klickitat County's overlay zone, these DDOZs will expedite permitting for high-electricity-consuming decentralized datacenters (i.e., Bitcoin mining facilities), while requiring their commitment to using a minimum threshold of renewable energy to meet their electricity needs. This article identifies three specific categories of requirements that all DDOZs should contain—location, renewables, and demand response capability—and provides recommendations for policymakers to consider when drafting and implementing these ordinances.

1. Location. A primary concern for both renewable projects and mining facilities, the location of DDOZs will be critical for ensuring that these overlay zones incentivize development that is mutually beneficial and in line with federal and state climate and electricity goals. Before creating Energy Overlay Zones, Klickitat County surveyed its territory via a broader Environmental Impact Statement.[148] Like Klickitat, policymakers will need to survey their respective localities' land to determine optimal locations to place their DDOZs. Variables like proximity to existing renewables (such as wind farms) and areas ripe for renewable development,[149] proximity to cleaner dispatchable electricity sources, and proximity away from population centers or other high-electricity-consuming industries should all be considered.

As discussed above in the context of wind and other renewable project development, transmitting renewable energy to consumers is a primary area of concern for renewable development profitability.[150] Building large-scale transmission lines is an "onerous" process, requiring numerous permits, that suppresses current development.[151] Locating Bitcoin mining facilities near renewables like wind farms provides a high-demand consumer while minimizing transmission infrastructure requirements. Furthermore, siting Bitcoin mining centers near renewables increases the likelihood that miners will utilize clean energy over fossil fuels.

That said, policymakers also may want to consider which dispatchable power sources are near DDOZs as well. Though it is possible for Bitcoin mining to be profitable strictly from the use of intermittent renewables like wind,[152] policymakers may want to avoid limiting miners to only one intermittent source of renewable electricity, as this may not be lucrative enough to incentivize mining relocation. Instead, policymakers also should consider the location of dispatchable power sources to supplement intermittency, all while being cognitive of the balance between the availability, affordability, and carbon output of these sources.[153] Identifying remote areas where intermittent renewables like wind and solar are collocated near dispatchable renewables like hydropower and geothermal would be ideal.

148. *See* Rule, *supra* note 78, at 150 (noting that Klickitat County first surveyed a large area within the county "that it had believed could be well-suited for energy development," and from there "delineated portions of those areas on an 'energy overlay zone' map").

149. Although this article has identified wind as the optimal clean energy source to pair with Bitcoin mining operations, some states with other renewable advantages, like California's access to geothermal, may wish to prioritize development of that renewable rather than wind. *Geothermal Explained,* U.S. Energy Info. Admin. (Nov. 19, 2020), https://www.eia.gov/energyexplained/geothermal/where-geothermal-energy-is-found.php.

150. *See supra* Section III.

151. Kevin Stark, *Why Building Transmission Projects Is Getting Even More Complicated*, Energy News Network (Feb. 27, 2018), https://energynews.us/2018/02/27/why-building-transmission-projects-is-getting-even-more-complicated.

152. *See* Rui Shan & Yaojin Sun, *Bitcoin Mining to Reduce the Renewable Curtailment: A Case Study of CAISO*, (USAEE Working Paper No. 19-415, 2019), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3452015.

153. Like wind, natural gas is also an inexpensive and abundant electricity source in the United States and significantly cleaner than coal power. Mark J. Perry, *Natural Gas: It's Cleaner Than Coal, Cheaper Than Oil and We Have a 90-Year Domestic Supply*, AEI (Dec. 21, 2009), https://www.aei.org/carpe-diem/

Proximity away from population centers is also an important consideration to minimize negative externalities while maximizing Bitcoin's ability to add profitability to wind farms as a high-demand consumer. Wind farms that are located near population centers and high-demand industry would need Bitcoin less to increase their profitability, as they already have a steady supply of consumers. Furthermore, colocation with population centers increases the number of people affected by externalities like noise or electronic waste.[154] Bitcoin is unique in its almost sole reliance on electricity, with little need for personnel and marginal need for Internet connectivity,[155] and policymakers should leverage Bitcoin's independence from the typical locational demands of other industries when deciding where to place DDOZs.

2. Renewable Requirements. A requirement to consume a certain percentage of renewables is necessary to ensure that Bitcoin datacenters do not take advantage of a DDOZ's ease of permitting to then rely solely on fossil fuels. DDOZ renewable requirements should, at a minimum, define what counts as a renewable or clean electricity source, as well as state what percentage of the permitted facility's electricity consumption must come from renewables or clean electricity sources. On the one hand, because one of the desired outcomes of DDOZs is to incentivize progress toward state RPS, a locality could use the same defined renewable or clean energy sources included in their state's RPS. On the other hand, policymakers may want to make their qualifying renewable list more exclusive to encourage the development of certain types of renewables.

Choosing the mandated percentage of renewable electricity requires policymakers to balance state and federal climate goals and Bitcoin mining economics. Policymakers need to ensure that they do not overly restrict Bitcoin mining operations as Missoula County did with their 100 percent renewable requirement,[156] while also disincentivizing Bitcoin data centers from revitalizing fossil fuel powerplants as in upstate New York.[157] Policymakers will need to consider their state's RPSs in addition to federal climate goals, the sources that have the most potential for renewable development in their own localities, and what requirements are feasible given these considerations.

Rather than placing the responsibility on Bitcoin miners directly to ensure that their facilities are sourcing their electricity from a certain percentage of renewable or clean sources, state policymakers could instead require that utilities directly deal with Bitcoin miners to ensure adequate progress towards climate goals. One of Wyoming's recently enacted crypto friendly laws provides an example of how policymakers could structure their renewable requirements.[158] Under Wyoming House Bill Number 0113, "[a]n electric utility may directly negotiate with any customer having a projected electric usage greater than five megawatts for services provided under a tariff approved by the Public Service Commission" so long as the arrangement "provides benefits to other customers without imposing any additional direct or indirect costs upon

natural-gas-its-cleaner-than-coal-cheaper-than-oil-and-we-have-a-90-year-domestic-supply. While heavy reliance on natural gas for Bitcoin mining would run contrary to United States climate goals, it is well positioned to fill intermittency gaps of wind and ensure profitability of mining operations that are co-located near wind power. *See id.*

154. *See supra* Section II.C.2.

155. *See supra* Section II.A–B. With the advent of internet satellite constellations that can provide bandwidth speeds of over 100mb/s, Bitcoin's internet needs can be readily met. Kate Duffy, *SpaceX's Starlink Satellite Internet Is Fast Approaching the Speed of Regular Broadband, a Test Has Found*, Bus. Insider (Aug. 6, 2020, 8:54 AM), https://www.businessinsider.com/spacex-starlink-internet-elon-musk-speed-test-broadband-2021-8.

156. *See supra* Section II.C.2.

157. *See supra* Section II.C.1.

158. H.B. 0113, 65th Leg., Gen. Sess. (Wyo. 2019).

them now or in the future."[159] In a similar manner, state policymakers could empower utilities to coordinate directly with Bitcoin miners and either require the utility to meet a certain quota of renewable consumption in their negotiations or simply mandate that the utility continue to meet state RPS targets regardless of its dealings with Bitcoin miners.

3. Demand Response Capability. Policymakers should require that mining datacenters have the capability to lower demand for set periods of time to qualify for a permit to locate in a DDOZ. Bitcoin mining's distinctive capability to act as an "energy buyer of last resort" enables it to support state electricity reliability and ESTS goals. As suggested by the DDOZ acronym, high-electricity-consuming, *decentralized* datacenters, like Bitcoin, provide an invaluable benefit that other data centers cannot. Due to its decentralized nature, when one miner stops operating, Bitcoin automatically revises its hashing algorithm to ensure that one hash is correctly guessed every ten minutes, and mining continues seamlessly, making Bitcoin not dependent on any one miner or even any large group of miners.[160] Typical datacenters, on the other hand, require incredible amounts of reliability due to the constant demand of clients, whose systems or servers are relying on the datacenter for 24/7 operation, thus requiring constant electricity to power their operations.[161] Bitcoin mining facilities could, therefore, enable grid operators to welcome more renewable electricity because mining facilities will absorb excess power during low periods—preventing grid overload and ensuring profitability for renewable projects—and then be capable of quickly lowering throughput during peak demand periods or electricity emergencies.[162]

In jurisdictions that allow for time-of-use pricing or other demand response ratemaking, utilities could financially incentivize Bitcoin mining facilities to fluctuate their electricity consumption as price of power fluctuates.[163] For Bitcoin data centers that are already collocated near inexpensive wind power, this would incentivize them to consume maximum power during non-demand periods but to avoid using power when more expensive fossil-fuel-powered peaker plants are operating.[164]

By modifying operations to benefit from time-of-use pricing or demand response programs like those that have already been employed in Texas,[165] Bitcoin's decentralized nature allows its mining facilities to support electricity reliability and ESTS goals. As with the other recommendations in this article, the key concern for policymakers when implementing DDOZs is to ensure that requirements placed on Bitcoin

159. Anessa Santos, *Wyoming Blockchain Legislation Summary Review for Years 2018–2019*, Bus. L. Sec. Fla. B., http://www.flabizlaw.org/files/Wyoming%20Blockchain%20Legislation%20Summary%20Review.pdf (last visited Oct. 28, 2021).

160. *See supra* Section II.A.

161. Lee McClish, *How Reliable Is Your Data Center?*, Mission Critical Mag. (Oct. 3, 2019), https://www.missioncriticalmagazine.com/articles/92571-how-reliable-is-your-data-center (explaining the industry standard for data centers is system availability of 99.999%).

162. Christopher Cole et al., *Crypto's Enviro Costs Present Challenges for Companies*, Law360 (May 21, 2021, 2:23 PM), https://www.law360.com/articles/1384702/crypto-s-enviro-costs-present-challenges-for-companies (explaining the advantages of Bitcoin by adding "to grid reliability by allowing for higher base power consumption but flexibility in case of emergency").

163. Spencer Fields, *Understanding Time-of-Use (TOU) Rates*, Energy Sage (June 3, 2021), https://news.energysage.com/understanding-time-of-use-rates (defining time-of-use rates as rates that "incentivize customers to consume energy during times when the cost of generating electricity is cheap, and to disincentiv[ize] energy consumption when the cost of generating electricity is high").

164. *See supra* Section III.A.

165. *See* Helman, *supra* note 65 (explaining how one crypto mining facility secured a rate of less than $0.02 per kilowatt hour by entering into a demand response contract with the Texas grid).

mining centers allow for profitability and financially incentivize mining operations for the mutual benefit of all parties. Policymakers should consider a careful balance between leveraging Bitcoin's ability to assist demand response in times of emergency and requiring Bitcoin mining operations to be shut down during peak hours. Negotiations between utilities and miners would likely find the correct balance, and therefore policymakers should require mining operations to power down during emergencies to qualify for a DDOZ but be careful not to take bargaining power away from mining facilities during these negotiations by mandating too much.

V. Conclusion

Bitcoin mining's transition to the United States poses a threat to climate and electricity goals that cannot be mitigated by conventional means like an overarching ban or ESG pressures. Although some articles have proposed solutions to mitigate the damage caused by Bitcoin mining's electricity consumption by regulating Bitcoin mining computers[166] or amending the tax code to consider electricity consumption and environmental impact,[167] this article proposes Decentralized Datacenter Overlay Zones (DDOZs) as a potential win-win solution for Bitcoin mining and United States climate and electricity goals.[168] By understanding Bitcoin mining's unique position as a decentralized, high-electricity-consuming datacenter,[169] policymakers can synergize Bitcoin mining with renewable energy development to leverage Bitcoin miners to help, rather than hinder, United States climate and electricity goals.[170]

Where Bitcoin mining requires ample electricity at a low price, renewable energy project development requires a customer that can purchase electricity in remote areas and, in cases like wind energy, pay for electricity when demand is otherwise low.[171] This not only has the potential to incentivize further renewable energy development in furtherance of state and federal clean electricity goals but also has the ability to increase grid stability by providing utilities and grid operators with a consumer capable of flexing power consumption with grid demand.[172] Furthermore, by acting as an "electricity consumer of last resort," Bitcoin mining also can operate as a type of electricity storage mechanism, aiding state ESTSs and helping prevent future electricity emergencies.[173]

Bitcoin's insatiable appetite for electricity is undoubtedly concerning and, given its resiliency, rapid rise in price per coin, and growing popularity, this concern does not appear to be going away anytime soon.[174] With Bitcoin mining now prominently entrenched on United States soil, however, policymakers now have the opportunity to influence mining operations towards a mutually beneficial outcome.[175] By implementing DDOZs with the locational, renewable, and demand response considerations explained above, policymakers can ensure that Bitcoin mining supports, rather than threatens, United States climate and electricity goals or, at a minimum, ensure that the threat from Bitcoin mining's electricity consumption is mitigated.[176]

166. *See* Huston, *supra* note 26, at 41.
167. *See* Carroll, *supra* note 23, at 64.
168. *See supra* Section IV.
169. *See supra* Section II.A.
170. *See supra* Section IV.
171. *See supra* Section III.
172. *See supra* Section IV.
173. *See supra* Section IV.
174. *See supra* Section II.C.
175. *See supra* Section II.C.
176. *See supra* Section IV.

Introduction: *The Community Resilience Handbook*

John Travis Marshall*

Community resilience might seem a well-covered topic. Some would even characterize resilience as an overused concept.[1] What is the need, then, for a handbook devoted to creating more resilient communities? The answer to this question may be as straightforward as it is disheartening. Much has been written and theorized about resilience, but jurisdictions throughout the United States struggle to incorporate disaster resilience strategies into their planning and practices.[2] If we stop and consider the two-decade-long string of major disasters that have ravaged communities across the United States, it is not hard to appreciate why the idea of resilience has received so much attention and yet remains an elusive goal.

The twenty-first century has produced a steady stream of shocking disasters, including Hurricane Katrina, the Iowa Floods of 2008,[3] Superstorm Sandy, Hurricane Harvey, a series of gigantic Western wildfires, and most recently, Hurricane Ian. There have been 246 disaster events that inflicted more than $1 billion in damages on communities since 2000.[4] The costs incurred by the federal government have proven particularly staggering.[5] If the 9/11 terrorist attack on New York City is included, five of the nation's most

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1. International disaster scholars describe the concept of resilience as a potentially problematic catchphrase, lacking precise definition. *See* Lisa Grow et al., *Disaster Vulnerability,* 63 B.C. L. Rev. 957, 963–64 n.13 (2022) (noting "considerable inconsistency, variation, and even contradiction in the way the terms 'social vulnerability' and 'resilience' are used in the social sciences literature and about how to conceptualize the relationship between the two") (*citing* Susan L. Cutter et al., *A Place-Based Model for Understanding Community Resilience to Natural Disasters*, 18 Glob. Env't Change 598, 599–600 (2008)); Abigail Abrash Walton et al., *Building Community Resilience to Disasters: A Review of Interventions to Improve and Measure Public Health Outcomes in the Northeastern United States*, 13 Sustainability, no. 21, 2021, at 3 ("There is no commonly accepted working definition of community resilience.").

2. Mary Comerio, *Disaster Recovery and Community Renewal: Housing Approaches*, *in* Coming Home After Disaster 3, 4–5 (Alka Sapat & Ann-Margaret Esnard eds., 2017) (enumerating five continuing problems that "make implementing forward-thinking ideas on resilience and recovery problematic").

3. *Flood of 2008 Facts & Statistics,* Cedar Rapids, https://www.cedar-rapids.org/discover_cedar_rapids/flood_of_2008/2008_flood_facts.php (last visited Nov. 17, 2022).

4. Nat'l Ctrs. for Env't Info., *Billion-Dollar Weather and Climate Disasters*, Nat'l Oceanic & Atmospheric Admin., https://www.ncei.noaa.gov/access/billions/summary-stats/US/2000-2022 (last visited Nov. 17, 2022) (332 billion-dollar disasters since NOAA began tracking the cost associated with severe weather and climate-related disasters).

5. Alice C. Hill, *Reducing Disaster Costs by Building Better*, Council on Foreign Rels. (Apr. 2, 2020), https://www.cfr.org/report/reducing-disaster-costs-building-better ("From 2005 to 2014, the federal government obligated almost $280 billion for disaster assistance. In 2018, in a period of six months, Congress shelled out $140 billion in

consequential disasters, in terms of Federal Emergency Management Agency (FEMA) public assistance aid to impacted local governments, have occurred in the last twenty years.[6] The 2017 hurricane season alone is responsible for three of the costliest hurricanes in the nation's history.[7] At any one time, dozens of communities nationwide are clearing a disaster's wreckage, planning for a new future, or rebuilding homes, neighborhoods, cities, and entire regions. Some find themselves so often in disaster's crosshairs that recovery from one disaster is upended by the next catastrophic event.[8]

In the wake of these disasters, we have paused again—and again—to consider how these catastrophic events could have been prevented or their impacts mitigated. Increasingly, we have invested government and philanthropic grant funds to help ensure that the affected communities can rebuild so that they not only bounce back from future events but "bounce forward."[9] During this time, practitioners, scholars, governmental organizations, and nongovernmental organizations have explored many dimensions of resilience. They have crafted guidance on resilient infrastructure, resilient laws, resilient buildings, climate resilience, resilient historic resources, and disaster resilience (to name just a few).[10] Your favorite web browser can transport you instantaneously to a list of digital materials that gets longer by the day. Numerous are the podcasts, op-eds, blog posts, press releases, academic articles, think tank reports, and advertisements for associated services.[11]

With abundant resilience-related information at our fingertips—and so much of it that can be reviewed and consumed quickly—what need might there be for a new volume devoted to creating more resilient communities? The need springs from an apparent disconnect.

A significant gap seems to remain between lessons generated by this century's great disasters and the incipient understanding that local government, business, and nonprofit leaders have of their communities' vulnerabilities, as well as the systems that must be created to secure more resilient futures.[12] The threats posed by climate-related hazards continue to grow, but communities and businesses remain prone to

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aid—an amount that was nearly triple the annual budget for the Department of Homeland Security and that contributed almost 20 percent to the total federal deficit for that year.").

6. *Flood of 2008 Facts & Statistics*, *supra* note 3.

7. Leeja Miller, Note, *Certain Destruction: Pre-Disaster Mitigation in a Post-Maria World*, 12 N.E. Univ. L. Rev. 549, 551 (2020) (explaining that Hurricanes Harvey, Irma, and Maria were "[t]hree of the five costliest hurricanes in United States history," causing approximately $265 billion in damage).

8. *See, e.g.*, Nathaniel Rodriguez, *Bridge Placed by Hurricane Maria Washed Away by Hurricane Fiona's Flooding*, WFLA (Sept. 19, 2022), https://www.wfla.com/news/national/watch-bridge-placed-after-hurricane-maria-washed-away-by-hurricane-fionas-flooding.

9. The Island Press & The Kresge Found., Bounce Forward: Urban Resilience in the Era of Climate Change (2015), https://kresge.org/sites/default/files/Bounce-Forward-Urban-Resilience-in-Era-of-Climate-Change-2015.pdf.

10. *See, e.g.*, Mikhail Chester et al., *Post-Disaster Infrastructure Delivery for Resilience,* 13 Sustainability, no. 6, 2021 ("The field of infrastructure resilience is evolving in response to the complexity and uncertainty associated with emerging challenges such as climate change."); Sara C. Bronin, *Law's Disaster: Heritage at Risk*, 46 Colum. J. Env't L. 489, 512 (2021) (discussing the state of Connecticut's efforts to plan for more resilient historic resources).

11. If you type the words "resilience," "community," "local government," "laws," "ordinances," and "policies" into your favorite web browser, it returns thousands in less than a second. A Google search returned 220,000 results.

12. John Travis Marshall, *Resilience Re-examined: Thoughts on the COVID-19 Pandemic's Lessons for Communities Preparing for Disasters*, 5 J. Comp. Urb. L. & Pol'y 43, 61 (2022) (noting that the COVID-19 pandemic exposed that local governments of all sizes "struggle to maintain a detailed understanding of the vulnerable populations in their midst").

costly mistakes. Even local government resilience and municipal management officials who help lead the nation's largest communities describe vividly the challenges they continually face to incrementally advance community progress toward a culture of resilience.[13]

The coronavirus pandemic confirmed this troubling divide between the rhetoric of resilience and its on-the-ground practice. COVID-19 exposed significant deficits that persist in both our knowledge of threats to community welfare and the implementation of the most basic resilience-related laws, policies, and practices.[14] For instance, the pandemic confirmed that communities nationwide struggle to understand that during and following disaster events many residents live just a paycheck (or two) away from economic dependence on assistance from government, nonprofit, and philanthropic helpers.

A conversation recently overheard not too far from my home in Atlanta underscores one particular dimension of this broad failure to confront and correct basic threats to a community's or organization's resilience. It was July 2021, and the pandemic-era, work-from-home policies were still the norm.

I was having ice cream with my son in the local village center when two parents and their children sat down at an adjacent park bench. One of the parents, who worked for a local company, quickly launched into a story about what he considered an unbelievable conversation that he had with his firm's chief financial officer (CFO). The CFO had been asked to consider preparing a disclosure of the company's exposure to climate-related risks, including natural hazards. The CFO believed that the company had nothing to disclose. The parent, on the other hand, could not comprehend how the CFO was inclined to draw such a conclusion. Calling to mind the 2021 wildfires in California and the catastrophic floods that befell Germany and China,[15] he responded incredulously to the CFO, "All I could say is: 'What do you mean there's no risk?! It's not as if the Western U.S. is on fire and Germany and China are under water . . . . Of course, there's risk!'"[16] The parent shared that the CFO then asked if he "could provide her evidence of the risks the company's facilities face." He recounted, "I told her that 'the risk may not be easy to quantify with precision but that doesn't mean there isn't potential risk that bears disclosing.'" With some

13. *See, e.g.*, *The Inclusion of Equity in Community Resilience with Sheryl Sculley*, Nat'l Acad. of Pub. Admin. (Aug. 23, 2021), https://napawash.org/podcasts/the-inclusion-of-equity-in-community-resilience-with-sheryl-sculley (describing persistent efforts to ensure that San Antonio's approach to resilience is explicitly equitable through commitments to community collaboration, "a culture of response," and an "ethic of continuous improvement"); *Podcast: Community Resilience & Climate Response with Jennifer Jurado*, Engaging Loc. Gov't Leaders (June 25, 2021), https://elgl.org/podcast-community-resilience-climate-response-with-jennifer-jurado-broward-county-fl (describing Broward County's efforts to promote a local and regional ethic of resilience through its "resilience dashboard" and "resilience scorecard").

14. *See* Marshall, *supra* note 12; *see also* John Travis Marshall, *Cost-Effective Local Initiatives to Promote Resilient Disaster Recovery*, *in* American Bar Association Resilience Handbook: Making the Case for Community Resilience 343 (George Blaine Huff Jr., Edward A. Thomas & Nancy McNabb eds., 2020). Although written before the COVID-19 pandemic began, this chapter argues that there are low-cost or no-cost interventions with which even poorly resourced local governments can pursue disaster reliance objectives. The chapter is reprinted below in its entirety. *See infra*.

15. *See* Warren Cornwall, *Europe's Deadly Floods Leave Scientists Stunned*, Sci. (July 20, 2021), https://www.science.org/content/article/europe-s-deadly-floods-leave-scientists-stunned; Daniel Victor, *Flooding Kills 21 as Thousands Escape to Shelters*, N.Y. Times (Aug. 13, 2021), https://www.nytimes.com/2021/08/13/world/asia/china-flooding-evacuations.html.

16. Three of California's then-largest fires on record occurred in 2021. *See 2021 North American Wildfire Season,* Ctr. for Disaster Philanthropy, https://disasterphilanthropy.org/disasters/2021-north-american-wildfire-season (last visited Nov. 17, 2022).

resignation and amazement, the parent added that "the problem with our company is that it had never before assessed risk to natural hazards."

The parent in this story is right: businesses, just like local governments, must focus on addressing the needs of their stakeholders, including shareholders, board members, vendors, and their employees. Although most recent major disasters seem to reveal yet another local government that has inadequately prepared for potential casualties from natural hazards, it is alarming that large businesses and the professionals who work with them—and for them—may be similarly unprepared. Many local governments, after all, are understaffed and underfunded. It is somewhat understandable that they focus only on their pressing day-to-day concerns: roads, traffic, trash collection, and public safety. But my witness to this surprising July 2021 conversation reminded me of the importance of educating both key public and private stakeholders. That is, there remains a significant need for resources that not only make the case for resilience investments and policies but also provide blueprints for those stakeholders to follow.

The American Bar Association's *The Community Resilience Handbook* is both well-timed and well-calibrated to address prevailing shortcomings in community recognition of vulnerability and local implementation of resilience-related initiatives. With a pandemic raging in the background, the *Handbook*'s editors pressed forward with finalizing a twenty-one–chapter playbook for pursuing more resilient futures. Published in the fall of 2020, *The Community Resilience Handbook* is grounded in the goal of providing even under-resourced businesses, local governments, and community-based organizations with a roadmap for implementing resilience measures. The *Handbook* makes four important contributions to helping communities identify and integrate opportunities to promote more resilient futures: it presents concise arguments for communities to pursue resilience-related strategies; it frames resilience as an ongoing process of planning and implementation; it highlights the important role that attorneys can play in promoting resilience; and it explains the reasons why enduring resilience flows from building more equitable communities.

From boardrooms to statehouses, to commission chambers and chambers of commerce, communities are increasingly fluent in their discussions of resilience and sustainability. It would seem that this trend has only accelerated over the past three years. Few would disagree that sustainability and resilience and their associated concerns are a part of the broad civic and commercial lexicon. But as the saying goes, "Talking the talk" is not the same as "Walking the walk."

COVID-19 has highlighted—for local, state, and federal governments—some of the most serious vulnerabilities that communities can and will face. Many communities have responded with programs that have aimed for greater equity, efficiency, innovation, and prudence in preparations for and recovery from disaster events. However, just as many—or more—communities have made little effort to use the COVID-19 pandemic as an opportunity to pivot to more resilient futures.[17] Some believe that they lack the necessary leadership; some remain unconvinced of the importance of adopting sustainability practices and systems resilient to shock or stressor events; and others report that they have very limited resources to pursue this work. These views reflect that adversities face our cities nationwide, but they also represent a major liability for local governments, business organizations, and their stakeholders. As communities emerge from the COVID-19 pandemic with a vivid understanding of their most vulnerable members, the time is right to correct course and to refashion and improve the historic systems that have made communities vulnerable and inequitable.

17. *See id.*

The chapter that follows speaks directly to those local governments who believe that they lack the time, staff, and other core resources to increase community resilience to disaster events.

Chapter 17

Cost-Effective Local Initiatives to Promote Resilient Disaster Recovery

John Travis Marshall[1]

Major disasters fundamentally change communities. We think immediately of the dramatic physical changes left in their wake: homes pushed off their foundations, roads and power lines severed, schools and businesses gored by winds or floodwaters.

Less apparent are a disaster's social, economic, and psychological impacts. Families lose the support of neighborhood, school, and church-based networks. Single parents lose jobs that support their household. Children are scarred with post-traumatic stress. Almost all residents suffer, but as the recovery unfolds slowly and haltingly, the poor and the marginalized pay the greatest price for delayed community recovery. Research underscores that a community's most vulnerable members continue to feel a disaster's effects years after a crisis event.[2]

It is easy to assign fault for a community's slow and often uneven rebound from a major disaster. Some blame the federal

1. The author thanks Josh Mahoney, Matthew Chick, and Will Keegan for their excellent research assistance. He also thanks Edward Thomas, Esq., Nancy McNabb, A.I.A., and George Huff, Esq. for their leadership and vision in conceiving and editing this important volume. A generous grant from the Georgia State University College of Law supported the research that informs this chapter.

2. *See* Steven P. French, Dalbyul Lee & Kristofor Anderson, *Estimating the Social and Economic Consequences of Natural Hazards: Fiscal Impact Example*, 11 Natural Hazards Rev. 49–57 (2010); Daniel A. Farber, Jim Chen, Robert R. M. Verchick, and Lisa Grow Sun, Disaster Law and Policy 204–07 (2d ed. 2010).

government.[3] They cite the glacial pace of the flagship federal disaster recovery programs, including FEMA, Small Business Administration (SBA), and HUD recovery assistance. Even when aid arrives, it is often insufficient to address survivors' most basic needs. Others observe that disasters inevitably expose deep disparities that exist in every city or county where a substantial segment of the community struggles to make a living even in the "good times."[4] But there are still other variables that need to be more fully explored, including the role that local and state governments can play in helping mitigate a disaster's impact.

Focusing specifically on the challenges of housing and neighborhood redevelopment, this chapter examines how local governments can take low-cost or no-cost steps to help promote more vigorous recoveries. Cities, counties, and towns learn from the oversights and problems encountered by other jurisdictions. They can adopt or amend laws, policies, and procedures to prepare for—and prevent—some of the circumstances that displace residents or fundamentally jeopardize the well-being of the entire community, most especially its vulnerable residents. These steps are initiatives that local governments can pursue without a large tranche of federal or philanthropic funding. This does not mean the work is easy. As any member of a local government staff or leadership team will recognize, there are few simple solutions. A local government must invest significant time and staffing resources to pursue resilience strategies that will protect its citizens and its region.

Three Practical Steps That Communities Can Take at Minimal Cost to Promote the Entire Community's Resilience to Disaster Events

Devising and implementing programs to help a community recover from a major disaster is an overwhelming responsibility.

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3. *See, e.g.*, Chris Edwards, *Hurricane Katrina: Remembering the Federal Failures*, Cato Institute (2015), https://www.cato.org/blog/hurricane-katrina-remembering-federal-failures.

4. Stewart Sarkozy-Banoczy & Nicole Bohrer-Kaplan, *Resilience 101: Resilient Cities Are a Growing Movement*, Shelterforce (May13, 2019), https://shelterforce.org/2019/05/13/resilience-101/.

The community's needs are urgent and expansive. Hundreds or thousands of people will have lost their homes, a substantial portion lacking the means to secure temporary housing, much less return and rebuild their homes and neighborhoods. Those charged with leading the local recovery often have little information about their most vulnerable displaced residents.[5] They must also wait months for long-term recovery funds to arrive before they can begin projects that will allow many displaced residents to return home. Even when those funds arrive, most jurisdictions must complete recovery plans and work with the broad range of professionals—architects, engineers, finance professionals, planners, and social workers (to name several)—who can help them envision and implement a recovery plan.

A chaotic and time-pressured post-disaster environment is not conducive to making tough decisions about a community's path to recovery. Pre-disaster hazard resilience planning can unfold with less urgency and with fewer obstacles to plan formulation and implementation. This chapter suggests three practical steps that most communities can take to promote disaster resilience. Although these steps will require substantial and continuing commitments of staff time, they need not bust budgets or require funding from competitive federal grant awards.

A First Step Is to Learn from Other Communities' Frustrations and Mistakes

"Never waste a good disaster."[6] This refrain captures the irony that disasters sometimes create opportunities, not just for the community that has endured the disaster event, but for communities that have never steered through a major disaster. A city, town, or county that aims to prioritize disaster resilience can draw valuable lessons from the problems encountered by sister communities before and after disasters.

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5. John Travis Marshall, *Rating the Cities: Constructing a City Resilience Index for Assessing the Effect of State and Local Laws on Long-Term Recovery from Crisis and Disaster*, 90 Tulane L. Rev. 35, 44–45 (2015).

6. Often attributed to Winston Churchill, but it is not clear these are his words. Many have used the phrase, most recently former Chicago mayor Rahm Emmanuel.

City-to-city or peer-to-peer learning is relatively rare. Most cities, counties, and towns don't necessarily have opportunities to learn lessons from disaster-affected jurisdiction(s).[7] The upshot is that year after year, local governments make the same or similar mistakes made in prior disasters.[8] Fortunately, there are several ways that disaster response and recovery lessons are distilled for communities to help them identify how best to rebound from disaster events. Lawyers should consult a broad range of resources to identify lessons particularly meaningful to their community's experience and circumstances. They could begin with the more obvious resources such as popular press accounts, extending to what lawyers might consider more esoteric resources including checklists and audits, and always ending with an activity lawyers are well-suited to perform: interviews with attorneys and staff who are helping storm-damaged jurisdictions recover.

News stories are helpful in tracking the general trajectory of a community's recovery. But local government staff and officials are understandably careful about the details they furnish to reporters, mindful that they will travel worldwide on the web and be tweeted for days. Some larger local governments filter information through media consultants, who deftly handle the avalanche of post-disaster press inquiries, mindful that press coverage helps frame a disaster's narrative for the world beyond the disaster zone. Thus, while news articles and even scholarly papers effectively capture the most 'photogenic' dimension of a disaster,[9] they often elide specific and unflattering details regarding local response efforts. These are details critical for lawyers to identify so that they can help peer communities avoid similar footfalls.

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7. Amy Donahue & Robert Tuohy, *Lessons We Don't Learn: A Study of the Lessons of Disasters, Why We Repeat Them, and How We Can Learn Them*, Homeland Security Affairs 2, 4 (July 2006), https://www.hsaj.org/articles/167.

8. Sarah Saadian Mickelson, Fixing America's Broken Housing Recovery System 4 (2019).

9. *See* Joseph Scanlon, *Research about the Mass Media and Disaster: Never (Well Hardly Ever) the Twain Shall Meet*, 16–17 (2011), https://training.fema.gov/hiedu/docs/emt/scanlonjournalism.pdf.

Disaster response "checklists" are another resource that can inform local governments' hazard mitigation and preparation efforts.[10] Checklist proponents credit them with helping professionals avoid careless errors that are so often footfalls for even the most experienced practitioners.[11] Although checklists may be exhaustive in their coverage of details, they can lack context. If, as the saying goes, "all disasters" and "all recoveries" are "local,"[12] then a generic checklist has the potential to flag a wide range of disaster resilience concerns that may or may not be relevant to a particular geography or a particular type of hazard threat. Thus, cities, towns, and counties must consider the factors that may be similar to, or different from, the jurisdiction impacted by the disaster.

Federal and state audits also contain extraordinarily valuable information about the mistakes that local governments made in responding to, and recovering from, a disaster. These audits generally furnish context, illuminating details about the missteps associated with expenditure of public funds.[13] These audits also represent auditors' sometimes antiseptic, by-the-book, conception of a community's disaster recovery journey. This particular view is an essential one to consider, but it rarely reflects studied concern for the post-disaster challenges that local governments

10. *See, e.g.*, Ernest B. Abbott, Otto J. Hetzel, & Lai Sun Yee, *Appendix: Legal Checklist for Actions in Disasters and Emergencies from All Hazards for State and Local Government Attorneys and Officials*, *in* Ernest B. Abbott and Otto J. Hetzel (eds.), Homeland Security and Emergency Management: A Legal Guide for State and Local Governments, 375–404 (2d. ed. 2010).

11. Atul Gawande, *The Checklist*, The New Yorker (Dec. 3, 2007), https://www.newyorker.com/magazine/2007/12/10/the-checklist.

12. *See, e.g.*, Elaine Pittman, *Remember: All Disasters Are Local, Says FEMA Deputy Administrator*, Emergency Management (Nov. 14, 2011), https://www.govtech.com/em/disaster/.

13. *See, e.g.*, Office of the Inspector General, Federal Emergency Management Agency (FEMA), Louisiana Did Not Properly Oversee a $706.6 Million Hazard Mitigation Grant Program Award for Work on Louisiana Homes, OIG-19-54 at 2–4, (July 25, 2019).

confront in trying to grapple with genuinely novel questions of law and policy.[14]

A community's recovery plan should also be informed by in-person and phone conversations with the local government staff, nonprofit leaders, business owners, and neighborhood activists who have helped their communities rebound from disaster. Frank and detailed exchanges encouraged by one-on-one meetings or phone calls are increasingly overlooked in an era where e-mails, texts, and social media have become the preferred pathways for communication. There are, of course, no assurances that local governments who encountered adversity following disaster will "reveal all" to sister jurisdictions; however, those sister jurisdictions should never underestimate the desire of communities to tell their stories to those they believe can learn from their example and benefit from their hard-earned experiences.

Attorneys are trained to move quickly to interview clients or witnesses following an event that gives rise to their representation. In the context of long-term recovery, a community's mistakes and accomplishments unfold over the course of months and years following a catastrophic event. In fact, the weeks and months immediately following a disaster aren't the best time to contact local governments digging out of disaster. It is best to wait until a community is well into its recovery—a year or more following the disaster event. At this more advanced stage of the recovery process, an attorney would begin to hear about the local government's successes and failures interfacing with state, federal, nonprofit, and philanthropic recovery programs and initiatives. The information that a lawyer gathers from other jurisdictions can inform that attorney's local government with disaster response and recovery planning. Stakeholders from local communities can come together to plan more effectively by incorporating the potential disaster risks and recovery pitfalls

14. *See, e.g.*, Office of Inspector General, Federal Emergency Management Agency (FEMA), Downtown Development District, New Orleans, Louisiana (May 29, 2009), Audit Report No. DD-09-09.

encountered by other local governments and using those scenarios to inform prudent planning for the future.[15]

A Second Step Is to Plan, Revise, and Repeat

Communities cannot afford to wait for disaster and then hope that outside government assistance will substantially address community needs. That complacent approach to disaster planning captures the mindset of many cities, towns, and counties.[16] If local governments want to give individuals, families, and businesses the best chance to rebound from disaster, then communities must take deliberate steps to pursue projects and make preparations that begin to pave their desired path to recovery.[17] Unfortunately, a review of a community's housing options, its local ordinances, and its vital transportation and communication infrastructure—just to name a few—often reveal fundamental problems. Detailed and practical planning is essential to identifying and correcting such shortcomings.

Few local governments in the United States are strangers to planning requirements. It is rare to find a local government that lacks a comprehensive planning document. But those plans are often incomplete when it comes to hazard planning. Although the Federal Emergency Management Agency (FEMA) requires local governments to complete hazard mitigation plans to

15. Disaster risk reduction professionals help communities craft their response and recovery plans by directly incorporating the experiences of cities and towns that have already navigated the maze of disaster response and recovery. *See* Disaster Risk Reduction Ambassador Curriculum, Module 6 PowerPoint Presentation: Risk Assessment Through Storytelling: An Asset-Based Approach, 3–34, *available at* http://nhma.info/wp-content/uploads/2018/drr/06_Risk_Assessment_through_Storytelling/DRR-A_06_RiskAssessmentThroughStorytelling_AnAssetBasedApproach_20170430_DELIVERABLE.pdf.

16. Donald F. Kettl, *How Much Can (and Should) Government Protect People from Natural Disaster*, Governing (June 2014), https://www.governing.com/columns/washington-watch/gov-insurer-of-last-resort.html.

17. Alice C. Hill, et al., Ready for Tomorrow: Seven Strategies for Climate-Resilient Infrastructure, 8–9 (2019) ("Policy makers and other infrastructure actors should support communities in creating visions for a resilient future that can be pursued incrementally, while also building blueprints for broader transformation should a disaster occur.") .

receive non-emergency grant funds for activities such as hazard mitigation,[18] local comprehensive plans often plan inadequately for natural hazard risks.[19] This oversight presents not only a fundamental fiscal risk for the local government, but it also means that local government staff and leaders have a poor map for helping increase the community's resilience to natural hazards. There are resources available to help communities engage in a robust planning process and create hazard planning documents that provide detailed and meaningful guidance.[20] By creating or leveraging connections with local foundations, local and national educational institutions, and local for-profit businesses, local

18. *See* Dwight H. Merriam & Rufus C. Young, *Protecting the Public Through Hazard Mitigation Planning*, *in* Homeland Security and Emergency Management: A Legal Guide for State and Local Governments 155, 158 (2010); Disaster Risk Reduction Ambassador Curriculum, Module 10 PowerPoint Presentation: Integrating Hazard Mitigation into Local Planning, 16–17, *available at* http://nhma.info/wp-content/uploads/2018/drr/10_Integrating_Hazard_Mitigation_into_Local_Planning/DRR-A_10.IntegratingHazMitIntoLocalPlanning_20170430_DELIVERABLE.pdf.

19. Local governments in the United States do not have a strong track record for assessing their climate-related risks and vulnerabilities. In 2011, researchers found that only 13 percent of U.S. cities had completed such an assessment. Sarah Adams-Schoen & Edward Thomas, *A Three-Legged Stool on Two Legs: Recent Federal Law Related to Local Climate Resilience Planning and Zoning*, 47 Urb. Lawyer 525, 529 (2015).

20. *See, e.g.*, Federal Emergency Management Agency (FEMA), Local Mitigation Planning Handbook (Mar. 2013). The Natural Hazard Management Association (NHMA) has also created an entire curriculum to help communities address the threats of disaster, including the role that preparing and revising local planning documents and ordinances can play in hazard mitigation. *See* Disaster Risk Reduction Ambassador Curriculum, Module 4 PowerPoint Presentation: Community Disaster Risk Reduction and Mitigation, 28–36, *available at* http://nhma.info/wp-content/uploads/2018/drr/04_Community_Disaster_Risk_Reduction_and_Adaptation/DRR-A_04.CommunityDRR_Adaptation_20170430_DELIVERABLE.pdf. Some states, such as Colorado, have created their own resources for helping local governments complete hazard mitigation plans. *See* Planning for Hazards: Land Use Solutions for Colorado (Mar. 2016), *available at* https://planningforhazards.com/home.

governments can tap resources that will enable them to sketch out basic hazard mitigation plans.[21]

Disasters demonstrate shortcomings in community planning efforts. The deficiencies are frequently substantive—a jurisdiction's failure to plan for an important need such as the demand for temporary post-disaster housing or its failure to address potential legal obstacles to the goal of providing more affordable housing. In almost all cases of deficient planning, it is low-income, moderate-income, and even some middle-income families and individuals that are most likely to encounter hardships post-disaster due to their hometown's inadequate planning.

Hurricane Michael provides poignant examples of how local governments overlooked important considerations in planning for disaster response and recovery. Their planning oversights are shared by local governments—big and small—throughout the United States. Two pitfalls are described here: failure to plan for temporary housing and failure to plan fully for debris management. This section of the chapter highlights these two issues because they are likely to occur in other cities, counties, and towns in the months and years ahead, unless jurisdictions act now.

Troubleshoot Temporary Housing Options. A touchstone of major disasters is devastation of a community's housing stock.[22] Many housing units are completely destroyed, and others left uninhabitable until essential repairs can be completed. In an instant, a city or county finds that a substantial number of its residents no longer have a place to call "home." Many residents temporarily find their way to family and friends' homes. Others seek immediate shelter offered by local, state, and federal governments or nonprofit agencies. As the days, weeks, and months pass, these

21. *See, e.g.*, Annie Bennett & Hillary Neger, Lessons in Regional Resilience: The Sierra Climate Adaptation and Mitigation Partnership 7 (Jan. 2017) (detailing a climate adaptation partnership among rural communities in California's Sierra Nevada Region, a partnership that receives support from the Yale School of Forestry & Environmental Studies).

22. *See, e.g.*, Heather K. Way & Maddie Sloan, *The 2008 Texas Hurricanes: Working for Equitable and Transparent Redevelopment*, *in* Building Community Resilience Post-disaster 217, 217–19 (Dorcas R. Gilmore & Diane M. Standaert, eds., 2013).

makeshift or emergency housing accommodations become more difficult to sustain due to loss of funding or overburdened friends or family.[23] Still-recovering cities and towns must then face the secondary effects of disaster events—long-term or even permanent loss of residents due to lack of adequate and ample temporary housing.

Temporary housing aids rebuilding in regions recovering from major disasters. This housing is desperately needed because delays associated with federal disaster recovery assistance or private insurance payments mean that some families wait a year or more to return to their homes.[24] Whether the temporary accommodation is a rental apartment, a hotel room, a mobile trailer, or housing units moved to, or constructed on, vacant sites in the disaster zone, that interim housing enables displaced individuals and families to remain integrated in their community. In effect, temporary housing helps curb resident outmigration, which represents a disappointing but inevitable part of any community's journey back from disaster.[25]

Surrounding communities that escaped the brunt of a disaster event also stand to gain from the availability of temporary housing options. Those surrounding communities invariably receive displaced individuals and families from the jurisdictions most acutely impacted by the disaster.[26] In these receiving

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23. Jacqueline Bostick, *Families at Panama City FEMA camps still in despair despite 6-month extension* (Mar. 7, 2020), NWFDAILYNEWS.COM, HTTPS://WWW.NWFDAILYNEWS.COM/NEWS/20200307/FAMILIES-AT-PANAMA-CITY-FEMA-CAMPS-STILL-IN-DESPAIR-DESPITE-6-MONTH-EXTENSION.

24. Greg Allen, *Recovery Is Slow in the Florida Panhandle a Year After Hurricane Michael*, NPR.ORG (Oct. 19, 2019), https://www.npr.org/2019/10/10/768722573/recovery-is-slow-in-the-florida-panhandle-a-year-after-hurricane-michael.

25. Michael Clark, *Returning to Panama City After Hurricane Michael*, CBS42 (Aug. 1, 2019), https://www.cbs42.com/weather/returning-to-panama-city/. *See also* Lymon Stone, *How Hurricanes Can Impact Population*, MEDIUM.COM (Sept. 11, 2018), https://medium.com/migration-issues/how-hurricanes-can-impact-population-f0df5782a46e.

26. Duwayne Escobedo, *The Hunt for Housing: It's Getting Tougher to Find an Affordable Home in Northwest Florida* (Oct. 5, 2019), https://www.waltonsun.com/news/20191005/hunt-for-housing-its-getting-tougher-to-find-affordable-home-in-northwest-florida.

communities, temporary housing not only enables displaced families to live where there is infrastructure to support them, but also helps to counter the potentially negative consequences associated with a sudden influx of displaced families. A sudden increase in demand in a local housing market will have the concomitant effect of a quick upswing in local rental and sale prices.[27]

As important as temporary housing may be to a successful disaster recovery, many communities are unprepared to facilitate this critical post-disaster resource. Local zoning laws often cast doubt on whether certain temporary options are permissible[28] or, worse, foreclose temporary housing options.

Micro-units or so-called tiny homes can be manufactured off-site and transported to disaster zones by truck or by rail. These units may range in size from 400 to 900 square feet and can accommodate displaced individuals or families. This form of temporary housing may run afoul of a jurisdiction's land development code provision that requires the size of all residential units to be no less than 1,000 or 1,200 square feet.[29] Further, even if a jurisdiction doesn't have a minimum square footage requirement, the jurisdiction will often have a minimum lot size provision that prevents jurisdictions from clustering placement of the micro-units in residential areas by requiring that each small unit sit on a relatively large 6,000 square foot lot.

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27. Mark A. Bernstein, Julie Kim, Paul Sorensen, et al., *Affordable Housing and Lessons Learned from Other Natural Disasters*, *in* Rebuilding Housing Along the Mississippi Coast 11–12 (2006), https://www.jstor.org/stable/10.7249/op162rc.10?seq=8#metadata_info_tab_contents.

28. *See id*.

29. Elliot Anne Rigsby, *Understanding Exclusionary Zoning and Its Impact on Concentrated Poverty*, The Century Found (June 23, 2016), https://tcf.org/content/facts/understanding-exclusionary-zoning-impact-concentrated-poverty/. This is a relatively common and exclusionary zoning restriction. *See, e.g.*, Marietta, GA Code of Ordinances Sec. 708.04(H) (establishing a minimum floor area of 1,200 sq. ft.); Forest Park, GA Code of Ordinances Sec. 8-8-51(b)(6) (establishing a minimum floor area of 1,400 sq. ft.); Alpharetta, GA Unified Development Code Sec. 2.2.9(D) (establishing a minimum floor area of 1,200 sq. ft.).

Major disasters often leave mobile home communities in shambles. Vacant or undersubscribed mobile home parks might seem like ideal spots for local and state recovery officials to site temporary travel trailers to house displaced families or construction workers aiding in local recovery efforts. However, local zoning codes may not permit mixing campers and mobile homes. That is, local governments that allow mobile home communities, where the homes are fixed permanent in place, do not necessarily allow campers or trailers that seek only temporary hook-ups for shorter-term occupancy. This is precisely the problem faced following Hurricane Michael. Contractors explored the possibility of placing travel trailers in local mobile home parks, but they were not permitted to do so because travel campers were not appropriate structures for mobile home parks.[30]

Mobile home parks are not the only places that do not allow travel campers as the principal residential dwelling unit. Following Hurricane Michael, it was discovered that several local jurisdictions do not allow trailer homes on residential properties. Given the emergency need for travel trailers to house residents whose homes had been damaged, all of the local governments amended local regulations to allow campers to be placed on single family home sites.[31]

The challenge of planning for post-disaster housing is, of course, not just a major challenge for small cities and rural communities. Daniel A. Zarrilli, New York City's Senior Director for Climate Policy and Program and New York's Chief Resilience Officer (CRO) encouraged Congress to support development of programs aimed at addressing the major post-disaster challenges associated with creating temporary housing in densely

30. *See* Patrick McCreless, *City Extends Time Frame for Temporary Housing*, Panama City News Herald (May 15, 2019), https://ufdcimages.uflib.ufl.edu/AA/00/02/89/84/01822/05-15-2019.pdf; phone Interview with Will Cramer, Bay County Long-term Recovery Task Force, and Carol Roberts, President and CEO, Bay County Chamber of Commerce (Sept. 13, 2019).

31. *See, e.g.*, City of Callaway, Florida, Ordinance No. 992, *available at* https://www.cityofcallaway.com/DocumentCenter/View/2762/Ord-992-LDR-Amendment-11_27_18.

settled urban areas.[32] With tens of thousands of people displaced, New York could not bring in trailers to help house residents. Instead, where possible, the city was forced to make basic repairs to homes or keep families in nearby hotels. New York City's approach, just like the approaches employed by communities affected by Hurricane Michael, raises a number of questions for cities about proper planning for future urban disasters. Every community engaged in planning for disaster recovery must consider the legal tools needed to make these programs possible, as well as the obstacles that could potentially stand in their way.

Establish Debris Disposal Options. Disasters fell trees, reduce roads to rubble, and destroy buildings and all their contents. Communities find themselves littered with the catastrophe's wreckage. One of the most critical parts of the disaster response process involves removing debris from public rights-of-way and essential public facilities. This process requires not only heavy equipment and skilled equipment operators, but also land to receive and hold enormous quantities of debris. Emergency response and essential repair work cannot easily proceed until roads are passable and key facilities are accessible.

The good news for local governments is that FEMA can reimburse the costs associated with removing tree trunks, building materials, and other debris from the public right-of-way. But reimbursement of local government outlays or debris removal is available only if the local government complies with FEMA regulations. Failure to follow applicable federal regulations means that a local government will, at best, experience long delays in receiving reimbursement for local funds expended on debris removal—funds that are often scarce following a major disaster.[33] At worst, FEMA could deny the local government's request for

32. *See* Hearing before the U.S. H. Subcomm. on Emergency Preparedness, Response and Communications of the Comm. on Homeland Security, 114th Cong. (2016) (Serial No. 114-80).

33. John Travis Marshall & Ryan Max Rowberry, *Urban Wreckage and Resiliency: Articulating a Practical Framework for Preserving, Reconstructing, and Building Cities* (with Ryan Rowberry) 50 Idaho L. Rev. 49, 79–81 (2014).

reimbursement.[34] This denial of reimbursement might deprive the local government of funds it could spend on other essential recovery needs, such as repairing roads, public buildings, or other infrastructure desperately needed so that neighborhoods can rebuild and residents can return home.

All local governments must anticipate the possibility of collecting and disposing of large amounts of disaster debris. Long before disaster strikes, local governments can, as part of their disaster planning efforts, identify and vet sites to receive disaster debris. In so doing, the local government can help ensure that it can devote the maximum level of its resources to helping its residents bounce back following a major disaster.

One of the most common missteps for local governments is the failure to conduct required historic and environmental reviews for proposed debris disposal sites.[35] Unless Congress has authorized waiver of these reviews, which occurs only under rare circumstances, local governments must complete these reviews prior to acquiring properties or using properties for federally-funded recovery efforts. These review requirements apply to properties that a local government designates to receive disaster debris. Unfortunately, local governments frequently overlook these required reviews.[36] Year after year, this essential aspect of post-disaster debris removal planning and procedure continues to foil local governments.

A Third Step Is a Strong Local Legal Infrastructure for Housing and Community Development Forms an Effective Bulwark Against Disaster

Most communities have been fortunate to dodge a major disaster. They have not yet seen firsthand that effective administration of conventional local housing and community development programs can serve as essential building blocks for post-disaster

34. *See id*.

35. *See* Florida Division of Emergency Management, The Florida Greenbook: Environmental and Historic Preservation Compliance 1, 7, 8, 17, 19, 20 & 30–31 (2015).

36. *See id*.

recovery. They must remember this important fact: local governments can save lives, preserve property, and reduce residents' potential suffering by investing in local programs to improve conditions for their most vulnerable residents. The good news is that there are many examples of cities and towns implementing successful housing and community development programs that have the secondary effect of making a community more resilient to disaster.[37]

This chapter briefly highlights three local initiatives that tend to promote the resilience of low- and moderate-income families. Local governments can advance protections for their communities by rethinking how they deploy existing resources, including neighborhood code enforcement programming, assistance with clearing legal title to homes, and ensuring that new development satisfied current building and zoning code standards.

Enforcement of health and safety codes and remediating persistent code violations. In Hurricane Michael's wake, the widespread loss of affordable housing has created a substantial impediment to North Florida's long-term recovery. Across the Gulf Coast Florida counties affected by Michael, the hurricane's winds and storm surge ravaged structures—many of them likely built prior to building code improvements adopted by the State is Florida in the wake of Hurricane Andrew.[38] A large number of Panama City's affordable rentals were in apartment complexes built well before the state adopted stronger code requirements.[39] Some of the complexes lost entire exterior walls. Others lost a large

37. Diane Glauber & David Zisser, *Innovative Post-Disaster Community-Based Housing Strategies*, *in* Building Community Resilience Post-disaster 371 (Dorcas R. Gilmore & Diane M. Standaert, eds., 2013).

38. Lauren Powell, Phil Buck, Andrew Krietz, *Florida's Building Codes: the Next Hurricane Could Blow Them Away*, WTSP.COM (May 5, 2019), https://www.wtsp.com/article/news/investigations/10-investigates/floridas-building-codes-the-next-hurricane-could-blow-them-away/67-c44333eb-a756-4da1-bf55-d2d439d6bbe3.

39. Patrick McCreless, *Hurricane Michael One Year Later: Housing Crunch Still a Major Obstacle*, Panama City News Herald, https://www.newsherald.com/news/20191005/hurricane-michael-one-year-later-housing-crunch-still-major-obstacle.

portion of their roofs. In both cases, the apartments were left uninhabitable, and their contents water-logged or ruined.

In the North Florida region's smaller towns, older single-family homes and mobile homes provide a significant proportion of affordable housing units.[40] Even before Hurricane Michael, deferred maintenance for aging structures rendered many units substandard, meaning that they lacked basic elements such as flooring or secure windows.[41] Michael's winds tore off roofs or felled trees that gashed roofs and walls. Mobile homes also suffered extensive damages from Michael's extraordinarily high winds.

Affordable housing that is compliant with the most recently enacted building codes helps ensure that low- and moderate-income families will have homes to which they can return immediately after the storm. Soundly constructed housing decreases the need for temporary housing highlighted earlier in this chapter. Hurricane Michael proved much of the affordable housing stock throughout its strike zone to be dated and in substandard condition. The result was devastating not only for thousands of families, but also for the region's economy. In the months immediately following the October 2018 storm, businesses were unable to reopen or operate efficiently because they were missing the employees they needed to resume business: wait staff, cooks, maintenance workers, room cleaners, health care techs, salespersons, and office support workers.[42] Over the longer-

40. Carrie Hunter, *'Blue Tarps' Documents Panhandle Recovery—Such as It Is*, Tallahassee Democrat (Sept. 27, 2019), https://www.tallahassee.com/story/opinion/2019/09/27/hurricane-michael-blue-tarps-documents-florida-panhandle-recovery/2419380001/; Faith Graham, *Jackson County to Receive Funds for Affordable Housing*, mypanhandle.com (Aug. 8, 2019), https://www.mypanhandle.com/news/jackson-county-to-receive-funds-for-affordable-housing/.

41. Jeffrey Schweers, *Despair Amid Debris: Jackson County on a Years-Long Road to Recovery After Hurricane Michael,* Tallahassee Democrat (Feb. 9, 2019), https://www.tallahassee.com/story/news/2019/02/09/despair-amid-debris-jackson-county-years-long-road-recovery-after-hurricane-michael/2799291002/.

42. Jim Turner, *Small Businesses Still Struggle to Recover from Hurricane Michael,* News Service of Florida (Aug. 17, 2019), https://www.wlrn.org

term, these communities may continue to struggle because they lack sufficient affordable housing stock to attract new businesses and residents, or to replace those firms, families, and individuals who left following the disaster and never returned.

Few cities have the resources to build new affordable housing. Fewer cities, if any, have the resources to build affordable housing to satisfy demand. However, building new housing is just one strategy for maintaining a community's affordable housing stock. Less costly, yet effective, strategies include preserving existing affordable units and returning substandard units to commerce as renovated affordable housing units. Local governments usually implement these strategies in partnership with local nonprofits and legal services organizations.

Almost all communities have the authority and resources to carry out at least one type of core neighborhood preservation programming: code enforcement and, in some cases, code lien foreclosure. Aimed both at ensuring new development complies with existing code requirements and at remediating persistently derelict properties, code enforcement is essential to ensuring that a local government can respond to a community's goal of setting baseline standards for public health and safety.

Local governments do not always have the benefit of cooperation from property owners. In some instances, property owners effectively abandon their homes.[43] In jurisdictions that furnish a legal pathway for local governments to secure title to these properties, local governments are then thrust into the role of maintaining or redeveloping abandoned properties to address a neighborhood's need for safe new affordable housing. Hurricane Michael's devastation proved so extensive and complete that small cities and counties in North Florida are already reporting that dozens of homeowners have chosen to abandon their homes. The decision for these homeowners came down to the simple math that the cost of repairing their homes would exceed

/post/small-businesses-still-struggle-recover-hurricane-michael.

43. S. Bradley Calhoun & Erika Orstad, *Code Enforcement Officers Struggle to Restore Bay County* (Jan. 9, 2020), https://www.mypanhandle.com/news/code-enforcement-officers-struggle-to-restore-bay-county/.

the homes' value. Between October 2018 and October 2019, small cities like Marianna, Florida estimate their inventory of damaged and abandoned properties in the hundreds of properties.[44] This level of abandonment represents an enormous administrative and financial challenge for any jurisdiction.

Most jurisdictions do not have a dynamic code enforcement program in place that provides communities with options for obtaining title to the homes and redeveloping them as affordable housing. But there are important exceptions. Marianna had an important head start over many other cities in Michael's path. Prior to Michael, the city established a program to identify and lien abandoned properties, foreclose those liens, and deliver the vacant structures to Habitat for Humanity for redevelopment as affordable housing.[45] Marianna faces a difficult journey to recovery following Michael, but it has a significant advantage over peer jurisdictions lacking comparable blight remediation programs.

Local code enforcement programs cannot, of course, require grandfathered properties to comply with existing code requirements. But it is critical to take note of substandard properties. Code enforcement programs can identify the risks they pose to a community and help ensure that any future significant modifications of these at-risk structures triggers code compliance.[46]

Assistance clearing title to family homes. Disasters from Hurricane Katrina to Hurricane Harvey have demonstrated repeatedly that low-income and minority residents repeatedly must forego federal and nonprofit assistance, because the residents cannot establish they have clear title to the home damaged in the

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44. *Nearly 8 Months After Hurricane Michael, Florida Panhandle Feels Left Behind*, NPR.org, https://www.npr.org/2019/05/31/727905462/nearly-8-months-after-hurricane-michael-florida-panhandle-feels-left-behind.

45. Phone Interview with Kay Dennis, City of Marianna, Florida (Aug. 30, 2019).

46. City of Marianna, Florida Comprehensive Plan, Future Land Use Element (2017), Policies 1.6.1–1.6.4, https://www.cityofmarianna.com/DocumentCenter/View/1749/Future-Land-Use-Element-2017 (last visited Mar. 8, 2020) and Policy 3.11.1 subsection 5, https://www.cityofmarianna.com/DocumentCenter/View/1750/Housing-Element-2017.

storm.[47] Current occupants of the damaged structures are frequently descendants of the original owners. Family members are living in homes actually owned by deceased parents, grandparents, aunts, or uncles. Residents who cannot provide evidence of title to the home in which they live find themselves in much more vulnerable positions than before the disaster. They either cannot live in the damaged home or they must live in an unsafe structure. They are forced to pay out-of-pocket for all repairs without access to public or philanthropic dollars, which generally cannot be awarded without proof of the occupant's legal title to the home. This is an impossible financial challenge for most low- and moderate-income families.

CoreLogic estimates that throughout rural areas of the southern United States as many as 11 percent of residential properties lack clear title.[48] These properties are commonly referred to as "heirs properties," to denote that they are occupied by heirs of the person who holds the deed. Establishing clear title before disasters strike makes it possible for property owners to secure financial assistance to fund basic repairs and improvements.

Local governments can prevent this major obstacle to family recovery. It can be difficult for local governments to identify families who lack legal title to their homes; however, when the homeowner seeks permits that require the applicant to show proof of ownership, cities and counties can help facilitate partnerships that connect property owners with low or no-cost legal services. Local governments can help families secure clear title to their properties by fostering connections between local churches, schools, health clinics, and local and state bar associations and legal services organizations. Fourteen states have passed heirs

47. In responding to Hurricane Maria (2017), "FEMA denied assistance to at least 77,000 survivors due to title documentation issues." Sarah Saadian Mickelson, Fixing America's Broken Housing Recovery System 9 (2019).

48. Ann Carpenter, Federal Reserve Bank of Atlanta, *Understanding Heirs Properties in the Southeast* (2016), https://www.frbatlanta.org/community-development/publications/partners-update/2016/02/160419-understanding-heirs-properties-in-southeast.aspx.

properties statutes that establish more streamlined procedures to help families clear title.[49]

Issue permits and approvals for housing work only if the proposed work meets code requirements. A local government's code and ordinances establish a baseline development standard. Ideally, local governments have a commitment to adopting building and zoning code provisions that exceed minimum requirements;[50] however, at minimum, cities and towns should enforce code provisions currently in force.

Local governments can put residents and the public in harm's way by failing to properly perform permitting responsibilities. This failure may be serious, such as an inspector's failure to confirm compliance with local codes.[51] This includes local boards of adjustment deciding to grant variances from setback or elevation requirements even when applicants cannot make a sufficient case.[52] The failure may also be inadvertent, such as when a local government unintentionally overlooks compliance with local zoning and building codes.

In anticipation of future disaster events, local governments must commit to enforcing building and zoning codes. The lowest cost steps to protect vulnerable residents from disaster simply involve adhering to the laws already "on the books." As easy as this approach to disaster resilience may seem, failure to observe and enforce existing codes remains a persistent cause of post-disaster casualties. Local governments must take steps to train

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49. Chris Odinet, *Mitchell on Heirs Property Reform and the Farm Bill*, PropertyProfBlog (June 21, 2019), https://lawprofessors.typepad.com/property/2019/06/mitchell-on-heirs-property-reform-and-the-farm-bill.html.

50. Some suggest that local governments should be explicit in using their land development standards to "bake in" local resiliency to natural hazards. *See* Shelby D. Green, *Zoning Neighborhoods for Resilience: Drivers, Tools, and Impacts*, 28 Fordham Envtl. L. Rev. 41, 86 (2016).

51. David Hammer, *WWL-TV: 'Unconscionable' abuses cause shake-up at embattled New Orleans permits dept*, Nola.com (Mar. 2, 2020), https://www.nola.com/news/politics/article_e36e1270-5cc4-11ea-8223-17e90a24bb22.html.

52. Most often this means failure to slow a hardship that has not been self-created. *See* Julian Conrad Juergensmeyer et al., Land Use Planning and Development Regulation Law § 5.14 (3d ed. 2013).

their local zoning boards and planning staff regarding the legal and life-safety jeopardies involved in ignoring or overlooking code requirements.

Concluding Thoughts on Disaster Resilience and Vulnerable Communities

If recent U.S. disasters teach us anything, it should be that local governments can't afford to maintain the status quo. Hundreds, thousands, or even tens of thousands of vulnerable local residents sit in the crosshairs of the next disaster. If local governments are committed to saving lives, preventing suffering, and preserving limited fiscal resources, then they must now take decisive action.

Lawyers have an essential role to play in crafting local interventions to mitigate some of the conditions contributing to community vulnerabilities. Disaster mitigation as well as response and recovery programs are currently anchored in a confusing web of federal statutes, regulations, and case law. To make matters even more complex, these federal legal requirements often mesh awkwardly with the restrictions and conditions imposed by the laws of the 50 states and the ordinances of hundreds of local governments.[53]

Woven into the fiber of legal training and practice are not just the analytical, communication, and drafting tools that help lawyers identify and manage legal impediments to community resilience. Just as important is the lawyer's obligation to help serve those who, by virtue of their social, economic, or personal circumstances, lack access to representation. Schooled thoroughly in coursework that highlights civil rights, constitutional protections, fairness, equity, and access to justice, lawyers are particularly well-suited to engage problems associated with the significant personal and community losses suffered in disasters—losses that disproportionately burden the most vulnerable.

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53. Donovan Finn and John Travis Marshall, *Local Governments' Hidden Barriers to Disaster Recovery*, Governing (June 6, 2018), http://www.governing.com/gov-institute/voices/col-local-governments-hidden-barriers-disaster-recovery-zoning-building-codes.html; John Travis Marshall and Edward Thomas, *Cities Can Prepare for Hurricanes By Reforming Laws*, U.S. News & World Report (May 31, 2016), http://www.usnews.com/news/articles/2016-05-31/cities-can-prepare-for-hurricane-season-by-reforming-laws.

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Introduction: *Regulatory Takings After* Knick*: Total Takings, the Nuisance Exception, and Background Principles Exceptions: Public Trust Doctrine, Custom, and Statutes*

David Callies*

The development of regulatory takings theory has flourished over the past century thanks to efforts by the U.S. Supreme Court to fine-tune the appropriate tests and factors for nonphysical takings effected by land use regulation. Unfortunately, application and use of such tests have been seriously diminished by the ripeness barrier *Williamson County Regional Planning Commission v. Hamilton Bank of Johnson City* raised for many property owners seeking relief for a valid regulatory takings claim.[1] The Supreme Court's recent decision in *Knick v. Township of Scott*[2] has been aptly described by some commentators as the most significant property rights case of the last decade. In *Knick*, the Court found the regulatory takings claim, which had not yet been denied compensation in state court, was ripe nonetheless.[3] In doing so, the Court explicitly overturned the second prong of the so-called *Williamson County* ripeness test that required property owners to seek a remedy through state action—usually just compensation—for the alleged taking before coming to federal court.

Regulatory Takings After Knick[4] summarizes the Supreme Court's decision in *Knick* and emphasizes total takings after *Lucas v. South Carolina Coastal Commission*[5] and the exceptions that permit the government to so strictly regulate property as to permit no economically beneficial use of it. *Regulatory Takings* explains the elements of these exceptions in great detail in separate chapters. Understanding these exceptions is critical to litigating about land use regulations for open space, agriculture, and preservation and conservation where the subject land is left without any economic use. If the exceptions apply, the landowner gets no compensation. If the exceptions do not apply, the landowner prevails. In Chapter 1,

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1. Williamson Cnty. Reg'l Plan. Comm'n v. Hamilton Bank of Johnson City, 473 U.S. 172 (1985).
2. Knick v. Twp. of Scott, 139 S. Ct. 2162, 2179–80 (2019).
3. *See id.* at 2179.
4. David Callies, Regulatory Takings After Knick: Total Takings, the Nuisance Exception, and Background Principles Exceptions: Public Trust Doctrine, Custom, and Statutes (ABA 2020).
5. Lucas v. S.C. Coastal Council, 505 U.S. 1003 (1992).

which follows, *Regulatory Takings* begins by providing an overview and analysis of regulatory takings law, together with recent trends in each.

CHAPTER 1

Regulatory Taking, Ripeness, and Categorical Takings after *Lucas*

A. Takings: An Overview

Property rights, and in particular rights in land, have always been fundamental to and part of the preservation of liberty and personal freedom in the United States.[6] They are particularly so today.[7]

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6. For a summary of the 13th- and 14th-century roots of our present constitutional principles and the treatment of property rights through the late 1980s, *see* Norman Karlin, *Back to the Future: From* Nollan *to* Lochner, 17 SW. U. L. REV. 627 (1988). "To the Framers [of the Constitution] identifying property with freedom meant that if you could own property, you were free. Ownership of property was protected." *Id*. at 638. For a series of essays on property rights in America between the 17th and 20th centuries, *see* LAND LAW AND REAL PROPERTY IN AMERICAN HISTORY (Kermit L. Hall, ed., 1987). For an excellent analysis of the relationship between property rights and other fundamental rights, *see* JAMES W. ELY, JR., THE GUARDIAN OF EVERY OTHER RIGHT: A CONSTITUTIONAL HISTORY OF PROPERTY RIGHTS 136 (2d ed. 1998).

7. *See* William W. Van Alstyne, *The Recrudescence of Property Rights as the Foremost Principle of Civil Liberties: The First Decade of the Burger Court*,

Professor Richard Epstein, in his seminal work on property and takings, describes "[t]he notion of exclusive possession" as "implicit in the basic conception of private property."[8] It is so recognized in the first edition of the American Law Institute's Restatement of the Law of Property in 1936:

> § 7 Possessory Interests in Land.
>
> A possessory interest in land exists in a person who has (a) a physical relation to the land of a kind which gives a certain degree of physical control over the land, and an intent so as to exercise *such control as to exclude* other members of society in general from any present occupation of the land.[9]

The U.S. Supreme Court has cited this section with approval in several cases discussing property rights.[10]

While regulations of land were analyzed differently from physical takings for much of the early history of the United States, this changed radically in 1922 with the near-unanimous decision of the U.S. Supreme Court in *Pennsylvania Coal Co. v. Mahon*.[11] There, the Court held that a regulation that goes "too far" is a taking of property, presumably as much as the physical taking or invasion of property is a taking of property.[12] Of course, in both instances—regulatory

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43 Law & Contemp. Probs. 66 (1980); Carol M. Rose, *Property as the Keystone Right?*, 71 Notre Dame L. Rev. 329 (1966). For an excellent argument concerning the fundamental nature of property rights under the substantive due process clause, *see* Ronald J. Krotoszynski, Jr., *Fundamental Property Rights*, 85 Geo. L.J. 555 (1997).

8. Richard A. Epstein, Takings: Private Property and the Power of Eminent Domain 63 (1985).

9. Restatement of Property § 7 (1936) (emphasis added).

10. *See, e.g.*, Tahoe-Sierra Pres. Council, Inc. v. Tahoe Reg'l Planning Agency, 535 U.S. 302, 331–32 (2002); Loretto v. Teleprompter Manhattan CATV Corp., 458 U.S. 419, 435–36 (1982).

11. 260 U.S. 393 (1922).

12. *Id.* at 415. For general comment on *Pennsylvania Coal*, *see generally* Fred P. Bosselman, David L. Callies & John Banta, The Takings Issue (1973); Steven J. Eagle, Regulatory Takings (1996); Epstein, *supra* note 8; William

takings and physical takings/invasions—property rights are preserved and the Constitution's Fifth Amendment protection may be viewed as irrelevant, so long as the property owner receives just compensation for the property interest taken. While state and lower federal courts have hewed strictly to the requirement of compensation for physical taking, state courts chose largely to ignore the new doctrine of regulatory takings from the 1930s through the 1970s, particularly as governmental regulation for a host of environmental, "welfare"-like public purposes proliferated.[13] Thus, various state appellate and supreme courts as well as some federal courts upheld regulations that substantially devalued or destroyed the economically beneficial use of the relevant property interest to preserve open space and various natural resources.[14]

This trend toward upholding such "regulatory takings" accelerated, due in part to a glacial silence from the U.S. Supreme Court following *Pennsylvania Coal* in 1922[15] and *Village of Euclid v. Ambler Realty Co*. in 1926.[16] Aside from a brief 1928 foray into zoning as

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A. Fischel, Regulatory Takings: Law, Economics, and Politics (1995); Jan Laitos, The Law of Property Rights Protection (1998); Meltz et al., *infra* note 31. For an often argued, though somewhat revisionist view of what *Pennsylvania Coal* may mean, *see* Robert Brauneis, *"The Foundation of Our 'Regulatory Takings' Jurisprudence": The Myth and Meaning of Justice Holmes's Opinion in* Pennsylvania Coal Co. v. Mahon, 106 Yale L.J. 613 (1996).

13. *See* Bosselman, Callies & Banta, *supra* note 12, at 141–235.

14. *See, e.g.*, Steel Hill Dev., Inc. v. Town of Sanbornton, 49 F.2d 956, 962–63 (1st Cir. 1972) (forest conservation districts); Candlestick Properties Inc. v. San Francisco Bay Conservation & Dev. Comm'n, 89 Cal. Rptr. 897, 906 (Cal. Ct. App. 1970) (shorelines); Maher v. City of New Orleans, 235 So. 2d 402, 405–06 (La. 1970) (historic preservation); *In re* Spring Valley Dev., 300 A.2d 736, 754 (Me. 1973) (pond shore); Potomac Sand & Gravel Co. v. Governor of Md., 293 A.2d 241, 252 (Md. 1972) (tidal waters); McNeely v. Board of Appeal, 261 N.E.2d 336, 345 (Mass. 1970) (local business district); Golden v. Planning Bd., 285 N.E.2d 291, 304–05 (N.Y. 1972) (growth management); Just v. Marinette County, 201 N.W.2d 761, 772 (Wis. 1972) (wetlands).

15. 260 U.S. 393 (1922).

16. 272 U.S. 365 (1926).

applied,[17] and the destruction of one form of private property (red cedar trees) to preserve another (apple trees),[18] the Court abandoned the field to state and lower federal courts for nearly half a century.[19] When it did break this silence on April Fool's Day in 1974, it did so to ignominiously uphold a local ordinance prohibiting three or more persons unrelated by blood or marriage from living in the same single-family house in order to preserve "[a] quiet place where yards are wide, people few, and motor vehicles restricted . . . where family values, youth values, and the blessings of quiet seclusion and clean air make the area a sanctuary for people."[20] Once having dipped its collective toe in this dank swamp, however, the Court soon found itself enmeshed in the arcane law of regulatory takings and property rights, for which it very nearly threw in the towel, showing itself to be a very different Court from the *Pennsylvania Coal* Court in 1922.[21]

The law of takings is divided into two principal parts: physical and regulatory. In the first category is that which we call eminent domain or compulsory purchase. With one exception (inverse condemnation), physical taking occurs when government intends to take land or an interest in land. Regulatory taking occurs when government, through the exercise of the police or regulatory power, so burdens land, or an interest in land, with land use regulations that courts treat the action as if government had intended physically to exercise eminent domain or take or condemn the land. U.S. Supreme Court cases govern most aspects of takings on the theory that either the Fifth Amendment to the U.S. Constitution (nor shall private property be taken for public use without the payment of just compensation) or the 14th Amendment (nor shall private property be taken without due process of law) applies to both physical and

17. *See* Nectow v. City of Cambridge, 277 U.S. 183 (1928).
18. *See* Miller v. Schoene, 276 U.S. 272, 277, 280 (1928).
19. *See* Dennis J. Coyle, Property Rights and the Constitution: Shaping Society through Land Use Regulation 40–49 (1993).
20. Village of Belle Terre v. Boraas, 416 U.S. 1, 2, 9 (1974).
21. *See* Ely, *supra* note 6.

regulatory takings. What follows is a general description and analysis of the types of regulatory takings together with recent trends in each.

1. Regulatory Takings

If a land use regulation (zoning, subdivision, and so forth) goes "too far" in reducing the use of a parcel of land, then it is a taking requiring compensation as if government physically took or condemned an interest in (or all of) the land. This basic principle was established in 1922 in the U.S. Supreme Court case of *Pennsylvania Coal Co. v. Mahon*.[22] The question, of course, is, what's "too far"? The Court in *Pennsylvania Coal* made it abundantly clear that the decision was not an attack on all land use controls.[23] Indeed, just four years later, the same Court upheld local zoning against a 14th Amendment attack (taking of property without due process of law).[24] The Court has reiterated that state and local government may regulate the use of land under the police power, for the health, safety, and welfare of the people, without violating constitutional proscriptions against the taking of property without compensation many times in the past dozen years.[25] However, the Court has also laid down guidelines for when a regulation takes property. These fall into two categories: total or per se takings and partial takings.

a. Total Takings

A land use regulation totally "takes" property when it leaves the owner without any "economically beneficial use" of the land.[26] The land may still have value. It may even retain some limited uses. It makes no difference what the landowner knew or should have known about the regulatory climate when the landowner acquired the land.

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22. 260 U.S. 393 (1922).
23. *Id*. at 413.
24. Village of Euclid v. Ambler Realty Co., 272 U.S. 365 (1926).
25. *See, e.g.*, Dolan v. City of Tigard, 512 U.S. 374 (1994), *and* First English Evangelical Lutheran Church v. County of Los Angeles, 482 U.S. 304 (1987).
26. Lucas v. South Carolina Coastal Council, 505 U.S. 1003, 1027 (1992).

If it has no beneficial economic use, then government must pay for the land or rescind the regulation (and possibly pay compensation for the time during which the illegal regulation affected the relevant land), unless the regulation falls within two exceptions: nuisance or background principles of a state's law of property.[27] These rules come from the U.S. Supreme Court's 1992 decision in *Lucas v. South Carolina Coastal Council*,[28] confirmed and explained in *Palazzolo v. Rhode Island*,[29] together with some gloss added by recent decisions of the U.S. Federal Circuit.[30] It is worth examining the elements of total takings in a bit more detail to fully understand the reach of what the Court calls this categorical or per se rule.

i. Taking of All Economically Beneficial Use

In *Lucas*, the Court was presented with an ideal vehicle in which to set out criteria for deciding both total and partial takings cases. It did so in the first category—total takings—in the opinion itself. It did so in the latter category in footnotes, as described in Part b below. With only two exceptions (also discussed below), a regulation "takes" property when the landowner is left with no economically beneficial use of the land.[31]

Ultimately, that is what happened to David Lucas.[32] After developing a waterfront residential project, Lucas purchased the remaining two lots on his own account, intending to build upscale

27. *Id*. at 1029.
28. *Id*.
29. 533 U.S. 606 (2001).
30. *See, e.g.*, Love Terminal Partners, L.P. v. U.S., 889 F.3d 1331 (Fed. Cir. 2018); Lost Tree Hill Corp. v. U.S., 787 F.3d 1111 (Fed. Cir. 2015).
31. *See Lucas*, 505 U.S. at 1019. For collective comment on *Dolan* and *Lucas*, *see* Takings: Land Development Conditions and Regulatory Takings after *Dolan* and *Lucas* (David L. Callies, ed., 1996) *and* Robert L. Meltz et al., The Takings Issue: Constitutional Limits on Land Use Control and Environmental Regulation (1999).
32. *See generally* David Lucas, Lucas vs. the Green Machine (1995) (providing the historical narrative of this landmark case).

single-family residences on them.[33] However, before he could commence construction, the South Carolina Coastal Council moved the beachline (seaward of which construction was prohibited) so that the Lucas lots were now in a construction-free zone.[34] The original line, the new line, and the coastal protection statue by which authority the council acted all were designed to further some health, safety, but primarily welfare, purposes largely unique to coastal areas.[35] Figuring prominently in the list of public purposes was the protection of habitat; plant, animal, and marine species; dunes; natural environment; and the tourist industry.[36] Lucas claimed the moving of the line, together with the development restrictions imposed by the statute and its regulations, took his property without compensation by denying him a permit to construct anything but walkways and permitting no uses but camping and walking on the two lots.[37] The South Carolina Supreme Court upheld the statute largely on the grounds of the paramount governmental purposes set out in the Beachfront Management Act, and Lucas appealed.[38]

The U.S. Supreme Court reversed.[39] The rule the Court announced is a narrow one: a regulation that removes all productive or economically beneficial use from a parcel of land is a taking requiring compensation under the Fifth Amendment.[40] Note that the Court writes of *use* and not *value*. Clearly two beachfront lots have value even if a regulation prevents all economic *use*. "Salvage" uses such as camping and picnicking do not count as "economically beneficial" uses such as building a house. It is a taking regardless of how or when the

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33. *Lucas*, 505 U.S. at 1006–08.
34. *Id*. at 1008–09.
35. *See id*. at 1007–08
36. 16 U.S.C. §§ 1451 et seq. (1972).
37. *See Lucas*, 505 U.S. at 1007–09.
38. *Id*. at 1009–10.
39. *Id*. at 1032.
40. *See id*., 505 U.S. at 1016–19. Note this is not the same as rendering the lots or parcels *valueless*, as some commentators would have it. *See, e.g.,* MELTZ ET AL., *supra* note 31, at 140, 218.

property was acquired, regardless of the "expectations" of, or notice to, the landowner, and (of course) regardless of the public purpose or state interest that generated the regulation. For too long, according to the Court, police power regulations have primarily conferred "public benefits."[41] For this the *public* must clearly pay, rather than the landowner upon whom the burden of such regulation falls:[42]

> Where the State seeks to sustain regulation that deprives land of all economically beneficial use, we think it may resist compensation only if the logically antecedent inquiry into the nature of the owner's estate shows that the proscribed use interests were not part of his title to begin with.

ii. The Exceptions to the per se or Categorical Rule

Herein lie the *Lucas* exceptions to the per se rule of total takings: the Court requires compensation for taking of all economically beneficial use unless there can be identified "background principles of nuisance and property law that prohibit the uses [the landowner] now intends in the circumstances in which the property is presently found."[43] These background principles have been held to include

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41. *See Lucas*, 505 U.S. at 1024.

42. *Id*. at 1027. For a historical argument that much private use of wetlands is not part of such title, see Fred P. Bosselman, *Limitations Inherent in the Title to Wetlands at Common Law*, 15 STAN. ENVTL. L.J. 247 (1996). For a typical recent federal court decision applying this standard, *see* Wise v. City of Lauderhill, 2016 WL 3747605 (2016).

43. *Lucas*, 505 U.S. at 1031. Arguing that *only nuisance* is a background principle exception, *see* MELTZ ET AL, *supra* note 31, at 377. For extended commentary on the *Lucas* exceptions, *see* Louise A. Halper, *Why the Nuisance Knot Can't Undo the Takings Muddle*, 28 IND. L. REV. 329 (1995); Todd D. Brody, Comment, *Examining the Nuisance Exception to the Takings Clause: Is There Life for Environmental Regulations after Lucas?*, 4 FORDHAM ENVTL. L. REP. 287 (1993); J. Bradley Horn, Case Notes, 43 DRAKE L. REV. 227 (1994); Brian D. Lee, Note, 23 SETON HALL L. REV. 1840 (1993).

custom and the public trust doctrine[44] and possibly statutes and state constitutions under certain conditions, as discussed in Chapters 2–4.

In sum:

(a) If the common law of the state would allow neighbors or the state to prohibit the two houses that Lucas wants to construct because they are either public or private nuisances, then the state can prohibit them under the coastal-zone law without providing compensation. This result occurs because such nuisance uses are always unlawful and are never part of a landowner's title, so prohibiting them by statute would not take away any property rights. The Court gives as an example a law that might prohibit a landowner from filling his land, which floods his neighbor's land.[45]

(b) If the background principles of the state's property law would permit such prohibition of use as the two houses Lucas proposed to construct, then again no compensation is required, again because land use restrictions based on such principles were never part of a landowners' title to begin with. However, the Court did not fully explain these principles, nor did it discuss them except in a nuisance context.

In determining whether the proposed use is a public or private nuisance and therefore forbidden without payment of compensation, the following three factors are critical, but *only* within the nuisance context:

1. the degree of harm to public lands and resources, or adjacent private property, posed by the claimant's proposed activities,
2. the social value of the claimant's activities and their suitability to the locality in question, and

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44. Bridge Aina Le'a LCC v. Land Use Comm's, 2016 WL 79567 (2016).
45. *Lucas*, 505 U.S. at 1029.

3. the relative ease with which the alleged harm can be avoided through measures taken by the claimant and the government (or adjacent private landowners).[46]

iii. Notice

The *Lucas* Court made it clear that when a property owner learned of a land use regulation's effect on the subject, property was irrelevant to a total regulatory takings challenge, just as it would be irrelevant in an eminent domain proceeding.[47] While the Rhode Island Supreme Court attempted to engraft such a notice requirement on total takings jurisprudence, the U.S. Supreme Court in *Palazzolo*, discussed below in subsection 2, firmly rejected that attempt.[48]

b. Partial Takings

A partial taking occurs whenever a land use regulation deprives a landowner of sufficient use and value that goes beyond necessary exercise of the police power for the health, safety, and welfare of the people but stops short of depriving the landowner of all economically beneficial use.[49] Indeed, the Court in *Palazzolo* ultimately decided that Palazzolo suffered only a *partial taking*.[50] Partial takings by regulation are more common than total takings, and the standard is not so easy to apply.

The standards originated in the first regulatory taking case decided by the U.S. Supreme Court following its half-century of silence following *Pennsylvania Coal*, *Euclid*, and *Nectow: Penn Central Transportation Co. v. New York*.[51] Penn Central Transportation Company sought relief from New York City historic preservation ordinances prohibiting it from developing Grand Central Station

46. *Id.* at 1030–31 (citations omitted).
47. *See id*. at 1027–28.
48. Palazzolo v. Rhode Island, 533 U.S. 606 (2001).
49. *See* Penn Central Transp. Co. v. City of New York, 438 U.S. 104 (1978).
50. *Palazzolo*, 533 U.S. at 631–32.
51. *Penn Central Transp. Co.*, 438 U.S. 104 (1978).

into a 55-story office building.[52] In the course of deciding that such regulations were valid exercises of the police power and denying compensation for an alleged Fifth Amendment regulatory taking, the Court first admitted difficulty in coming up with regulatory taking standards[53] but then offered as "relevant" the following two tests:

1. the economic effect on the landowner, and in particular, the extent to which the regulation interfered with the distinct (later reasonable) investment back expectations of the landowner, and
2. the character of the regulation, or whether it resulted in a physical or a regulatory taking.[54]

Because this book deals almost entirely with total or categorical regulatory takings after *Lucas*, this brief summary of partial regulatory takings after *Knick* ends here, with the caveat that much of what follows about *Knick* and ripeness in section B, *infra*, is applicable to both categorical regulatory taking claims under *Lucas* and partial regulatory taking claims under *Penn Central*.

2. *Lucas* Takings and the Court, Waiting for the "Extraordinary Case"

Nearly two decades later, the Court accepted a takings claim that utilized its total regulatory taking test defined in *Lucas*. In *Palazzolo v. Rhode Island*, the Court examined a coastal regulation that left only the upland portion of an 18-acre parcel, primarily a salt marsh susceptible to tidal flooding, developable.[55] Persuaded by the trial court's finding that the parcel retained a "few crumbs" of development use, the Court found the *Lucas* claim failed and remanded the case for decision under partial takings analysis.[56] Despite dutifully

52. *Id*. at 116–17.
53. *Id*. at 123–24.
54. *Id*. at 124.
55. 33 U.S. 606, 614–15 (2001).
56. *Id.* at 631–32.

reciting the claim in "*Lucas* terms,"[57] the Court conflated "use" and "value" by finding residual monetary value dispositive of whether there remained economically beneficial use.[58] Value, however, is not the measure the Court articulated in *Lucas*. When the Court found a total taking, as the trial court had in *Lucas*, the Court notably did not repeat the trial court's use of "value" and instead defined its total regulatory taking test as deprivation of all economically beneficial use.[59]

Soon after, the Court accepted certiorari in *Tahoe-Sierra Preservation Council v. Tahoe Regional Planning Agency*.[60] The issue was the degree of a temporary taking that would satisfy the Court's earlier decision in *First English Evangelical Lutheran Church of Glendale v. Los Angeles County, California* 15 years prior.[61] In *First English*, the Court said a lot about regulatory takings, finding the county ordinance deprived the landowner of all use of its property for a "considerable period of years" and required compensation for the period of the taking in addition to invalidation of the ordinance for constitutionally sufficient remedy.[62] Nonetheless, *First English* noted that property owners must accept normal delays in land use permitting processes without compensation.[63]

In *Tahoe-Sierra*, the Court clarified the temporary taking ambiguity, noting that a moratorium of unreasonable length could effect a taking but only in applied challenges.[64] The Court again mixed up value with use by observing that "a fee simple estate cannot be rendered valueless by a temporary prohibition on economic use, because the property will recover value as soon as the prohibition is lifted."[65] The Court found no taking because a total taking

57. *Id.* at 649 (Ginsburg, J., dissenting).
58. *Id.* at 631.
59. *Lucas*, 505 U.S. at 1019.
60. 535 U.S. 302 (2002).
61. 482 U.S. 304 (1987).
62. *Id.* at 322.
63. *Id.* at 321.
64. *See Tahoe-Sierra Pres. Council Inc.*, 535 U.S. at 320.
65. *Id.* at 332.

is reserved for "the 'extraordinary case' in which a regulation permanently deprives property of all value."[66] Therefore, the regulation prohibiting any economic use of land for a 32-month period did not, under the *Tahoe-Sierra* Court's analysis, constitute a categorical taking under *Lucas*.[67]

This departure from the "*all* economically beneficial use" language of *Lucas* was to a large extent rectified in the Court's 2005 review of takings jurisprudence in *Lingle v. Chevron U.S.A. Inc*.[68] Justice O'Connor, writing for a unanimous court, not only overruled the "substantially advances" test for a Fifth Amendment taking (reversing *Agins v. City of Tiburon*),[69] but also reiterated that the original tests for both total and partial regulatory takings had not changed.[70] The Court confirmed that a *Lucas* taking occurs "where regulations completely deprive an owner of 'all economically beneficial use[e]' of her property."[71]

Again, in *Arkansas Game and Fish Commission v. United States*, the Court directly addressed the total takings standard in a case arising out of the impact of government-induced temporary flooding that impaired the landowner's use of its property for timber growing.[72] The Court reiterated that the temporary nature of a taking does not exempt the claim from the Takings Clause.[73] In briefly reviewing its takings jurisprudence, the Court repeated that a total taking occurs when a regulation permanently requires landowners to sacrifice all economically beneficial use of their land.[74]

Most recently, in *Murr v. Wisconsin*, the Court avoided finding a total taking by defining the relevant parcel to include plaintiffs'

66. *Id.*
67. *Id.* at 331–32.
68. 544 U.S. 528 (2005).
69. 447 U.S. 255 (1980), *rev'd* 544 U.S. 528 (2005).
70. *Lingle*, 544 U.S. 528.
71. *Id*. at 538.
72. 568 U.S. 23 (2012).
73. *Id.* at 34.
74. *Id.* at 32.

adjacent parcel.[75] Thus, plaintiffs' *Lucas* claim that state and local regulations preventing use or sale of Lot E because it had less than one acre of land suitable for development failed because the Court deemed the remaining use on Lots E and F in the aggregate sufficiently economically beneficial.[76]

3. The Circuits

Since *Lucas*, the First, Second, Third, and Sixth Circuits have yet to decide a total takings claim.[77] Other circuits tend to apply the *Lucas* standard of all economically beneficial use, although some decisions appear to mix or conflate use with value, contrary to *Lucas* and its U.S. Supreme Court progeny.[78] Most federal appellate courts largely follow the Supreme Court's direction to look at residual use, not value, in reviewing categorical takings claims. Thus, for exam-

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75. 137 S. Ct. 1933 (2017).

76. *Id.* at 1950.

77. *E.g.*, Deniz v. Municipality of Guaynabo, 285 F.3d 142 (1st Cir. 2002) (concluding plaintiff's failure to seek compensation through Puerto Rico's inverse condemnation remedy renders both the takings and substantive due process claims unripe for federal adjudication); *and* Sunrise Detox V, LLC v. City of White Plains, 769 F.3d 118 (2nd Cir. 2014) (declining adjudication of plaintiff's regulatory taking theory for lack of ripeness under *Williamson County*); 287 Associates v. Township of Bridgewater, 101 F.3d 320 (3rd Cir. 1996) (holding *Lucas* did not "create" plaintiffs' total taking cause of action because the *Lucas* Court emphasized there was nothing new to its economically beneficial use rule, and such argument failed to revive a claim where statute of limitations had tolled); Anderson v. Charter Township of Ypsilanti, 266 F.3d 487 (6th Cir. 2001) (holding that landowner effectively waived right to pursue federal takings claims in federal court after township removed case and federal court remanded state court issues); *and* Alto Eldorado Partnership v. County of Santa Fe, 634 F.3d 1170 (10th Cir. 2011).

78. *E.g.*, Quinn v. Bd. of Cty. Commm'rs for Queen Anne's Cty., Md, 862 F.3d 433, 442 (4th Cir. 2017) (rejecting a *Lucas* claim because the lots retained some "value for assemblage under the challenged grandfather/merger provision"); Lost Tree Hill Corp. v. U.S., 787 F.3d. 1111, 1113 (Fed. Cir. 2015) (affirming "that a *Lucas* taking occurred because the government's permit denial eliminated all value stemming from [the parcel]'s possible economic uses.").

ple, the Fifth Circuit found an ordinance that prohibited all mining deprived the landowner of all use of its property interest—quarrying rights—and that the ordinance, therefore, was a categorical taking.[79] The Tenth Circuit similarly found restrictions prohibiting the use of 40 acres of land from its customary use—growing and feeding dairy cattle—constituted a deprivation of all economically beneficial use.[80] The Eleventh Circuit similarly focused on the taken use and available remaining uses in reviewing the challenged rezoning of a beachfront property from RU-2, residential duplex use, to PA, private airport use, shortly after plaintiff purchased the property.[81] The trial court found that under the new zoning ordinance, the property could still be used in "several economically viable ways: as a private airport, and also for the construction of boat slips, a beach club, or dry storage space for boats."[82]

B. Ripeness: *Knick* and Before

The question of when a regulatory takings claim is "ripe" for review arises because of tests the Supreme Court has articulated in deciding regulatory takings claims. If a court cannot determine the extent of economic loss (whether partial or total), it cannot decide whether a regulatory taking has occurred. When a claimant sues under the Fifth Amendment, the issue of damages is critical because the Amendment does not categorically prohibit takings but only takings without just compensation.[83] This consideration underlies the so-called ripeness doctrine, which is set out in the Court's *Williamson County* decision.[84] Ever since, this "prudential" inquiry has become a virtually insuperable barrier to bringing regulatory takings claims, in part because some courts have con-

79. Vulcan Materials Co. v. City of Tehuacana, 369 F.3d 882, 891–92 (2004).
80. U.S. v. Hardage, 996 F.2d 312 (10th Cir. 1993).
81. New Port Largo, Inc. v. Monroe County, 95 F.3d 1084 (11th Cir. 1996).
82. *Id.* at 1089.
83. U.S. Const. amend. V.
84. Williamson Cty. Reg'l Planning Comm'n v. Hamilton Bank of Johnson City, 473 U.S. 172 (1985) [hereinafter *Williamson County*].

verted the two-part ripeness test into a jurisdictional, rather than a prudential, rule. The application of the test has become a further hurdle for plaintiff landowners when federal courts "preclude" plaintiffs from raising takings issues litigated first in state court in order to satisfy the state action ripeness prong.

Fortunately, the Court eliminated the state action/litigation requirement in *Knick v. Township of Scott, Pennsylvania*.[85] Moreover, a wave of other recent decisions recognize ripeness as primarily prudential. As a prudential inquiry, courts may refuse to raise the ripeness barrier in particularly egregious circumstances, such as when a plaintiff landowner has spent years in court attempting to reach the merits of a regulatory takings claim.

The state action requirement began with *Williamson County*, in which the Court barred Hamilton Bank, the owner of a parcel that was denied development approval by Williamson County, from bringing a regulatory taking claim in federal court because the claim was not "ripe." Ripeness, according to the Court, required the landowner to (1) obtain a "final decision" from the relevant state or county agencies on its application for development (in that case, subdivision approval)[86] and (2) seek and fail to obtain compensation for the regulatory taking in state court.[87] Noting that the property owner had sought neither a variance (or similar land use exception) for its project nor state compensation for the alleged taking, the Court held that Hamilton Bank failed both prongs of the ripeness test and could therefore not bring a substantive takings challenge in federal court.[88] Since *Williamson County*, both the final decision rule and the compensation requirement have raised considerable barriers to the bringing of regulatory takings challenges to land use controls.[89]

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85. 139 S. Ct. 2162 (2019).
86. *Id.* at 186–94.
87. *Id.* at 194–97.
88. *Id.*
89. For critical comment on the insuperable barrier which *Williamson County* imposes, *see* Thomas E. Roberts, *Ripeness and Forum Selection in Fifth Amendment Takings Litigation*, 11 J. Land Use & Envtl. L. 37 (1995)

The subsequent Supreme Court decision in *San Remo Hotel, L.P. v. City and County of San Francisco* indirectly demonstrates the difficulty of applying the ripeness doctrine to regulatory takings disputes.[90] *San Remo* does not deal directly with either *Williamson* prong, instead addressing the preclusion problem created for litigants whom federal courts direct to first seek relief in state court under either or both prongs of *Williamson County*.[91] Such litigants dutifully bring their claims in state court, are usually denied relief, and return to federal court, only to find that they are then precluded from "relitigating" the takings claims in the original federal court.[92]

The *San Remo* decision is just as important for what the Court does not address as for what it does. Carefully noting which parts of the petition for certiorari it chose to address, the five-justice majority opinion, written by Justice Stevens, set out the narrow question before the Court: "This case presents the question whether the federal courts may craft an exception to the full faith and credit statute, 28 U.S.C. § 1738, for claims brought under the Takings Clause of the Fifth Amendment."[93] Notably, the correctness or continued validity of the *Williamson County* ripeness test was not specifically addressed.[94] The Court dealt only with the limited issue of remedy

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and Michael M. Berger, *The "Ripeness" Mess in Federal Land Use Cases, or How the Supreme Court Converted Federal Judges into Fruit Peddlers*, *in* Institute on Planning, Zoning and Eminent Domain (1991).

90. 545 U.S. 323 (2005).

91. *Id.*

92. *Id*. at 336–38; Thomas E. Roberts, *Fifth Amendment Taking Claims in Federal Court: The State Compensation Requirement & Principles of Res Judicata*, 24 Urb. L. 479 (1992); *see also* City of Chi. v. Int'l Coll. of Surgeons, 522 U.S. 156 (1997) (blessing the removal imbalance caused by *Williamson County* ripeness hurdles by permitting the regulator's removal game because property owners are "assuredly" not required to bring facial challenges to an allegedly unconstitutional zoning ordinance in state court, despite notable silence to its *Williamson County* decision).

93. *San Remo Hotel*, 545 U.S. at 326.

94. Neither was it addressed by the federal courts below nor raised before the Court by the parties, as correctly noted by Chief Justice Rehnquist in his concurring opinion. *See id.* at 352 (Rehnquist, C.J., concurring).

for preclusion under the full faith and credit statute and narrowly ruled that federal courts may not carve out an exception to the statute—in this case for regulatory takings—unless Congress so allows, either explicitly or implicitly. Presumably, a petitioner in *San Remo Hotel*'s posture was precluded from raising regulatory takings issues litigated in federal court that it previously litigated in state court, despite being forced into state court in order to "ripen" the case under the first prong of *Williamson County*. Language elsewhere in the opinion suggests it was likely the majority would permit preclusion under other circumstances as well, although a five-justice opinion is perhaps a slender reed upon which to rely for much beyond the holding itself.[95] Regardless, the Court made it clear there is no right to hear a regulatory taking claim in federal court, whether a landowner is forced into state court under preclusion principles or not. From this decision, it was also clear that the *Williamson County* ripeness barrier against bringing regulatory takings claims remained intact. Chief Justice Rehnquist, writing for concurring members of the Court, clearly signaled his intent to revisit at least the second prong requiring state action.[96]

A number of federal appellate courts have since agreed with the suggestion of the late Chief Justice that the interpretation of the state action prong as a jurisdictional test lacks authority. In recent decisions prior to *Knick*, the Court used language emphasizing that *Williamson County* was, in fact, "a discretionary, prudential ripeness doctrine."[97] For example, in the 2010 decision of *Stop the Beach Renourishment Inc. v. Florida Department of Environmental Protection*,[98] the Supreme Court considered a case in which beachfront landowners alleged an inverse condemnation after the state

95. *Id.* at 343 (quoting Allen v. McCurry, 449 U.S. 90, 103–04 (1980)).
96. *Id.* at 348 (Rehnquist, C.J., concurring).
97. J. David Breemer, *The Rebirth of Federal Takings Review? The Courts' "Prudential" Answer to* Williamson County*'s Flawed State Litigation Ripeness Requirement,* 30 Touro L. Rev. 319, 339 (2014).
98. 560 U.S. 702 (2010).

undertook a "beach renourishment" project that deprived them of their littoral rights and rights to accretion.[99] The Court made short work of the respondents' attempt to argue the taking claim was not ripe because the petitioners had not sought just compensation in state court, holding the ripeness objection—which was not raised in the writ for certiorari—did not present a jurisdictional issue and was therefore waived.[100] In the 2013 decision of *Horne v. U.S. Department of Agriculture*, the Court again clarified that "prudential ripeness" is "not, strictly speaking, jurisdictional."[101] In a footnote to the opinion, the Court further explained that a "[c]ase or [c]ontroversy exists once the government has taken private property without paying for it. Accordingly, whether an alternative remedy exists does not affect the jurisdiction of the federal court."[102] Commentators correctly speculated that the Supreme Court, by emphasizing the prudential nature of the doctrine, paved the way for lower federal courts to relax ripeness requirements[103] and to address challenged regulations directly.

Given the direction of a number of federal decisions following *San Remo*, *Stop the Beach*, and *Horne*, it is clear that the *Williamson County* ripeness rule had already been substantially diluted with respect to the state action requirement. First, many courts cast the ripeness doctrine as mostly prudential rather than jurisdictional. Second, courts have been increasingly loath to apply the state action prong, at least in part to avoid lengthy delays in reaching the merits of a regulatory taking claim.[104]

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99. *Id*. at 730.
100. *Id.* at 729.
101. 569 U.S. 513, 526 (2013).
102. *Id*. at n.6 (internal quotations omitted).
103. Breemer, *supra* note 97, at 339.
104. David L. Callies, *Through a Glass Clearly: Predicting the Future in Land Use Takings Law*, 54 WASHBURN L.J. 43, 102 (2012).

C. *Knick v. Township of Scott, Pennsylvania*

In *Knick*, the Court first clarified that the government violates the Takings Clause once it takes property without just compensation, which gives rise to the property owner's Fifth Amendment claim under § 1983.[105] By concentrating upon the proper understanding of the Fifth Amendment right to just compensation, *Knick*'s holding follows logically: the state action prong of *Williamson County* ripeness is overruled because of its poorly reasoned and unworkable effects in practice.[106] The first prong, finality, was not at issue in *Knick* and is thus left undisturbed.[107]

The regulation underlying *Knick* involved a local ordinance that violated the fundamental right to exclude.[108] Knick owned 90 acres of pastureland in Scott Township, a small community outside of Scranton, Pennsylvania.[109] Her land was primarily used as a grazing area for horses and other farm animals, except for Knick's single-family home and a small grave area where a neighbor's ancestors were allegedly buried.[110] Pennsylvania has a long history of permitting backyard burials, and in 2012, the township passed an ordinance requiring all cemeteries to maintain open public access during daylight hours.[111] The ordinance also authorized township officers to enter property in order to determine the existence and location of a cemetery on privately owned property.[112] After an officer discovered several grave markers on Knick's property, Knick was notified that she was in violation of the ordinance for failure to open her property for public access.[113]

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105. *Knick*, 139 S. Ct. at 2177.
106. *Id.* at 2178–79.
107. *Id.* at 2169.
108. *Id.*
109. *Id*.
110. *Id.* at 2168.
111. *Id.*
112. *Id*.
113. *Id.*

Knick petitioned the state court for declaratory and injunctive relief on the ground that the ordinance effected a taking of her property.[114] Upon the township's stay of enforcement of the ordinance during state court proceedings, Knick was procedurally precluded from a state remedy.[115] The state court declined to rule on Knick's request for declaratory and injunctive relief because she could not demonstrate the irreparable harm necessary for equitable relief without an ongoing enforcement action.[116] Knick then filed in federal district court alleging the ordinance constituted a Fifth Amendment taking.[117] However, the claim was dismissed because Knick did not first pursue an inverse condemnation action in state court.[118] Despite the Third Circuit noting the ordinance was "extraordinarily and constitutionally suspect," the court affirmed the dismissal of Knick's claim under *Williamson County*.[119] The Supreme Court agreed that the contested ordinance clearly caused an uncompensated regulatory taking and so accepted *Knick* on certiorari, ultimately eliminating the state action prong from the *Williamson County* two-prong test.[120]

The *Knick* opinion opens by characterizing *Williamson County* as holding "a property owner whose property has been taken by a local government has not suffered a violation of his Fifth Amendment rights—and thus cannot bring a federal takings claim in federal court—until a state court has denied his claim for just compensation under state law."[121] The Court first corrects this misconception of when the right for compensation arises. According to *Knick*, the plaintiff's inability to pursue his federal claim due to *Williamson*

114. *Id*.
115. *Id.*
116. *Id.*
117. *Id*.
118. *Id.* at 2169.
119. *Id.*
120. *Id.* at 2169–70.
121. *Id.* at 2167.

County ripeness and the Court's subsequent decision in *San Remo* "rests on a mistaken view of the Fifth Amendment."[122]

Knick holds that the availability of any particular compensation remedy under state law cannot infringe upon or restrict the property owner's federal constitutional claim.[123] The existence of state procedure that may result in compensation does not affect or deprive a property owner of his or her right to just compensation.[124] The Court explained that the *Williamson County* court created the state procedure prong under a different understanding of the Fifth Amendment. *Williamson County* explicitly held that the property owner "cannot claim" a violation of the Takings Clause until he or she has used the available state law procedure for compensation and been denied.[125] Under this view of the Takings Clause, the existence of a state remedy qualifies the right, preventing the right to compensation from vesting until exhaustion of state remedies proves unsuccessful.[126]

After citing a large body of cases that illustrate ambiguity when the taking arises, *Knick* holds that plaintiffs may bring constitutional claims under the Takings Clause without first bringing any sort of state lawsuit, even when state court procedures to address the underlying contention are available.[127] The Court describes the state action prong as practically effectuating a state exhaustion requirement.[128] Thus, the state action prong of *Williamson County* ripeness was based on a flawed interpretation of the Takings Clause.[129] *Knick* concludes that government violates the Takings Clause when it takes property without compensation and that a property owner may bring a Fifth Amendment claim at that time. Because the violation is

122. *Id.*
123. *Id*. at 2171.
124. *Id*.
125. *Id.* (quoting *Williamson County*, 473 U.S. at 195).
126. *Id.*
127. *Id.* at 2172–73 (quoting D. Dana & T. Merrill, Property: Takings 262 (2002)).
128. *Id.* at 2173.
129. *Id.*

complete at the time of the taking, the plaintiff's pursuit of remedy in federal court need not wait on prior state action.[130]

The *Knick* dissent defends the *Williamson County* rationale that a Fifth Amendment violation does not arise until the government denies the property owner compensation in a subsequent proceeding.[131] Nevertheless, after *Knick*, it is clear where the law stands: an unconstitutional Fifth Amendment taking arises as soon as the property owner suffers an uncompensated taking. From this conclusion, it necessarily follows that the state action prong rested on a misunderstanding of the now-clarified law.

D. The Circuits: Where We Were

Prior to *Knick*, the need to apply both prongs of the *Williamson County* ripeness test was mitigated by many courts. Several circuits were trending toward treating ripeness as a prudential requirement.[132] Five circuits made up the prudential group, all of which explicitly described the prudential nature of ripeness and reserved discretion in applying the state action prong accordingly. Three other circuits strictly adhered to *Williamson County*, requiring claims to satisfy the state action prong under all circumstances. Finally, two circuits recognized the second prong as prudential but had yet to use such discretion to waive the state action prong.

However, the prudential circuits did not eliminate the second prong. They generally viewed ripeness as a prudential measure that vested final discretion in its judges. The Ninth Circuit was first to shift to an unequivocal prudential view.[133] The Fifth Circuit overturned

130. *Id.* at 2177.

131. *Id*. at 2180–81 (Kagan, J., dissenting).

132. Callies, *supra* note 104, at 97, 101.

133. *See* Guggenheim v. City of Goleta, 638 F.3d 1111, 1118 (9th Cir. 2010); *see also* MHC Fin. Ltd. P'ship v. City of San Rafael, 714 F.3d 1118, 1130 (9th Cir. 2013), *cert. denied*, 134 S. Ct. 900 (2014) (exercising its discretion not to impose the "prudential requirement of exhaustion in state court").

precedent construing ripeness as strictly jurisdictional, holding the two-prong requirements of ripeness were merely prudential.[134]

The Fourth Circuit set out thorough rationale for prudential ripeness in its 2013 decision of *Town of Nags Head v. Toloczko*.[135] In deciding the applicability of a local ordinance that prohibited reconstruction of private residences on land designated "public trust area" by the town situated within the coastal zone, the court narrowly approached ripeness in response to the defense raised by the town.[136] The court first held that ripeness is a prudential rule, not a jurisdictional one.[137] Therefore, a federal court could exercise discretion in requiring ripeness.[138] The court then exercised its discretion and declined to apply the second prong of the ripeness rule "in the interests of fairness and judicial economy."[139]

In *Town of Nags Head v. Sansotta*, the Fourth Circuit took a further step toward ending the use of the state action prong as means to avoid judgment on the merits.[140] Observing that the interaction of removal and preclusion under *Williamson County* ripeness as interpreted in state courts could be used to bar challenged land use controls from federal court review (upon a plaintiff filing a takings claim in state court, as required by *Williamson County*, a defendant could simply remove to federal court and immediately unripen the removed claim in the new federal forum), the Fourth Circuit held in *Sansotta* that the town automatically waived ripeness when it removed to federal court.[141]

The Second Circuit also held *Williamson County* ripeness was prudential rather than jurisdictional and reserved the right to exercise discretion in applying the doctrine in order to retain federal

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134. Rosedale Missionary Baptist Church v. New Orleans City, 641 F.3d 86 (5th Cir. 2011).
135. 728 F.3d 391 (4th Cir. 2013).
136. *Id*.
137. *Id.*
138. *Id.*
139. *Id.*
140. 724 F.3d 533 (4th Cir. 2013).
141. *Id.* at 544.

jurisdiction to decide a case.[142] The Sixth Circuit similarly joined the prudential group of circuits, noting that "dismissing a case on ripeness grounds does a disservice to the federalism principles embodied in [the] doctrine" upon holding a state litigation requirement "clearly has no merit."[143]

Prior to *Knick*, the Third, Seventh, and Tenth Circuits appeared to be on the verge of treating the second prong as prudential. These circuits all recognized ripeness is prudential but hesitated to use discretion to apply the doctrine.[144] For example, the Seventh Circuit noted that the prudential nature of the *Williamson County* requirements "do[es] not, however, give the lower federal courts license to disregard them."[145] The First, Eighth, and Eleventh Circuits continued to strictly apply ripeness as a jurisdictional rule that bars claims from federal review that fail the *Williamson County* ripeness requirements.[146]

The effect of the first—the finality—prong of the ripeness doctrine was also mitigated by lower courts. To satisfy the finality prong, the government entity issuing the offending regulation must first

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142. Sherman v. Town of Chester, 752 F.3d 554, 561 (2d Cir. 2014) (citing *Sansotta*, 724 F.3d at 545 and *Horne v. Dep't of Agric.*, 133 S. Ct. 2053, 2062 (2013)).

143. Wilkins v. Daniels, 744 F.3d 409, 418 (6th Cir. 2014).

144. *See, e.g.*, Alto Eldorado P'ship v. County of Santa Fe, 634 F.3d 1170 (10th Cir. 2011); Peters v. Village of Clifton, 498 F.3d 727 (7th Cir. 2007); Cty. Concrete Corp. v. Township of Roxbury, 442 F.3d 159 (3d Cir. 2006).

145. *Peters*, 498 F.3d at 734.

146. *See, e.g.*, Marek v. Rhode Island, 702 F.3d 650, 653–54 (1st Cir. 2012) ("It follows inexorably that the plaintiff would have had to pursue this procedure fully in a state court before a federal court could exercise jurisdiction over his takings claim. His failure to do so was fatal to his federal takings claim."); 126th Ave. Landfill, Inc. v. Pinellas County, 459 F. App'x 896, 900 (11th Cir. 2012) ("In a takings case . . . a plaintiff must first exhaust administrative remedies, then seek inverse condemnation in state court; only if both of those are unsuccessful may a plaintiff attempt to bring suit in federal court under the Fifth Amendment's Takings Clause"); Snaza v. City of Saint Paul, 548 F.3d 1178, 1181–83 (8th Cir. 2008) ("*Williamson County* is jurisdictional.").

reach a final decision on the application of the subject regulation.[147] Because the finality requirement allegedly serves a legitimate purpose, it has largely been spared the criticism leveled at the state action requirement.[148] Federal courts had, however, imposed limitations on the finality requirement to avoid gamesmanship and repetitive, unfair, or futile efforts to pursue further administrative relief.[149]

The Supreme Court addressed the finality requirement in *Palazzolo v. Rhode Island*, creating a protection against government abuse through a prohibition on "burden[ing] property by imposition of repetitive or unfair land-use procedures in order to avoid a final decision."[150] *Palazzolo* also held that a takings claim likely ripens once there is a reasonable degree of certainty that the government agency lacks further discretion to permit or deny development or use of land.[151] The reasonable measure test in *Palazzolo* reflects the observation by lower courts that some form of a "futility exception" exists to the ripeness finality requirement.[152]

In sum, *Knick* reduced ripeness to the finality prong, the strength of which has yet to be directly addressed by the Supreme Court. Ridding ripeness of the state action requirement is not the only work *Knick* accomplished. What's left of the ripeness doctrine is now clearly "prudential." *Knick* was unambiguous in clarifying the discretionary nature of the ripeness test for entry to federal courts. Landowners facing ripeness can seek the court's discretion because ripeness can no longer serve as a jurisdictional barrier to federal court. Moreover, the preclusion issues raised in *San Remo* can now

147. *Williamson County*, 473 U.S. at 193.

148. *E.g.*, Kurtz v. Verizon N.Y., Inc., 758 F.3d 506, 512 (2d. Cir. 2014).

149. Callies, *supra* note 104, at 102; *e.g.*, Southview Assocs., Ltd. v. Bongartz, 980 F.2d 84, 98 (2d Cir. 1992); Gilbert v. City of Cambridge, 932 F. 2d 51, 60–61 (1st Cir. 1991); S. Pac. Transp. Co. v. City of Los Angeles, 922 F. 2d 498, 504 (9th Cir. 1990); Eide v. Sarasota Cty., 908 F. 2d. 716, 726 (11th Cir. 1990).

150. 533 U.S. 606, 620–21 (2001).

151. *Id.* at 620.

152. Callies, *supra* note 104, at 102 (*citing S. Pac. Transp. Co.*, 922 F.2d at 504).

be avoided by landowners who previously waited to satisfy the finality requirement before challenging land use controls on the merits.[153]

E. Why It Matters: Hawai'i and the Need for Bringing Regulatory Takings Challenges in Federal Court

The importance of access to the federal court system for regulatory taking challenges is superbly illustrated by the 2017 decision of the Hawai'i Supreme Court in *Leone v. County of Maui*.[154] There, the Court upheld a jury verdict finding no regulatory taking even though the landowners were prevented by local land use regulation from building a single-family house—or indeed anything else—on their lot.[155] The facts are strikingly similar to *Lucas v. South Carolina Coastal Council*, the 1992 U.S. Supreme Court opinion finding a total regulatory taking of a beachfront lot due to state coastal zone regulations forbidding the construction of a single-family home.[156] In *Lucas*, the Court held that, with exceptions relating to nuisance and background principles of a state's law of property (neither of which were at issue in *Leone*), government may not deprive a landowner of all economically beneficial use of its property without paying compensation, as if the property were acquired by eminent domain.[157] Maui County caused such a deprivation but refused either to pay for the Leone parcel or to permit the construction of a single-family home on it, thereby bringing the case squarely within the rule and facts of *Lucas*.[158]

An excellent example of how federal courts contrastingly treat categorical, total regulatory takings is *Resource Investments, Inc. v. United States*.[159] Plaintiffs, whose core business was use and

153. *See* Brian Connolly, *Takings Precedent Overruled*, 85 J. PLANNING 13 (2019).
154. 404 P.3d 1257 (2017).
155. *Id.*
156. 505 U.S. 1003 (1992).
157. *Id.* at 1019.
158. *Leone*, 404 P.3d at 1278.
159. 85 Fed. Cl. 447 (2009).

development of sanitary landfills, claimed a total, per se regulation taking when the U.S. Corps of Engineers denied a dredge and fill permit for a proposed landfill.[160] In holding that plaintiffs clearly established facts necessary for a total regulatory taking under *Lucas* even though the United States had presented evidence of potential use for growing hay, later subdivision, or timber harvesting, the Court of Federal Claims analyzed (and applied) the federal law on regulatory takings.[161] Turning in particular to *Lucas* (and citing other federal cases in support), the court first observed that *Pennsylvania Coal* foreshadowed *Lucas* and that the partial taking decision in *Penn Central* "did not resolve whether its balancing text applied to all regulatory impingements—regardless of the amount by which the regulation reduced the value of the affected property interest"[162]—and concluded that *Lucas* "answered in the negative."[163] The court emphasized and reiterated that the per se, total, categorical regulating taking test is whether the regulation denies all economic beneficial use of land;[164] it then noted that the nuisance and background principles of a state's law of property must not apply to a landowner's property in order for there to be a total regulatory taking.[165] The court then quickly dispensed with the notion that retaining *value* somehow excuses government from liability for compensation under *Lucas*:

> Both in its holding and its reasoning, *Lucas* thus focuses on whether a regulation permits *economically viable use* of the property, not whether the property retains same value on paper.[166]

160. *Id*. at 457–63.
161. *Id*. at 490–93.
162. *Id*. at 474
163. *Id*.
164. *Id*. at 475, 477 (holding, in this case, that the exceptions did not apply).
165. *Id*. at 475–76.
166. *Id*. at 486 (emphasis in original).

After noting that a number of previous federal court decisions similarly so hold,[167] the court then squarely addressed the "value":

> To be sure, the complete elimination of the property's value may be *sufficient* to establish a categorical taking under many circumstances, given the obvious correlation between uses and their market values; a parcel of real property without value would usually have no lawful economically viable use. Yet the lack of value is not *necessary* to effect a taking, as a parcel will typically [sic] retain some quantum of value even without economically viable use. . . . Even the property at issue in *Lucas* retain some accounting or appraised value.[168]

The court then continued, virtually foreseeing the facts of *Leone*:

> Indeed, it is not difficult to identify other circumstances such as purchasing a parcel to preserve development-free open space or natural land, in which a parcel may have some value despite its lack of economically viable uses. Therefore, categorical treatment remains appropriate even if a parcel retains some nominal value, so long as the claimant is without economically viable use of his property.

The *Leone* facts are instructive. In 1996, the Maui County Council adopted a resolution authorizing the mayor to acquire what would later become the Leone lot, along with eight others, for the creation of a public park.[169] Accordingly, the applicable county plans, which have the force of law in Hawai'i, designated the Leone lot as "park" land.[170] The county only purchased two of the lots intended for park

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167. *Id*. at 487, including cases in which the government tried conscientiously to use "investor value" as economically beneficial use. *Id*. (*citing* Florida Rock Indus., Inc. v. U.S., 791 F.2d 893, 902 (Fed. Cir. 1986)).
168. *Id*. at 487–88 (emphasis in original).
169. *Leone*, 404 P.3d at 1260.
170. *Id.*

use, and the remaining lots were sold to private landowners.[171] When the Leones sought a special management area permit in order to construct a single-family house on their single-family lot, purchased for that purpose, the county denied the permit solely on the ground that the property was designated "park" on the applicable county plan, thereby rendering the proposed single-family dwelling inconsistent with that plan.[172]

Acknowledging that the U.S. Supreme Court in *Lucas* held a regulatory taking "occurs when the 'regulation denies all economically beneficial or productive use of land . . . typically, as here, by requiring land to be left substantially in its natural state,'" the Hawai'i Supreme Court nevertheless upheld a jury verdict against the Leones on the grounds of "conflicting testimony" about the value, not the use, of the Leone parcel.[173] The Leones' experts testified "unequivocally . . . that the County's regulations deprived the Leones of all economically beneficial use of their property."[174] The county's expert testified, in contrast, that "the property had great 'investment use'" and that "the property had 'tremendous opportunities for increases in value' because it was 'a very scarce commodity' and 'an oceanfront lot on one of the best beaches in south Maui.'"[175] After noting that the lot was placed in a family investment trust and that the Leones had placed it on the market for more money than they paid for it (before this 2017 decision denying the Leones a permit to construct a house on it), the court blithely determined "that investment use is a relevant consideration in a takings analysis" which, if true, is a factor only in partial, not total, regulatory takings cases.[176] The court held, "[a]s such, there is evidence to support the jury's finding that the property retained some economically beneficial use."[177]

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171. *Id*.
172. *Id.* at 1260–61.
173. *Id*. at 1270, 1277 (quoting *Lucas*, 505 U.S. at 1015, 1018).
174. *Id.* at 1277.
175. *Id.*
176. *Id.*
177. *Id.*

The decision is badly flawed on the law. Land always has *some* value. Land being what it is—as Will Rogers once observed, "they ain't making any more of it"—that value tends to rise over time.[178] If that increase in value is the equivalent of economically beneficial use—and the virtually identical fact pattern in *Lucas* makes it clear it is not—then there is nothing left of *Lucas* and total, categorical regulatory takings. As long as state courts choose to ignore clear federal precedent in regulatory takings cases, as the Hawai'i Supreme Court has done in *Leone*, there must be an available remedy in federal court. The *Knick* decision opens federal courts to regulatory takings litigation that restores such remedy.[179]

In sum, the U.S. Supreme Court has reopened the door of federal courts to regulatory taking claims. The need for landowners to pursue a state action remedy—usually compensation—in order to ripen a claim before a federal court as required by *Williamson County* has been eliminated by the *Knick* decision. The Court added that a regulatory taking occurs as soon as the relevant regulation affects the economically beneficial use of the relevant parcel. When state supreme courts ignore federal case law on regulatory takings—as the Hawai'i Supreme Court did in *Leone*—this is a necessary and overdue correction to federal case law on both partial and total regulatory takings. However, the taking of all economic use does not necessarily constitute a Fifth Amendment total or categorical taking. There are—as the Court specifically set out in *Lucas*—exceptions: background principles of a state's law of property and nuisance.

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178. Peter M. Wolf, Land in America 6 (1981).

179. David L. Callies & Ellen R. Ashford, Knick *in Perspective: Restoring Regulatory Takings Remedy in Hawai'i*, 42 U. Haw. L. Rev. 136, 143–45 (2020). However, not all federal courts favor finding a regulatory taking. For arguments and analysis demonstrating that federal courts can be as impervious as state courts in finding regulatory takings and awarding compensation, *see* Greg Stein, *Regulatory Takings and Ripeness in the Federal Courts*, 48 Vanderbilt L. Rev. 1 (1995), and Bethany Berger, Knick v. Township of Scott, Pennsylvania: Not the Revolution Some Hope for and Others Fear, 34 Probate & Property 38 (May/June 2020).

Recall that in the 1992 case of *Lucas v. South Carolina Coastal Council*,[180] the U.S. Supreme Court created its now-famous "categorical rule" for regulatory takings. Pursuant to the Fifth Amendment to the U.S. Constitution, the rule requires the government to provide just compensation whenever it denies a property owner all "economically beneficial use" of land.[181] Neither the purposes behind the denial nor the circumstances under which the land is acquired can diminish the government's liability.[182]

The *Lucas* Court did, however, establish two exceptions to the otherwise inflexible "categorical rule," declaring that the rule does not apply if, first, the challenged regulation prevents a nuisance or, second, the regulation is grounded in a state's background principles of property law.[183] Nuisance is covered in Chapter 5. Leaving nothing to chance, the *Lucas* Court explained that the nuisance exception would allow the government to prohibit the construction of a power plant on an earthquake fault line or the filling of a lake bed that was likely to result in flood damage to a neighbor without incurring takings liability.[184] By contrast, the Court was silent with respect to the meaning of the second exception of "background principles of state property law."[185]

A major and often unexplored question in takings law is the extent of the background principles exception. The subject is important for two distinct reasons. First, it is not always easy to discern what comprises such background principles. Second, once defined, the principles can, when subject to expansive interpretation, seriously erode the basic *Lucas* doctrine meant to provide compensation for regulatory takings that deprive an owner of all economically beneficial use of land. A related issue is the extent to which background

180. 505 U.S. 1003 (1992).
181. *Id.* at 1019.
182. *See, e.g.*, Palm Beach Isles Assocs. v. United States, 231 F.3d 1354 (Fed. Cir. 2000).
183. *Lucas*, 505 U.S. at 1020–32.
184. *Id.* at 1029.
185. *Id.* at 1029–30.

principles analysis overlaps with the continuing discussion of the role of investment-backed expectations in *Lucas* situations (there should be none) and the so-called notice rule arguably raised by pre-existing state statutes in either total (*Lucas*) or partial (*Penn Central Transportation*) taking analyses.

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Fighting Fire with Fire: How NEPA's Emphasis on Risk Prevents Prescribed Burns and Intensifies Wildfire

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Abstract

Climate change is reshaping America's relationship with wildfire. As fires become more dangerous, prescribed burning is a vital tool to protect vulnerable communities and ecosystems. Native Americans used fire to manage forests for millennia, and intentional fire remains routine in forests in the Southeastern United States. Yet the white settlers of the American West largely abandoned the practice in the twentieth century and never picked it up again. This paper explores how American colonization resulted in disparate legal landscapes that continue to shape fire on physical landscapes. While Southeastern forests remained privately owned and managed, Western woods are primarily owned and operated by federal agencies. I argue that the National Environmental Policy Act (NEPA) serves as a chokehold on those agencies, preventing them from restoring Western fire. NEPA is a powerful tool for protecting the environment. Yet NEPA hampers managers from setting much needed fires because it relies on an erroneous assumption: that all human activity is dangerous to nature. The paper concludes by considering potential solutions for restoring fire, the most promising of which is returning forest management to indigenous tribes under the Indian Self-Determination and Education Assistance Act of 1975.

Introduction

We live in an era of megafires—a man-made pyrocene. Wildfires are getting bigger and more intense thanks to climate change[1] and expanding human activity in forests.[2] These more severe fires are unsurprisingly also more destructive: a greater number of homes are at risk, and fast-moving fires leave less time to evacuate.[3] Wildfires are a part of nature. But high severity fires can devastate ecosystems

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1. Michael C. Wimberly & Zhihua Liu, *Interactions of Climate, Fire, and Management in Future Forests of the Pacific Northwest*, 327 Forest Ecology & Mgmt. 270 (2014); Jeremy S. Fried et al., *The Impact of Climate Change on Wildfire Severity: A Regional Forecast for Northern California*, 64 Climatic Change 169 (2004).

2. Volker C. Radeloff et al., *Rapid Growth of the US Wildland-Urban Interface Raises Wildfire Risk*, 115 Proc Nat'l Acad. Sci. USA 3314 (2018); Jennifer K. Balch et al., *Human-Started Wildfires Expand the Fire Niche Across the United States*, 114 Proc Nat'l Acad. Sci. USA 2946 (2017).

3. Marc-Andre Parisien, *Science Can Map a Solution to a Fast-Burning Problem*, 534 Nature 297 (2016).

by polluting water,[4] causing massive landslides,[5] and leading to species extinction.[6] The emotional and physical impacts of forest fires on communities are immense. Fires can raze whole towns within hours,[7] leave lungs permanently damaged from smoke,[8] and instill deep feelings of fear and insecurity.[9] The socially marginalized often bear the brunt of this damage. People of color,[10] low-income neighborhoods,[11] and indigenous communities[12] all suffer the impacts of fire at higher rates than their white and wealthy peers.[13]

Extreme fires are both a harbinger and accomplice of climate change. Wildfire's expansion in intensity and scale is proof of the arrival of a new climate.[14] But forest fires also contribute to climate change. Forests are important carbon sinks because plants sequester greenhouse gases through photosynthesis.[15] When

4. Ed Struzik, *How Wildfires Are Polluting Rivers and Threatening Water Supplies*, Yale Env't 360 (Oct. 2, 2018), https://e360.yale.edu/features/how-wildfires-are-polluting-rivers-and-threatening-water-supplies.

5. Matthew A. Thomas et al., *Postwildfire Soil-Hydraulic Recovery and the Persistence of Debris Flow Hazards*, J. Geophysical Rsch.: Earth Surface, June 2021, at 2; Francis K. Rengers et al., *Landslides After Wildfire: Initiation, Magnitude, and Mobility*, 17 Landslides 2631–2641 (2020).

6. Leonardo Ancillotto et al., *Wildfires, Heatwaves and Human Disturbance Threaten Insular Endemic Bats,* 30 Biodiversity & Conservation 4401 (2021); Isabel T. Hyman et al., *Impacts of the 2019–2020 Bushfires on New South Wales Biodiversity: A Rapid Assessment of Distribution Data for Selected Invertebrate Taxa*, 32 Tech. Reps. Austl. Museum (online) 1 (2020); Mark K. J. Ooi, *The Importance of Fire Season When Managing Threatened Plant Species: A Long-Term Case-Study of a Rare* Leucopogon *Species (Ericaceae)*, 236 J. Env't Mgmt. 17, 18 (2019) ("The threats caused by altered fire regimes may not only affect the persistence of those plant species that are already threatened with extinction, but also of many common species.").

7. *See, e.g.*, Christopher Weber & Noah Berger, *"We Lost Greenville': Wildfire Decimates California Town,* AP News (Aug. 5, 2021), https://apnews.com/article/fires-environment-and-nature-california-13faa6976260a4a9e10906c70b4ed2d0; Amy Beth Hanson, *Wildfire Destroys 24 Houses in Central Montana Town*, AP News (Dec. 2, 2021), https://apnews.com/article/wildfires-business-fires-montana-great-falls-59e86452223ba1760f048de2a13e6331.

8. John R. Balmes, *Where There's Wildfire, There's Smoke*, 378 New Eng. J. Med. 881 (2018).

9. *Tips for Managing Your Distress Related to Wildfires*, Am. Psych. Ass'n (Aug. 1, 2011), https://www.apa.org/topics/disasters-response/wildfires-tips.

10. Ian P. Davies et al., *The Unequal Vulnerability of Communities of Color to Wildfire*, PLoS ONE, Nov. 2, 2018, at 1; Jia Coco Liu et al., *Who Among the Elderly Is Most Vulnerable to Exposure to and Health Risks of Fine Particulate Matter From Wildfire Smoke?*, 186 Am. J. Epidemiology 730 (2017).

11. YCC Team, *Lack of Affordable Housing Makes Wildfire Recovery More Difficult*, Yale Climate Connections (July 22, 2021), http://yaleclimateconnections.org/2021/07/lack-of-affordable-housing-makes-wildfire-recovery-more-difficult.

12. Davies et al., *supra* note 10.

13. *See also* Michael R Coughlan et al., *Social Vulnerability and Wildfire in the Wildland-Urban Interface*, Nw. Fire Sci. Consortium, 13 (2019) (finding that people from marginalized backgrounds are exposed to increased "risk of catastrophic loss from wildfire"). *But see* Jessica Debats et al., *A Tale of Two Suburbias: Turning up the Heat in Southern California's Flammable Wildland-Urban Interface*, 104 Cities 102725, 102725 (2020) ("[T]his study finds that the wildland-adjacent neighborhoods most impacted by wildfire have remained predominantly white and affluent, even as Southern California has become increasingly diverse.").

14. *See Climate Change Indicators Technical Documentation: Wildfires*, EPA, https://www.epa.gov/sites/default/files/2021-04/documents/wildfires_td.pdf (last updated July 2022) ("[W]hile climate change is not the only factor that influences patterns in wildfire, the many connections between wildfire and climate make this indicator a useful tool for examining a possible impact of climate change on ecosystems and human well-being.").

15. Nancy L. Harris et al., *Global Maps of Twenty-First Century Forest Carbon Fluxes*, 11 Nat. Climate Change 234 (2021); USDA Forest Serv., *Forest Carbon and Land Management* (n.d.), https://www.climatehubs.usda.gov/

forests burn, they release that trapped carbon into the atmosphere.[16] And the more intense the fire, the more carbon dioxide the fire releases.[17]

Prescribed burns—fires intentionally set by forest managers, also called controlled burns—may be our best weapon against destructive wildfires. Controlled burns result in less frequent and less intense wildfires.[18] They decrease the amount of biomass left in a forest to burn in a wildfire and clear woods of dangerous detritus that can lead to crown fires.[19] In fire-prone forests like those in the American West and Southeast,[20] prescribed burns also restore ecosystems[21] and help forests store carbon.[22]

Controlled fires are no silver bullet. Serious dangers are associated with any forest fire. Smoke is smoke; it harms lungs whether it comes from a planned or unplanned fire.[23] Moreover, it is impossible to fully control fire. There is always some risk that a controlled burn could become uncontrolled.[24] The consequences of an out-of-control prescribed fire are no less than any other wildfire, as demonstrated by the Cerro Grande Fire of 2000.[25] Initially set as a controlled burn on the Bandelier National Monument in

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hubs/northern-forests/topic/forest-carbon-and-land-management.

16. Guido R. van der Werf et al., *Global Fire Emissions Estimates During 1997–2016*, 9 Earth Sys. Sci. Data 697 (2017); NOAA, The Impact of Wildfires on Climate and Air Quality (n.d.), https://csl.noaa.gov/factsheets/csdWildfiresFIREX.pdf.

17. Malcolm P. North & Matthew D. Hurteau, *High-Severity Wildfire Effects on Carbon Stocks and Emissions in Fuels Treated and Untreated Forest*, 261 Forest Ecology & Mgmt. 1115 (2011); X. J. Walker et al., *Fuel Availability Not Fire Weather Controls Boreal Wildfire Severity and Carbon Emissions*, 10 Nat. Climate Change 1130, 1134 (2020) ("[T]he increase in [carbon] combustion in response to higher pre-fire aboveground [carbon] pools is also likely a function of these higher-biomass sites burning more intensely and facilitating the combustion of organic soils.").

18. Paulo M. Fernandes & Hermínio S. Botelho, *A Review of Prescribed Burning Effectiveness in Fire Hazard Reduction*, 12 Int. J. Wildland Fire 117 (2003); Jolie Pollet & Philip N. Omi, *Effect of Thinning and Prescribed Burning on Crown Fire Severity in Ponderosa Pine Forests*, 11 Int'l J. Wildland Fire 1 (2002).

19. Dead, organic material can escalate fires literally: so-called "ladder fuels," or tall vegetation-like shrubs and downed tree branches, let fires jump from forest floors (where they may be relatively insubstantial and restorative) up into the crowns of trees. Once in the crown, fires become intense, spread quickly, and are difficult to contain. *See* USDA, Forest Serv., Influence of Forest Structure on Wildfire Behavior and the Severity of Its Effects (2003).

20. USDA Forest Service, Fire Regimes of the Conterminous United States (Feb. 2012), https://www.fs.usda.gov/database/feis/fire_regime_table/fire_regime_table.html; *The Burning Solution: Prescribed Burns Unevenly Applied Across U.S.*, Climate Cent. (May 29, 2019), https://www.climatecentral.org/report/report-the-burning-solution-prescribed-burns-unevenly-applied-across-us; Mark A. Finney et al., *A Simulation of Probabilistic Wildfire Risk Components for the Continental United States*, 25 Stochastic Env't Rsch. & Risk Assessment 973 (2011).

21. Peter Z. Fulé et al., *Effects of an Intense Prescribed Forest Fire: Is It Ecological Restoration?*, 12 Restoration Ecology 220 (2004).

22. *See* Christine Wiedinmyer & Matthew D. Hurteau, *Prescribed Fire as a Means of Reducing Forest Carbon Emissions in the Western United States*, 44 Env't Sci. Tech. 1926 (2010).

23. *See, e.g.*, Benjamin A. Jones & Robert P. Berrens, *Prescribed Burns, Smoke Exposure, and Infant Health*, 39 Contemp. Econ. Pol'y 292 (2021).

24. John R Weir et al., Prescribed Fire: Understanding Liability, Laws, and Risk (2020), https://extension.okstate.edu/fact-sheets/print-publications/nrem/prescribed-fire-understanding-liability-laws-and-risk-nrem-2905.pdf.

25. Thomas P. Lonnie et al., National Interagency Fire Ctr., Cerro Grande Prescribed Fire Investigation Report (2000). In 2022, history rhymed with itself when another New Mexico prescribed burn escaped. The resulting Calf Canyon/Hermits Peak Fire broke records as the state's largest and most destructive wildfire. *See* Bryan

New Mexico, high winds picked up the flames, resulting in a 43,000-acre fire that tore through the town of Los Alamos.[26] The damage to the town and its infamous National Laboratory cost one billion dollars.[27] Over four hundred families lost their homes.[28] Despite the dangers, ecologists, foresters, and politicians have called for an increase in prescribed burns.[29] They argue that without burns, wildfires would be even more unpredictable and uncontrollable.

Today, foresters widely accept prescribed burning. In the United States, forest managers treat over ten million acres a year with prescribed fire.[30] Two regions of U.S. forests account for the vast majority of controlled burns: the West and Southeast.[31] Most large and destructive wildfires occur in the West,[32] and even most land managers see forest fires as a Western issue.[33] Over the past decade, managers have significantly increased prescribed burning in the West.[34] Yet, a mere twenty-two percent of America's prescribed fires are set west of the Mississippi.[35] The Southeast accounts for a whopping seventy percent.[36]

This paper addresses the paradox of the West's missing controlled fire. If prescribed burns are so effective and so desperately needed, why are there so few Western prescribed burns? I argue that it is the result of a combination of two forces: first, the impact of colonial migration on forest ownership and local understanding of fire; and second, the National Environmental Policy Act (NEPA). Due to the uneven pattern of land expropriation, Western forests are largely owned and controlled by the federal government. Federal forest managers must analyze all actions for potential environmental impacts under NEPA. Like the Clean Air Act (CAA) and Endangered Species Act (ESA), NEPA is one of the great American environmental statutes of the 1960s and 1970s. Unlike either CAA or ESA, NEPA is procedural rather than substantive. Instead of establishing levels of protection, it creates procedural hoops that agencies must jump through to review the potential environmental impacts of federal actions. NEPA's one-way procedural nature makes it difficult and expensive to take any action that might have serious consequences, like controlled burns, no matter how dangerous *not* taking that action could be. Paired

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Pietsch & Jason Samenow, *New Mexico Blaze Is Now Largest Wildfire in State History*, Wash. Post (May 17, 2022), https://www.washingtonpost.com/nation/2022/05/17/calf-canyon-hermits-peak-fire-new-mexico.

26. *Cerro Grande Fire: Hearing Before the S. Comm. on Energy & Nat. Res.*, 106th Cong. 12 (2000) (statement of Gary Jones, Associate Director, Energy Resources, and Science Issues, General Accounting Office).

27. *Id.*

28. *Id.*

29. *See, e.g.*, Crystal Kolden, *We're Not Doing Enough Prescribed Fire in the Western United States to Mitigate Wildfire Risk*, 2 Fire 30 (2019); John Bailey & Matthew Hurteau, *The Right Fire to Fight Fire—Why Limiting Prescribed Burning Is Short-Sighted*, The Hill (Aug. 25, 2021), https://thehill.com/opinion/energy-environment/569317-the-right-fire-to-fight-fire-why-limiting-prescribed-burning-is; Eric Bontrager, *Lawmakers Propose to Boost Use of Prescribed Fires*, Nat. Conservancy (May 20, 2021), https://www.nature.org/en-us/newsroom/prescribed-fire-bill-proposed.

30. Mark A. Melvin, 2020 Prescribed Fire Use Report (Nat'l Ass'n of State Foresters & Coal. of Prescribed Fire Councils eds., 2020), https://www.stateforesters.org/wp-content/uploads/2020/12/2020-Prescribed-Fire-Use-Report.pdf.

31. Kolden, *supra* note 29.

32. Cong. Rsch. Serv., IF10244, Wildfire Statistics (2021), https://sgp.fas.org/crs/misc/IF10244.pdf.

33. Erin Noonan-Wright & Carl A. Seielstad, *Patterns of Wildfire Risk in the United States from Systematic Operational Risk Assessments: How Risk Is Characterised by Land Managers*, 30 Int. J. Wildland Fire 569 (2021).

34. Melvin, *supra* note 30.

35. Kolden, *supra* note 29.

36. *Id.*

with inadequate funding and local communities' prescribed fire skepticism, NEPA ties the hands of most Western forest managers and stops them from enacting much-needed burns.

This paper is not unique in critiquing NEPA.[37] The statute has been a lightning rod of controversy since its inception.[38] Free-market proponents like the Property and Environment Research Center and the Heritage Foundation have criticized NEPA as slow and inefficient.[39] The Trump administration spent its final months in office attempting to gut the statute, in part by preventing agencies from considering climate change in their analyses.[40] Many—although certainly not all—of these critiques come from proponents of industry who see NEPA as overly protective of the environment. This paper takes the converse view: NEPA *harms* ecosystems by keeping much-needed fire out of forests and grasslands.

Part I of this article lays out the history of fire on North America, from early fire management by indigenous people to the arrival of large-scale fire suppression in the twentieth century. It traces the movement of white settlers across the continent to show how different forms of colonization between East and West resulted in largely privately owned forests in the Southeast and publicly owned woods in the West. It also tracks how the attempted removal of native tribes by the U.S. government paralleled changing forms of fire management practices. Part I culminates in a comparison of forest ownership and fire management in the Southeast and West today.

Part II provides a brief overview of NEPA's history, the current NEPA system for analyzing agency decision-making, and its success in preventing environmental degradation.

Part III dives into how NEPA's framework prevents controlled burns. It focuses on the inverted funding structures within agencies that result from NEPA review costs and how NEPA's mandated stakeholder involvement disempowers local communities and leads to breakdowns in communication with the public. It reviews how NEPA drives agency perceptions of science and incentives around risk. Finally, it explores how these problems reveal NEPA's flawed understanding of the relationship between humans and nature.

Part IV explores a menu of options to increase Western prescribed burns, ranging from increasing funds to reworking NEPA's participation mechanisms to restoring tribal control of public lands.

I. A History of American Fire

In *The Pyrocene*, environmental historian Stephen J. Pyne describes three distinct forms of fire on earth: first-fire, second-fire, and third-fire.[41] To Pyne, "First-fire is the fire of nature," the early era on earth when fire first emerged, kindled by lightning and fed by the fuel of early land plants.[42] This phase began roughly

37. For a survey of common critiques, see Daniel R Mandelker, *The National Environmental Policy Act: A Review of Its Experience and Problems*, 32 Wash. U. J.L. & Pol'y 293 (2010).

38. *See, e.g.*, Lettie McSpadden Wenner, *The Misuse and Abuse of NEPA*, 7 Env't Rev. 229 (1983).

39. *E.g.*, Jonathan Wood, *Speeding Up Environmental Reviews Is Good for the Economy and the Environment*, PERC (Feb. 6, 2020), https://www.perc.org/2020/02/06/speeding-up-environmental-reviews-is-good-for-the-economy-and-the-environment; Diane Katz, Time to Repeal the Obsolete National Environmental Policy Act (NEPA) (Heritage Found. 2018), https://www.heritage.org/government-regulation/report/time-repeal-the-obsolete-national-environmental-policy-act-nepa.

40. Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act, 40 C.F.R. §§ 1500–1508, 1515–1518 (2021).

41. Stephen J. Pyne, The Pyrocene: How We Created an Age of Fire, and What Happens Next (2021).

42. *Id.* at 4.

420 million years ago and continued until humans learned to control fire.[43] Second-fire is the fire that swept across the globe with the expansion of our species roughly two million years ago.[44] It included unintentional wildfires caused by untended kitchen hearths and the intentional setting of landscapes on fire—burning forests to clear underbrush to improve hunting conditions or slash-and-burn agriculture to remove weeds and pests.[45] In the past two centuries, second-fire has given way to a new form of human flame. "Third-fire burns lithic landscapes no longer bounded by such ecological limits as fuel, season, sun, or the rhythms of wetting and drying."[46] Through coal, oil, gas, and technology, humans have begun to remove traditional fire from our homes and landscapes: we replaced the hearth with the stove and forest fires with clearcuts. These three forms of fire correlate to distinct phases of American fire: pre-human fire; indigenous and early colonial fire; and post-industrial fire suppression.

A. Fire in pre-colonial America

Like roughly forty-six percent of global ecoregions,[47] America's Southeast and Western forests evolved with fire.[48] Forests in both regions are largely "fire-dependent," meaning fire is "fundamental to sustaining native plants and animals."[49] Fire has been a perennial presence in American coniferous woods, from the Florida sand pine scrub to the Cascade Mountains' leeward forests.

These fire-dependent ecosystems predate humans: forests first burned in fires started by lightning or by outlier events like volcanic eruptions and coal seam fires.[50] But the first-fire of lightning was eventually replaced by the second-fire of indigenous fire. When humans migrated to the Western Hemisphere roughly

43. *Id.* at 4, 34–52; *see also* Andrew C. Scott & Ian J. Glasspool, *The Diversification of Paleozoic Fire Systems and Fluctuations in Atmospheric Oxygen Concentration*, 103 Proc. Nat'l Acad. Sci. 10861 (2006) (finding evidence in the fossil record that fire began on earth 420 million years ago)

44. Pyne, *supra* note 41, at 4.

45. *Id.* at 4, 56–61

46. *Id.* at 4.

47. Jeff Hardesty, Ron Myers & Wendy Fulks, *Fire, Ecosystems, and People: A Preliminary Assessment of Fire as a Global Conservation Issue*, 22 George Wright F. 78, 81 (2005).

48. Jason M. Greenlee & Jean H. Langenheim, *Historic Fire Regimes and Their Relation to Vegetation Patterns in the Monterey Bay Area of California*, 124 Am. Midland Naturalist 239 (1990); Joseph J. O'Brien et al., *Interactions Among Overstory Structure, Seedling Life-History Traits, and Fire in Frequently Burned Neotropical Pine Forests*, 37 Ambio 542 (2008).

49. Hardesty et al., *supra* note 47, at 81; *see also* Pyne, *supra* note 41, at 21; Josep M. Serra-Diaz et al., *Disequilibrium of Fire-Prone Forests Sets the Stage for a Rapid Decline in Conifer Dominance During the 21st Century*, 8 Sci. Reps. 6749, 6750 (2018) ("In fire-prone temperate forests, stable community states are often maintained via feedbacks, such as when species' characteristics reinforce a specific fire regime."); Jennifer A. Hoss et al., *Fire History of a Temperate Forest with an Endemic Fire-Dependent Herb*, 29 Physical Geography 424 (2008) ("The presence of [the Peters Mountain mallow] strongly suggests that fire has played a long and crucial role on the landscape."); Scott L. Stephens, Robert E. Martin & Nicholas E. Clinton, *Prehistoric Fire Area and Emissions from California's Forests, Woodlands, Shrublands, and Grasslands*, 251 Forest Ecology & Mgmt. 205 (2007).

50. A. C. Scott, *The Pre-Quaternary History of Fire*, 164 Palaeogeography, Palaeoclimatology, Palaeoecology 281 (2000); *Human vs. Naturally Occurring Wildfires*, Bureau of Indian Affs., https://www.bia.gov/bia/ots/dfwfm/bwfm/wildfire-prevention-and-education/home-bureau-indian-affairs-bia-trust-services-division-forestry-and-wildland-fire-management-branch (last visited Dec. 20, 2022); E. L Heffern & D. A. Coates, *Geologic History of Natural Coal-Bed Fires, Powder River basin, USA*, 59 Int'l J. Coal Geology 25 (2004); Bill Gabbert, *Hawaii Volcano Causes 75-Acre Wildfire*, Wildfire Today (Mar. 15, 2011), https://wildfiretoday.com/2011/03/15/hawaii-volcano-causes-75-acre-wildfire.

14,000 years ago, they brought fire with them.[51] The paleological record proves the impact of these first Americans. From coast to coast, fire quickly outpaced the frequency of prehistoric burning regimes.[52] Native Americans had a sophisticated understanding of fire as a management tool; they "used fire for diverse purposes, ranging from cultivation of plants for food, medicine, and basketry to the extensive modification of landscapes for game management or travel."[53] Indigenous tribes on both sides of the continent used fire specifically to manage forests.[54] They set fires to revitalize agricultural conditions, drive game, improve travel, and generally "manipulate and eventually create local environments of their own design."[55] Fire became part of both the physical landscape and tribal tradition and culture.

B. Pre-industrial colonization and regional division

The arrival of white settlers in the Americas in the fifteenth and sixteenth centuries began slowly disrupting existing fire regimes. This disturbance varied regionally. In the southern British colonies, use of prescribed fire remained widespread.[56] Native people continued to practice controlled burns for land management after the initial period of white settlement.[57] When President Andrew Jackson and the American government forcibly and violently removed Southeastern tribes from their lands in the 1830s and 1840s,[58] members of the tribes took their fire practices with them, bringing controlled burning to new settlements in Oklahoma.[59] But the Trail of Tears did not end intentional fire in the South; the white settlers who benefitted from the land grab readily continued the tradition.

"[I]n the South, woods burning was a widespread practice from the outset" of white colonization.[60] Unlike New England's settlers, who mostly came from cities or areas of Europe with fire-sensitive forests, Southern colonists were mainly from rangeland and rural areas, where fire had remained a regular part of agriculture throughout the early modern period.[61] These fire-accustomed settlers combined their own fire

51. Kevin C. Ryan, Eric E. Knapp & J. Morgan Varner, *Prescribed Fire in North American Forests and Woodlands: History, Current Practice, and Challenges*, 11 Frontiers Ecology & Env't e15 (2013).

52. *Id.*

53. *Id.*

54. Frank K. Lake et al., *Returning Fire to the Land: Celebrating Traditional Knowledge and Fire,* 115 J. Forestry 343 (2017); William A. Patterson III & Kenneth E. Sassaman, *Indian Fires in the Prehistory of New England*, *in* Holocene Human Ecology in Northeastern North America 107, 110 (1988).

55. Lake et al., *supra* note 54, at 110.

56. A. Sydney Johnson & Philip E. Hale, GTR-NE-288, The Historical Foundations of Prescribed Burning for Wildlife: a Southeastern Perspective 11, 11 (W. Mark Ford et al. eds., 2002) ("Fire is more common and more important in the environment of the South than in most other areas of the United States.").

57. *See, e.g.*, Michael C. Stambaugh et al., *Fire History in the Cherokee Nation of Oklahoma*, 41 Hum. Ecology 749 (2013); Cynthia Fowler & Evelyn Konopik, *The History of Fire in the Southern United States*, 14 Hum. Ecology Rev. 165, 169 (2007).

58. *See* Indian Removal Act, Pub. L. No. 21-148, 4 Stat. 411; Jeffrey Ostler, Surviving Genocide 247–87 (2019). I want to emphasize that not all Native people were removed from the Southeast. Today, there are reservations in Alabama, Florida, Mississippi, North Carolina, South Carolina, and Virginia. Bureau of Indian Affs., U.S. Domestic Sovereign Nations: Land Areas of Federally-Recognized Tribes, https://biamaps.doi.gov/indianlands/# (last visited Feb. 9, 2023). Over one and a half million residents in Southern states east of the Mississippi identified as American Indian on the 2020 census. Census Bureau, Race and Ethnicity in the United States: 2010 Census and 2020 Census (Aug. 12, 2021), https://www.census.gov/library/visualizations/interactive/race-and-ethnicity-in-the-united-state-2010-and-2020-census.html.

59. Ostler, *supra* note 58.

60. Johnson & Hale, *supra* note 56, at 12.

61. *Id.*

traditions with those of Native Americans.[62] They set fires to reduce pests like ticks and rattlesnakes and to limit wildfires.[63] After the Civil War, Black sharecroppers and tenant farmers continued to burn fields.[64] Even wealthy northerners who flocked to the postbellum South to build hunting retreats learned that prescribed burns were often necessary to promote the prized bobwhite quail.[65]

White settlers who colonized the American West had a different approach to fire. Unlike in the Southeast, Western fire remained a tool used almost exclusively by indigenous tribes. A survey of fires in the interior West before 1900 estimates that eighty-nine percent of fires with clear attribution had been set by Native Americans.[66] The topography of the West may have contributed to colonists' aversion to fire. The mountainous, arid, and elevated terrain often proved more conducive to grazing livestock than growing crops.[67] Western settlers, seeking to establish a cattle economy, mistakenly assumed fires destroyed the rangeland and grass needed to feed horses and cows.[68] These settlers may also have been impacted by racism towards and fear of the tribes that remained a powerful force throughout the region.[69] These settlers viewed fire as dangerous, a tool of Natives. They turned to the federal government to attempt to extirpate both.[70]

C. Expropriation of Western lands

The development of federally managed public lands likely aided the removal of fire from Western landscapes. From the early days of European colonization and throughout the early American Republic, land was a commodity to be privatized: any territory claimed by a government not already inhabited by other white settlers was presumptively up for sale. Land in the public domain was not perceived as eternally so; while some small percentage might remain in the commons, the rest would eventually be divided up among individual landowners. In the mid-nineteenth century, the Preemption and Homestead Acts encouraged westward white settlement by promising government-owned property to any adult

62. Fowler & Konopik, *supra* note 57, at 169.

63. Johnson & Hale, *supra* note 56, at 13.

64. *See, e.g.*, Albert G. Way, *Burned to Be Wild: Herbert Stoddard and the Roots of Ecological Conservation in the Southern Longleaf Pine Forest*, 11 Env't Hist. 500 (2006).

65. *Id.*; Johnson & Hale, *supra* note 56, at 13.

66. George E. Gruell, *Fire on the Early Western Landscape: An Annotated Record of Wildland Fires 1776–1900*, 59 Nw. Sci. 97, 102 (1985).

67. *See, e.g.*, Ray H. Mattison, *The Hard Winter and the Range Cattle Business*, 1 Mont. Mag. Hist. 5 (1951); William Cronon, Nature's metropolis: Chicago and the Great West 214 (1992), http://archive.org/details/naturesmetropoli0000cron.

68. Gruell, *supra* note 66, at 101 ("When burned landscapes were recorded [by contemporary reports], it often was in reference to destruction of grass needed for horse forage."). In reality, prescribed burns improve rangeland. *See, e.g.*, Lance T. Vermeire & Terrence G. Bidwell, Okla. Cooperative Extension Service, Intensive Early Stocking (Mar. 2017) ("The advantages of using prescribed burning include brush and forb control, enhanced forage quality, more uniform grazing distribution, and increased weight gains for livestock."), https://extension.okstate.edu/fact-sheets/print-publications/nrem/intensive-early-stocking-nrem-2875.pdf. Thus, the different attitudes of Indigenous people and settlers may have boiled down to preconceptions.

69. For more on pervasive anti-indigenous racism, see Reginald Horsman, *Scientific Racism and the American Indian in the Mid-Nineteenth Century*, 27 Am. Q. 152 (1975).

70. Ned Blackhawk, The Rediscovery of America: Native Peoples and the Unmaking of U.S. History (2023) ("One of over a hundred campaigns against Indigenous peoples fought during the Civil War and Reconstruction, the Dakota War became a campaign for Indigenous elimination. Calls for the extermination of Native peoples were common throughout the era. U.S. soldiers and volunteers were ordered to carry out killings.").

willing to "settle[] and cultivat[e]" the land.[71] Statutes like the Timber Culture Act[72] and the Timber and Stone Act of 1878[73] amended the Homestead Act to center forests as a new driver of westward expansion but maintained the same fundamental structure for private acquisition, in ways that often resulted in land grabs by corporations and wealthy individuals.[74] By the turn of the century, a very different approach to land management had supplanted homesteading and fundamental understandings of how land should be used and divided.

Towards the end of the nineteenth century, Congress passed several laws fundamentally changing the government's relationship with the land it owned. In 1872, Congress established Yellowstone National Park.[75] In 1891, Congress passed the General Revision Act, repealing the Timber Culture laws and giving the President the power to "set apart and reserve" any forest on public land as a "public reservation."[76] It was soon followed by the Transfer Act of 1905,[77] which handed over public forest reserves to the nascent Forest Service, and the Weeks Act[78] that authorized and funded federal agencies to purchase private lands to protect watersheds and expand national forests. These laws mark the beginning of public lands as Americans broadly think of them today—unsettled areas preserved for the use and enjoyment of all, no longer lots waiting to be parceled off into private property.

This new policy of preserving public land created a regional imbalance. At the turn of the twentieth century, the West was sparsely populated by white settlers.[79] Montana, Washington, Idaho, Wyoming, and Utah had only recently been admitted to the union, with New Mexico, Arizona and Alaska still territories. But in the densely settled East, very little land was left in the public domain to be preserved. The numbers are hardly close: roughly three percent of Alabama is federal land,[80] while more than eighty-five percent of Nevada is federal.[81] As the country industrialized, Western lands managed by the federal government lost their fire, while private Southeastern forest owners kept the flame alive.

D. Industrialization and fire suppression

In the late nineteenth century, foresters began a crusade against controlled burns. In the West, where the federal government was just beginning to think about large-scale land management, its earliest actions suppressed fire in all its forms. In the Southeast, industrialization brought dramatic changes to fire regimes that empowered public-land managers to temporarily stamp out the long tradition of prescribed burns. In both regions, the devastating wildfires that resulted seemingly dealt a coup de grâce for intentional fire on American landscapes.

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71. Homestead Act, 12 Stat. 392 (1862); Preemption Act of 1841, 5 Stat. 452 (1841).
72. Pub. L. No. 42-277, 17 Stat. 605c (1873).
73. 20 Stat. 89 (1878).
74. Gary M. Walton & Hugh Rockoff, History of the American economy 302 (6th ed. 1990).
75. Yellowstone National Park Protection Act (1872).
76. Pub. L. No. 51-561, 26 Stat. 1095 (1891).
77. Pub. L. No. 58-34, 33 Stat. 628 (1905); *see also* Pyne, *supra* note 41, at 182 ("[W]hat really put forestry in a special category was the transfer of the vast forest reserves to the Bureau of Forestry in 1905. At one stroke the Transfer Act made an obscure government agency into a landholder with an estate larger than that of many nations.").
78. 36 Stat. 961 (1911).
79. Frank Hobbs & Nicole Stoops, *Demographic Trends in the 20th Century*, U.S. Census Bureau 21 (2002), https://www.census.gov/history/pdf/1970suburbs.pdf.
80. Carol Hardy Vincent, Lucas F Bermejo & Laura A Hanson, Cong. Rsch. Serv., R42346, Federal Land Ownership: Overview and Data 28 (2020).
81. *Id.*

Throughout both Native American burning and early European settlement, the general quality of Southern fires remained the same: people in both eras set relatively low-intensity scrub fires.[82] Things began to change in the late 1800s when industrialization brought new industries to the South.[83] Timber, railroad, and mining corporations replaced livestock grazing as the primary use of land.[84] New logging practices were particularly pivotal. Commercial timber operations resulted in large piles of woody debris called slash.[85] Loggers would frequently burn the slash, creating large treeless meadows through intense, stand-replacing fires.[86] Even if not deliberately burned, abandoned slash piles would dry out and catch fire from a passing spark, resulting in vast and destructive wildfires.[87]

Western forests experienced an even more devastating series of conflagrations in the early twentieth century. Perhaps most famous was the Great Fire of 1910, when hurricane-force winds intensified hundreds of smaller fires into a deadly inferno.[88] Over eighty-five people died, seventy-eight of them firefighters.[89] The fire razed entire towns, and smoke even reached New England.[90]

> The Northern Rockies fires of 1910 left a burned swath across the memory of a generation of foresters, not unlike the effects of the Great War on the intellectual class of Western civilization. In the summer of 1910, 5 million acres burned on the national forests, 3 million in Idaho and Montana alone.[91]

Into this new, seemingly more combustible world stepped the newly minted United States Forest Service (USFS). Gifford Pinchot, the first head of the service, was an early advocate against fire.[92] Under his leadership, "[f]ire suppression became the doctrine and leading policy of federal agencies."[93] The Forest Service funded psychological and sociological research into the motivations of intentional fire-setters, painting an unflattering portrait: "the researchers concluded that underlying reasons and motives for woods burning included social isolation, boredom, ritualistic tradition . . . frustration of a culturally and economically disadvantaged group, alienation, and creation of jobs in fire suppression."[94]

USFS outlined its opposition to fire in a series of regulations in the early twentieth century that emphasized "early detection and suppression."[95] The first USFS manual, published in 1905, stated in no uncertain terms that "Officers of the Forest Service, especially forest rangers, have no duty more

82. Fowler & Konopik, *supra* note 57, at 164.
83. *Id.*
84. *Id.* at 170; Johnson & Hale, *supra* note 59, at 14.
85. Fowler & Konopik, *supra* note 57, at 170.
86. *Id.*
87. *Id.*
88. *The 1910 Fires*, Forest Hist. Soc'y, https://foresthistory.org/research-explore/us-forest-service-history/policy-and-law/fire-u-s-forest-service/famous-fires/the-1910-fires (last visited Dec. 22, 2022).
89. Stephen J. Pyne, Year of the Fires: The Story of the Great Fires of 1910, at 3 (2002).
90. *Id.* at 18.
91. Pyne, *supra* note 41, at 239.
92. *Id.* at 171.
93. *Id.*
94. Johnson & Hale, *supra* note 56, at 14
95. Diane M. Smith, USDA Forest Serv., FS-1085, Sustainability and Wildland Fire: The Origins of Forest Service Wildland Fire Research 37 (2017).

important than protecting the reserves from forest fires."[96] This "use book," as agency staff called it, contained regulations like "REG. 62. A fire must never be left . . . before it is completely extinguished," and "REG. 63. Lumbermen . . . are cautioned against making dangerous slashing."[97] It emphasized that punishment for unlicensed prescribed fires could lead "in aggravated cases, to criminal prosecution."[98]

USFS repeatedly doubled down on suppression. In 1926, the agency established a policy requiring staff to control all wildfires before they reached ten acres in size.[99] USFS began a mass effort to educate the public about the dangers of forest fires, culminating in the creation of Smokey Bear.[100] In 1935, after another spate of colossal wildfires, the agency adopted the 10 a.m. policy: "[A]ll fires were to be controlled by 10 a.m. of the day following discovery."[101] The 10 a.m. policy remained in effect until the 1970s, with devastating consequences.[102] As one pair of USFS researchers described it, "[F]uel loads have exceeded their historical range in many forests, important ecological changes have occurred, wildfires have become more difficult and expensive to control, and homeowners have been led to expect aggressive wildfire suppression, irrespective of costs."[103]

E. The return of controlled fire

Fire could not be kept from Southeastern or Western landscapes forever. In the late twentieth century, foresters finally began to understand and encourage prescribed burning. But the renaissance of American fire progressed more quickly in the Southeast than in the West, driven by disparate cultural attitudes towards fire and levels of private ownership.

Fire suppression in Southern forests was a passing trend. Southern public land managers banned prescribed burns.[104] But private landowners continued setting controlled burns for timber, agriculture, and grazing throughout the twentieth century.[105] By the 1930s, advocates, including the ornithologist Herbert Stoddard, were preaching the gospel of fire.[106] Scientific publications and presentations by Stoddard and foresters like Herman H. Chapman emphasized the benefits of fire.[107] By the 1940s, even public forests in the South began to return to prescribed burns.[108] The return of fire was not immediate: large

96. Gifford Pinchot, USDA Forest Serv., The Use of the National Forest Reserves: Regulations and Instructions 65 (1905), https://foresthistory.org/wp-content/uploads/2017/10/USFS1905UseBook.pdf.

97. *Id.* at 65–66

98. *Id.* at 66.

99. Fowler & Konopik, *supra* note 57, at 171.

100. *Id.*; Geoffrey H. Donovan & Thomas C. Brown, *Be Careful What You Wish For: The Legacy of Smokey Bear*, 5 Frontiers Ecology & the Env't 73, 75 (2007).

101. Smith, *supra* note 93, at 36–37.

102. Donovan & Brown, *supra* note 98, at 75.

103. *Id.*

104. Fowler & Konopik, *supra* note 57, at 171.

105. *Id.* at 172.

106. *Id.*; Albert G. Way, *Burned to Be Wild: Herbert Stoddard and the Roots of Ecological Conservation in the Southern Longleaf Pine Forest*, 11 Env't Hist. 500, 501 (2006). Stoddard is also sometimes credited with inventing the study of wildlife management through his groundbreaking study of the bobwhite quail. *See id.*

107. Way, *supra* note 104, at 513–15.

108. Fowler & Konopik, *supra* note 57, at 173.

federally managed areas like the Okefenokee Swamp held off controlled burning until the 1970s.[109] Today, controlled fire is a routine part of Southern forests, public and private alike.[110]

Western fire has taken far longer to reignite. Federal management of Western forests is the likeliest cause of the delay. This governmental control is a regional anomaly that reflects the East/West divide in public land management. While the U.S. federal government controls thirty percent of American forests nationally,[111] roughly seventy percent of Western woods are public.[112] Only nineteen percent of Southeastern forests are public.[113]

This ownership split created regionally different fire timelines. Publicly owned forests took longer to reclaim fire than private woods. Federal agencies did not begin to accept the importance of prescribed burns until the late twentieth century. One early attempt was the 1963 Leopold Report by an Advisory Board to the Department of the Interior.[114] The report extolled the virtues of prescribed burns, calling them "the most 'natural' and much the cheapest and easiest" form of vegetation management, and portrayed fire as a central part of prehistoric American landscapes.[115] The report also objected to the "overprotection" of forests "from natural ground fires."[116] In the years that followed, the National Park Service attempted to reverse course. In 1964, Kings Canyon National Park conducted trial burns.[117] In 1967, the National Park Service (NPS) officially revised its suppression policy:

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109. *Id.*

110. Contemporary Southern-controlled fires often resemble the low-intensity scrub and bush fires of traditional indigenous and early settler prescribed burns, but they also often mimic the larger, stand-replacing fires favored by loggers. This is partly driven by the ongoing role of timber in Southern land management: removing slash and encouraging pioneer species like Southern Pine are as desirable to twenty-first-century loggers as they were to their nineteenth-century predecessors. The change in contemporary fire may also reflect fundamental changes to forest types that resulted from even the short window of fire exclusion.

111. . USDA Forest Serv. & Family Forest Rsch. Ctr., NRS-257, Family Forest (10+ Acres) Ownership Characteristics: United States 2018 (2021), https://www.srs.fs.usda.gov/pubs/62344.

112. USDA Forest Serv. & Family Forest Rsch. Ctr., NRS-257, Family Forest (10+ Acres) Ownership Characteristics: Western United States 2018 (2021), https://www.nrs.fs.fed.us/pubs/62354.

113. USDA Forest Serv. & Family Forest Rsch. Ctr., NRS-261, Family Forest (10+ Acres) Ownership Characteristics: Southeastern United States 2018 (2021), https://www.nrs.fs.fed.us/pubs/62358. Nationally, more woodlands are owned by families and individuals than any other owner. So-called "family forests" comprise nearly forty percent of all American woodlands, with corporations owning only approximately nineteen percent. States, conservation organizations, Native American tribes, and others own the final thirteen percent. These numbers are highly regionally and state specific. For example, twenty-four percent of Minnesota woods are run by the state's Department of Natural Resources, fifty-seven percent of Maine woods are corporate, and a whopping seventy-four percent of Missouri forests are family-owned. *See* USDA Forest Serv. & Family Forest Rsch. Ctr., NRS-282, Family Forest (10+ Acres) Ownership Characteristics: Minnesota 2018 (2021), https://www.fs.usda.gov/nrs/pubs/rn/rn_nrs282.pdf; USDA Forest Serv. & Family Forest Rsch. Ctr., NRS-278, Family Forest (10+ Acres) Ownership Characteristics: Maine 2018 (2021), https://www.fs.usda.gov/nrs/pubs/rn/rn_nrs278.pdf; USDA Forest Serv. & Family Forest Rsch. Ctr., NRS-284, Family Forest (10+ Acres) Ownership Characteristics: Missouri 2018 (2021), https://www.nrs.fs.fed.us/pubs/62383.

114. A. Starker Leopold et al., *Wildlife Management in the National Parks: The Leopold Report*, Nat'l Parks Serv. (Mar. 4, 1963), https://www.nps.gov/parkhistory/online_books/leopold/leopold.htm.

115. *Id.*

116. *Id.*

117. John L. Vankat, *Fire and Man in Squoia National Park*, 67 Annals Ass'n Am. Geographers 17, 26 (1977).

> Fires in vegetation resulting from natural causes are recognized as natural phenomena and may be allowed to run their course when such burning can be contained within predetermined fire management units and when such burning will contribute to the accomplishment of approved vegetation and/or wildlife management objectives.[118]

On paper at least, by the turn of the twenty-first century, fire was accepted as a potential forest management tool, one with the express support of Congress.[119] Yet Western forests continue to have few prescribed fires. Even when agency staff is eager to use controlled burns, NEPA blocks their path.

II. An Overview of the National Environmental Policy Act

Understanding the larger framework of NEPA helps explain its impact on prescribed burns. NEPA land management actions are lightning rods for long, drawn-out fights involving natural resource extraction industries, environmental groups, states, local communities, and tribes.[120] Litigation can bog down agency action for years, and the analysis conducted for the NEPA process may ultimately have little impact on the agency's decision.[121] Yet NEPA remains a powerful force for environmental protection. This section briefly reviews the history and doctrine of federal land management under NEPA and its successes in protecting communities and ecosystems from environmental degradation.

A. NEPA's origins and history

In the late 1960s, Congress launched an investigation into the impacts of urbanization and industrialization on Americ's physical environment. The final report concluded that mismanagement by federal agencies was causing more environmental degradation than it prevented.[122] In response, Congress passed NEPA in 1969.[123]

NEPA is a short yet sweeping statute. The enacting bill, only five pages long, is often called "environmental law's Magna Carta" and is even compared to the Constitution.[124] Congress intended NEPA to "promote efforts which will prevent or eliminate damage to the environment and biosphere

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118. *Id.* at 26 (quoting U. S. Dep't of the Interior, Nat'l Park Serv., Compilation of the Administrative Policies of the National Parks and National Monuments of Scientific Significance (1970)).

119. *See, e.g.*, The National Cohesive Wildland Fire Management Strategy, Forest & Rangelands, https://www.forestsandrangelands.gov/strategy/thestrategy.shtml (last visited Dec. 22, 2022); 2009 Flame Act, 43 U.S.C. § 1748a.

120. For example, in one NEPA challenge to federal river and fisheries management, attorneys before the court included representatives of environmental groups, regional economic development and agricultural groups, an energy company, four states, and more than seven tribes. Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv., 184 F. Supp. 3d 861 (D. Or. 2016).

121. *See, e.g.*, *Oversight Hearing on Burdensome Litigation and Federal Bureaucratic Roadblocks to Manage our Nation's Overgrown, Fire-Prone National Forests Before the H. Subcommittee on Federal Lands, Committee on Natural Resources*, 115th Cong. (2017).

122. S. Rep. No. 296, 91st Cong., 1st Sess. 8 (1969). See RB Jai Alai, LLC v. Sec'y of Fla. Dep't of Transp., 112 F. Supp. 3d 1301 (M.D. Fla. 2015), *vacated sub nom.* Rb Jai Alai, LLC v. Sec'y of the Fla. Dep't of Transp., No. 613CV1167ORL40GJK, 2016 WL 3369259 (M.D. Fla. Feb. 2, 2016), for additional discussion of the origins of NEPA. *See also* Thomas O. McGarity, *Courts, the Agencies, and NEPA Threshold Issues*, 55 Tex. L. Rev. 801 (1976).

123. National Environmental Policy Act of 1969, Pub. L. No. 91-190, 83 Stat. 852 (codified as amended at 42 U.S.C. §§ 4321–4370).

124. *See, e.g.*, Jim Murphy, *Undercutting Environmental Law's Magna Carta*, 35 Nat. Res. & Env't 50 (2020); Eva H. Hanks & John L. Hanks, *An Environmental Bill of Rights: The Citizen Suit and the National Environmental Protection Act of 1969*, 24 Rutgers L. Rev. 230, 245 (1969) ("In form, the National Environmental Policy Act is a statute; in spirit a constitution.").

and stimulate the health and welfare of man."[125] It creates opportunities for citizen and non-federal government involvement in federal decision-making through "NEPA analysis."

NEPA requires agencies to analyze the environmental impacts of their decisions, directing federal agencies to prepare "a detailed statement" for every "major Federal action."[126] Courts have understood NEPA analysis to have two goals: (1) to force agencies to include a review of environmental impacts in planning for a proposed action; and (2) to inform the public of the review itself and the potential impacts.[127] NEPA also created the Council on Environmental Quality (CEQ).[128] CEQ advises the President on environmental policy broadly and is responsible for implementing NEPA and promulgating additional NEPA regulations.[129]

B. Current NEPA framework for federal land management

CEQ regulations structure NEPA review into three potential levels of analysis.[130] The most detailed and procedurally complex form of NEPA analysis is an Environmental Impact Statement (EIS). An EIS is triggered if the proposed action is likely to have a "significant" environmental impact. In these cases, the acting agency must publish several rounds of documents describing its proposed project and analyzing it according to a range of indices.[131] The agency must provide windows for the public to comment on or challenge the action at each phase.[132]

The least detailed form of NEPA analysis is a Categorical Exclusion (CE).[133] CEQ and Congress have determined certain types of actions "do not individually or cumulatively have a significant effect on the human environment."[134] For these actions, the acting agency may have CEQ approval to "categorically exclude" the project from extensive analysis. CEs are also not subject to administrative review. For these actions, the agency may skip nearly all NEPA procedural hurdles with only limited public comment before implementation. Somewhere between the two extremes of CEs and EISs are Environmental Assessments

125. 42 U.S.C. § 4321.

126. *Id.* § 4332(C). The definitions of "major" and "detailed statement" vary agency to agency, resulting in wildly differing number and length of NEPA documents. *See* Council on Environmental Quality, Length of Environmental Impact Statements (2020), https://ceq.doe.gov/docs/nepa-practice/CEQ_EIS_Length_Report_2020-6-12.pdf.

127. *See, e.g.*, Balt. Gas & Elec. Co. v. Nat. Res. Def. Council, Inc., 462 U.S. 87 (1983) ("NEPA has twin aims. First, it 'places upon an agency the obligation to consider every significant aspect of the environmental impact of a proposed action.' . . . Second, it ensures that the agency will inform the public that it has indeed considered environmental concerns in its decisionmaking process.").

128. 42 U.S.C. § 4342.

129. *Id.*

130. Council on Env't Quality, *A Citizen's Guide to NEPA* 9 (2021); EPA, National Environmental Policy Act Review Process, U.S. EPA (2013), https://www.epa.gov/nepa/national-environmental-policy-act-review-process.

131. These documents are generally (1) a Notice of Intent (NOI) announcing the agency is going to prepare an EIS; (2) at least one draft version of the EIS; (3) the final EIS; and (4) a Record of Decision (ROD), where the responsible land manager declares what action the agency will take. *See Citizen's Guide to NEPA*, *supra* note 128, at 12.

132. *Id.* at 8.

133. *Id.* at 9; *Categorical Exclusions*, Nat'l Env't Pol'y Act, https://ceq.doe.gov/nepa-practice/categorical-exclusions.html (last visited Dec. 23, 2022). Some agencies also refer to a categorical exclusion as a "CX." *See, e.g.*, *Categorical Exclusion (CX) Determinations*, U.S. Dep't of Energy, https://www.energy.gov/nepa/nepa-documents/categorical-exclusion-cx-determinations (last visited Dec. 23, 2022).

134. Nat'l Env't Pol'y Act, *supra* note 131.

(EAs), which require a pattern of analysis and comment similar to an EIS but with less stringent standards.[135]

Every agency action on federal land must go through at least some level of NEPA analysis.[136] Analysis specifics may vary across agencies, but all NEPA review shares some central components, like the requirement that the responsible agency must publish a Notice of Intent (NOI) in the *Federal Register* that summarizes the proposed action and impacts, calls for comments, and outlines the schedule for decision-making.[137] In that initial NOI publication, the agency typically identifies several "alternatives," or potential actions it may take.[138] The agency must compare these potential actions to a "no action" alternative.[139] CEQ rules also require that all NEPA analyses "involve the public, State, Tribal, and local governments, relevant agencies, and any applicants, to the extent practicable in preparing environmental assessments."[140]

C. NEPA's successes in stopping harmful action

In 2020, the Trump administration introduced regulations that would have vastly reduced NEPA's scope and efficacy,[141] and conservation organizations leapt to defend the statute.[142] A coalition of environmental groups, led by Earthjustice, filed suit against CEQ, challenging the rollbacks as arbitrary and capricious, in violation of the Administrative Procedure Act and NEPA itself.[143] Their defense emphasized NEPA's "vital role in preventing harm to people and the environment" and as "a crucial tool for public engagement and better governmental decision-making in the fight against environmental racism."[144]

These groups are right: NEPA processes objectively reduce environmental degradation. EISs for oil and gas projects result in "final decisions that are substantially less impactful on the environment when compared to initially proposed projects."[145] NEPA has reduced the impact of Florida highways on the

135. *Citizen's Guide to NEPA*, *supra* note 128, at 10.

136. *See, e.g.*, Aaron M. Lien et al., *The Effects of Federal Policies on Rangeland Ecosystem Services in the Southwestern United States*, 37 Rangelands 152 (2015); Shorna R. Broussard & Bianca D. Whitaker, *The Magna Charta of Environmental Legislation: A Historical Look at 30 Years of NEPA-Forest Service Litigation*, 11 Forest Pol'y & Econ. 134 (2009).

137. *Citizen's Guide to NEPA*, *supra* note 128, at 12.

138. *See id.* at 13.

139. *Id.* at 14.

140. 40 C.F.R. § 1501.5 (2021).

141. *Id.* §§ 1500–1518; *see also* Lisa Friedman, *Trump Weakens Major Conservation Law to Speed Construction Permits*, N.Y. Times (July 15, 2020), https://www.nytimes.com/2020/07/15/climate/trump-environment-nepa.html.

142. *See, e.g.*, Sharon Buccino, *Understanding Trump's Harmful Attack on NEPA*, NRDC (July 15, 2020), https://www.nrdc.org/experts/sharon-buccino/understanding-trumps-harmful-attack-nepa; Amy Kober, *NEPA Rollback Puts Clean Water and Communities at Risk*, Am. Rivers (July 15, 2020), https://www.americanrivers.org/conservation-resource/nepa-rollback-puts-clean-water-and-communities-at-risk; Jonathan Hahn, *Trump's NEPA Rollback Favors More Pollution and Less Community Input*, Sierra (July 17, 2020), https://www.sierraclub.org/sierra/trumps-nepa-rollback-favors-more-pollution-and-less-community-input.

143. Complaint for Declaratory and Injunctive Relief at 4, Alaska Community Action on Toxics v. Council on Environmental Quality, No. 3:20-cv-05199-RS (N.D. Cal. 2020), *available at* https://earthjustice.org/sites/default/files/files/ceq-nepa-rulemaking-complaint.pdf.

144. *Id.* at 67, 80.

145. John Ruple & Mark Capone, *NEPA—Substantive Effectiveness Under a Procedural Mandate: Assessment of Oil and Gas EISs in the Mountain West*, 7 Geo. Wash. J. Energy & Env't L. 39 (2016). Ruple and Capone discuss

Everglades,[146] stopped the dredging of California tidal lagoons,[147] prevented waste incinerator construction in Puerto Rico, and much more.[148]

Even the Trump administration's cherry-picked data presented to support its NEPA revisions substantiated analysis "that the NEPA process is responsible for substantial changes to project proposals."[149] The administration selected sixty-eight projects that had been analyzed through EAs. It concluded that similar projects could be excluded from NEPA analysis because they would not "have either individually or cumulatively significant environmental effects."[150] An analysis of these projects by a collective of environmental organizations pointed out that the data underlying these very projects told a more complicated story:

> From proposal to decision, these 68 projects decreased in total size by an astonishing 127,699.5 acres (21%). They decreased in harvest acreage by 60,986 acres (17%). Note that these are *net* changes to these projects, and therefore likely undercount the total improvements to projects (such as adding or relocating harvest acres or other activities). Still, even with this conservative accounting, the Forest Service decided to drop at least 1 out of every 5 acres it proposed for treatment during the EA process.[151]

All these examples point to NEPA's success in *preventing* action. NEPA's impact is often beneficial when a project is likely to increase environmental degradation. But different groups have different ideas about what projects and actions are likely to be environmentally degrading. Perceptions of risk are relative. And while some use NEPA as a scalpel to remove particularly hazardous aspects of federal projects, others treat it as a cudgel to kill the entire project.

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two different hypotheses for how these reductions happen but emphasize that, regardless of the manner, the change is happening through the NEPA process itself.

Researchers speculate that the NEPA process itself can drive impact reduction through several mechanisms. For example, NEPA forces a scientific analysis of a proposed action, and this analysis alone could indirectly lead to impact reduction. The "internal reform" model suggests that NEPA forces changes in agency priorities, personnel, and process that result in more sustainable decision-making. In contrast, the "external reform" model contends that the increased transparency and public involvement associated with NEPA may result in more sustainable decision-making. The internal and external models may work together to provide synergistic benefits. Our results indicate that a statistically significant reduction in project impacts occurs over the course of the NEPA process, and the largest reduction—80% of total impact reduction across all elements—occurs between publication of the draft EIS and final EIS. The reduction in impacts could be attributed to NEPA-related mechanisms, intervening variables, or a combination of both.

Id. at 47.

146. Kevin DeGood, *The Benefits of NEPA: How Environmental Review Empowers Communities and Produces Better Projects*, Ctr. for Am. Progress (Jan. 16, 2018), https://www.americanprogress.org/article/benefits-nepa-environmental-review-empowers-communities-produces-better-projects.

147. Elly Pepper, *Never Eliminate Public Advice: NEPA Success Stories*, NRDC (Feb. 1, 2015), https://www.nrdc.org/resources/never-eliminate-public-advice-nepa-success-stories.

148. *How Do You Benefit from NEPA?*, Protect NEPA, https://protectnepa.org/how-do-you-benefit-from-nepa (last visited Dec. 23, 2022).

149. Western Environmental Law Center et al., Comment Letter on Proposed Rule, National Environmental Policy Act (NEPA) Compliance 145 (June 13, 2019).

150. USDA Forest Serv., Supplementing 36 CFR Part 220: Addition of New Categorical Exclusion For Certain Restoration Projects Supporting Statement 12 (2019).

151. Western Environmental Law Center et al., *supra* note 147, at 145.

As the previous section describes, understandings of fire vary regionally. The long tradition of fire in the Southeast means that communities see fire as a neutral force. In contrast, Westerners' experience of near-exclusive suppression means fire remains a concern: state forestry agencies surveyed in the West were nearly twice as likely as those in the Southeast to list "public perception" as a primary barrier preventing prescribed fire.[152] And NEPA acts as a default, tapping into those fears, preventing fire's return to the West.

III. NEPA's Chokeholds

NEPA's procedural focus results in three unintended effects: (A) it leads to complicated and counterproductive funding mechanisms; (B) it discourages meaningful local involvement; and (C) it rewards low-risk inaction over high-reward action. These three consequences act as obstacles to agencies increasing prescribed burns and reflect NEPA's flawed conception of humans as elements separate from, and only damaging of, nature, as discussed in Part D.

A. NEPA's expense plus chronic underfunding hampers non-revenue-generating projects

Running a given project through NEPA analysis is expensive and time-consuming. There is limited data on how costly and lengthy NEPA analysis is,[153] but what little we know is telling. One study found that it costs the Forest Service on average $113,683 for a simple CE and as much as $1,376,206 for an EIS.[154] U.S. Department of Transportation records show that, between 1999 and 2011, NEPA projects took, on average, over five and a half *years* from publication of the NOI to final agency decision, not even counting subsequent delays due to objections or litigation.[155] The extreme time and funds needed to complete a given project cause agencies to bundle individual actions together into compound projects for analysis.[156] A search through National Forest Schedules of Proposed Actions (SOPAs) for NEPA reviews of exclusively prescribed burn projects comes up short.[157] Instead, prescribed burn projects are tied into more general

152. Mark A. Melvin, 2018 National Prescribed Fire Use Survey Report 17 (Nat'l Ass'n of State Foresters & Coal. of Prescribed Fire Councils eds., 2018), https://www.stateforesters.org/wp-content/uploads/2018/12/2018-Prescribed-Fire-Use-Survey-Report-1.pdf.

153. U.S. Gov't Accountability Off., GAO-14-369, Little Information Exists on NEPA Analyses (2014), https://www.gao.gov/assets/gao-14-369.pdf.

154. Jarod Dunn, Econometric Model of National Environmental Policy Act Timber Projects (2018), http://library.witpress.com/viewpaper.asp?pcode=EID18-012-1.

155. *Estimated Time Required to Complete the NEPA Process*, U.S. Dep't of Transp., https://www.environment.fhwa.dot.gov/nepa/timeliness_of_nepa.aspx (last visited Dec. 25, 2022).

156. Interview with Russell Owen, former Rocky Mountain Ranger District Fuels Specialist, Helena-Lewis & Clark Nat'l Forest, in Choteau, Mont. (Jan. 7, 2022).

157. *See, e.g.*, *Schedule of Proposed Action—10/01/2021 to 12/31/2021 - Kootenai National Forest*, USDA Forest Serv., https://www.fs.fed.us/sopa/components/reports/sopa-110114-2021-10.html (last visited Dec 6, 2021); *Schedule of Proposed Action—07/01/2021 to 09/30/2021—National Forests in Florida*, USDA Forest Serv., https://www.fs.fed.us/sopa/components/reports/sopa-110805-2021-07.html (last visited Dec 6, 2021); *Schedule of Proposed Action—01/01/2021 to 03/31/2021—National Forests In Florida*, USDA Forest Serv., https://www.fs.fed.us/sopa/components/reports/sopa-110805-2021-01.html (last visited Dec 6, 2021).

actions, like vegetation management and fuels reduction,[158] wetlands restoration projects,[159] or, most commonly, large-scale timber harvests.[160]

The reliance on profitable projects to fund NEPA analysis for prescribed burns appears to lead to a second funding catch-22. Because fire becomes tangled up in the other aspects of a project, so does the funding. The agency, cash-strapped in general,[161] may become dependent on timber projects that turn a profit to cover the cost of NEPA analysis and the burns themselves. Agency budgeting reflects this practice. Despite an eighty-million-acre backlog of National Forest land in need of active fuels management, USFS, in recent years, has dedicated $0 of its annual budget allocations specifically for prescribed burns.[162] Because no money in its budget is earmarked for fuels management through fire, the agency may need to wait years for the profitable action to fund the controlled burns.[163] Litigation and other NEPA-related hurdles often exacerbate this delay. In the interim years, wildfire may rush in.[164]

Not all agencies work like this. The only agency successfully implementing relatively significant controlled burns has an altogether different funding structure. The Bureau of Indian Affairs (BIA) dedicates roughly a quarter of its fire budget to prescribed burns.[165] As a result, BIA has been able to treat 7.5% of the lands it manages with controlled fire annually.[166] This percentage is a staggering achievement, particularly in comparison with its peer agencies. USFS, NPS, the Bureau of Land Management (BLM), the Fish and Wildlife Service (FWS), and other federal agencies (e.g., Defense, Energy, and Reclamation) all failed to burn even one percent of their forests.[167]

The gap between BIA and its peers may be attributable to NEPA: most BIA burns do not require NEPA analysis. Despite the high level of BIA burning, only four NOIs published by the agency contain the

158. *Cuckoo Vegetation Management Project*, USDA Forest Serv., https://www.fs.usda.gov/project/?project=42366 (last visited Dec 6, 2021).

159. *Osceola Isolated Wetlands Restoration*, USDA Forest Serv., https://www.fs.usda.gov/project/?project=58983 (last visited Dec 6, 2021).

160. *Black Ram (Northwest Yaak) Timber Harvest*, USDA Forest Serv., https://www.fs.usda.gov/project/?project=52784 (last visited Dec 6, 2021).

161. Rebecca Worby, *Proper Fire Funding Continues to Elude Congress*, High Country News (Dec. 11, 2017), https://www.hcn.org/issues/49.21/wildfire-proper-fire-funding-continues-to-elude-congress; Jacob Fischler, *Forest Service Reports a Year of Being on High Alert for Wildfire*, Missoula Current (Sept. 30, 2021), https://missoulacurrent.com/government/2021/09/forest-service-wildfire-2/ ("But that task is made more difficult by the loss of workers. The agency has lost 38 percent of its non-fire workforce in the last 20 years, Moore said. The loss of those staffers has diminished the agency's ability to manage forests in ways that make fires less likely and severe. Arizona Democrat Tom O'Halleran said that was a result of underfunding.").

162. USDA Forest Serv., FY 2021 Budget Justification 135–37 (2020), https://www.fs.usda.gov/sites/default/files/2020-02/usfs-fy-2021-budget-justification.pdf.

163. Alex Wigglesworth, *Prescribed Burns Are Key to Reducing Wildfire Risk, but Federal Agencies Are Lagging*, L.A. Times (Nov. 8, 2021), https://www.latimes.com/california/story/2021-11-08/us-forest-service-struggles-to-complete-prescribed-burns.

164. *Id.* For example, the 2022 Hermits Peak Fire in New Mexico. Ella Nilsen, *US Forest Service Admits Errors in Routine Prescribed Burn That Sparked Largest Fire in New Mexico History*, CNN (June 21, 2022), https://www.cnn.com/2022/06/21/us/hermits-peak-fire-us-forest-service-mistakes-climate/index.html.

165. Crystal Kolden, *We're Not Doing Enough Prescribed Fire in the Western United States to Mitigate Wildfire Risk*, 2 Fire 30 (2019).

166. *Id.*

167. *Id.*

phrase "prescribed burning" or its synonyms. Single actions not associated with a more extensive project may avoid NEPA review if they fit into Categorical Exclusions (CEs). Several CEs apply specifically to BIA-controlled burns, including any fire conducted by a tribe as part of a self-governance compact[168] and any "prescribed burning plans of less than 2,000 acres."[169]

In theory, other agencies might take advantage of CEs as well. USFS has three regulatory CEs that allow small-scale controlled burns that restore forests or improve wildlife habitat.[170] USFS could also take advantage of the CEs created by the 2003 Healthy Forest Restoration Act (HFRA).[171] HFRA designates areas of "declining forest health" where USFS can exclude prescribed burn projects of up to 3,000 acres from NEPA review.[172] That so few treatments end up as stand-alone CEs speaks to agency prioritization, overall funding levels, community attitudes, and perhaps disregard for advocacy by tribal practitioners.[173] But it also may reflect the massive problem of scale. After half a century of fire suppression, public lands face a logjam of overstocked forests.[174] USFS manages over 193 million acres spread across 154 national forests.[175] The backlog of areas in need of prescribed burning is of an equivalent scale, likely somewhere in the high tens of millions of acres. One study estimated that three national forests alone had a backlog of around 2.9 million acres. Two-thousand-acre chunks are insufficient to make even a dent. BIA manages less than a quarter of what USFS does—56 million acres, many of which are unforested.[176] Through the CE for fires conducted as part of a self-governance compact, BIA can avoid NEPA even for projects larger than 2,000 acres.[177] This option allows BIA to operate fire at much larger scales, without significant NEPA-driven costs.

B. Litigation and lack of meaningful stakeholder involvement dampens fire

NEPA discourages meaningful local involvement, leading to outsider litigation and limiting shifts in community attitudes towards fire. NEPA's structure dissuades meaningful citizen participation,

168. Bureau of Indian Affs., Dep't of the Interior Departmental Manual 516 DM 10: Managing the NEPA Process 4 (2020); *see also* Off. of Self Governance, Bureau of Indian Affs., 2019 Self-Governance Negotiation Guidance for BIA Programs (2018).

169. Bureau of Indian Affs., Managing the NEPA Process, *supra* note 166, at 5.

170. 36 C.F.R. §§ 220.6(e)(6), (25) (2021).

171. 16 U.S.C. § 6501.

172. 16 U.S.C. § 6591a.

173. For more on the role of Tribal leadership and how Indigenous perspectives may be ignored by non-indigenous practitioners, see Christopher Adlam & Deniss Martinez, *Project Firehawk: Decolonizing Prescribed Fire*, Fire Adapted Communities Learning Network (2021), https://fireadaptednetwork.org/project-firehawk-decolonizing-prescribed-fire; Frank K. Lake & Amy Cardinal Christianson, *Indigenous Fire Stewardship*, *in* Encyclopedia of Wildfires and Wildland-Urban Interface (WUI), Fires 1–9 (Samuel L. Manzello ed., 2019). Indigenous attitudes are of course not monolithic, and fire is not universal. But many tribes do see controlled fire as a key part of cultural heritage and spirituality. *See, e.g.*, Jonathan W. Long, Frank K. Lake & Ron W. Goode, *The Importance of Indigenous Cultural Burning in Forested Regions of the Pacific West*, USA, 500 Forest Ecology & Mgmt. 119597 (2021); M. Kat Anderson & Frank K. Lake, *California Indian Ethnomycology and Associated Forest Management*, 33 J. Ethnobiology 33 (2013); Tony Marks-Block & William Tripp, *Facilitating Prescribed Fire in Northern California Through Indigenous Governance and Interagency Partnerships*, 4 Fire 37 (2021).

174. Malcolm North, Brandon M. Collins & Scott Stephens, *Using Fire to Increase the Scale, Benefits, and Future Maintenance of Fuels Treatments*, 110 J. Forestry 392 (2012).

175. *By the Numbers*, USDA Forest Serv. (Nov. 2013), https://www.fs.usda.gov/about-agency/newsroom/by-the-numbers.

176. Bureau of Indian Affs., Off. of Tr. Servs., https://www.bia.gov/bia/ots (last visited Dec. 26, 2022).

177. Off. of Self Governance, Bureau of Indian Affs., *supra* note 166.

instead fostering an uncooperative and oppositional dynamic between agencies and other stakeholders. Comments submitted to agencies in NEPA enter a black box and ultimately have little impact on agency decision-making. By the time an NOI is published (usually the first official step in the NEPA process) and the agency has selected a preferred alternative, persuading the agency to change its mind becomes nearly impossible.[178] The only reliable method for forcing change after the NOI is published is to sue the agency.

Many of the elements that make early, ongoing involvement so critical—like the lack of agency changes following NOI publication and doctrines that bar litigation like preclusion and issue exhaustion—are far outside the standard layperson's comfort zone. This is a system removed from ecological needs. Navigating NEPA requires hiring lawyers, not biologists, silviculturists, or fire experts. Abstruse agency decision-making also rewards sophisticated and repeat players. But trees grow slowly. Foresters regularly plan for forest cycles lasting fifty years or longer and rotate treatment areas around large landscapes.[179] A given patch of forest may not be at the center of NEPA analysis for two or three decades. Locals who care about a particular stretch of woods may care deeply but have no skills to navigate the NEPA maze. The obtuse NEPA process results in an imbalance, where outside communities dominate most NEPA involvement and litigation.[180]

There are two major downsides to this arrangement as it impacts prescribed burns. First, NEPA gives commenters a potent tool but forces them to share it. Because NEPA has practically no substantive requirements, just procedural ones, the agency has enormous leeway to act as it pleases, so long as it checks the required boxes. Agency staff must listen to and respond to comments but are not obligated to accommodate them. The threat of litigation can create an incentive to accommodate. It is a stick for stakeholders to wield in negotiations over proposed actions.

Imagine a particular National Forest has proposed a timber harvest with no prescribed burning or conservation activities. A local NGO submits NEPA comments detailing their strong objection to the project—unless the agency includes a controlled burn. The agency can read between the lines. It understands that, barring including fire as a project component, the organization will sue, pushing the timeline of actual work even farther out. It is in the agency's interest to make at least some change to the NGO's area of concern, if only to avoid delay and the cost of litigation. This is a two-way negotiation.

Now, imagine there are three NGOs, each with a different pet concern. The calculation has changed. In the first scenario, the agency could avoid a lawsuit by changing one element. In the second, nothing short

178. While NEPA analysis occurs in the context of informal administrative adjudication, and not rulemaking, its structure of a published plan followed by public comment greatly resembles notice and comment rulemaking and is thus subject to many of the same critiques. Richard Stoll's assessment of the importance of timing in notice and comment procedures certainly applies:

[T]he public comment stage of a proposed rule is, for most rules, pretty much the 11th hour. If the agency were to make a dramatic change in direction, it would either have to abandon years of work or, at a minimum, go through another (arduous) round of notice and comment. Therefore, achieving fundamental change at this stage is often an enormous uphill battle.

Richard G. Stoll, *Effective Written Comments in Informal Rulemaking*, Admin. L. & Reg. News, Summer 2007, at 15. Like in notice and comment rulemaking, NEPA analysis occurs after months or years of agency planning, ossifying agency decision-making.

179. Eric J. Gustafson, *Expanding the Scale of Forest Management: Allocating Timber Harvests in Time and Space*, 87 Forest Ecology & Mgmt. 27 (1996).

180. Shorna R. Broussard & Bianca D. Whitaker, *The Magna Charta of Environmental Legislation: A Historical Look at 30 Years of NEPA-Forest Service Litigation*, 11 Forest Pol'y & Econs. 134 (2009).

of changing everything is guaranteed to eliminate the risk of litigation. Changing everything could mean the project becomes unprofitable. And these three concerns may even be conflicting, so that no amount of accommodation makes all three groups happy. So, the National Forest changes nothing and hopes it can prevail under *Chevron* deference when the project is inevitably litigated.[181]

When this situation becomes a repeated pattern, everyone knows their comments and attempts to negotiate with the agency are futile. So instead, NGOs submit just enough comments to keep the door to litigation open and wait to file their suit. The goal becomes making it to court, hoping the judge will pick the NGO's side, and maybe set precedence for future cases on the way. Instead of NEPA acting as a tool to allow public participation in agency processes, it becomes a tool for those with resources to slow down agency action, and it ultimately hands power to the courts.

This system of little local involvement and slow, painful litigation limits agency interest in prescribed burns. Since NEPA takes so long, requires so much of an agency, and costs so much, agencies are likely to focus on projects that give them the most bang for their NEPA buck. Unsurprisingly, over the past two decades, timber shops—the offices within each National Forest that manage lumber contracting and operations—have taken over as the driving force behind USFS management.[182] Projects that have net costs, such as prescribed burning, get short shrift.

The second downside of the imbalance in NEPA commenters is that it prolongs erroneous cultural attitudes towards fire, creating a dangerous positive-feedback loop. Federal agencies spent half a century releasing propaganda fighting against all fire. Every cohort of Americans, from the Greatest Generation to Gen Z, has grown up with an anti-fire mascot, from Uncle Sam in the 1930s to the familiar image of Smokey Bear.[183] Communities have come to fear fire, even when they see its virtues. One meta-study by a USFS researcher reviewed attitudes towards prescribed fire by communities near national and state forests.[184] Although most respondents saw prescribed burning as an "appropriate management tool," groups of participants remained leery of smoke and the potential for the fire to escape.[185] Others distrusted the government's ability to execute burns or were unfamiliar with the practice. This unawareness likely hampers acceptance: the study's authors found "a strong link between knowledge and support for . . . prescribed fire."[186] But perhaps most fundamentally, the study emphasized that perceptions were flexible but required work. It emphasized that "understanding is a two-way street":

> [T]he fact that there is a clear link between familiarity with a practice and acceptance does not mean

181. Chevron, U.S.A., Inc. v. Nat'l Res. Def. Council, Inc., 467 U.S. 837 (1984). Under Chevron, courts defer to an agency's interpretation of its substantive statute so long as it is reasonable and not contrary to the stated intent of Congress. Cong. Rsch. Serv., Chevron Deference: A Primer (2017), https://sgp.fas.org/crs/misc/R44954.pdf. In practice, *Chevron* acts as a wide umbrella, protecting agency action from challenges. However, this area of administrative law is rapidly shifting; recent Supreme Court jurisprudence may evidence a shift away from *Chevron* and towards its precursor, *Skidmore* deference, which allows courts to consider other factors, such as agency consistency, in weighing the agency's interpretation. *See* Richard J. Pierce Jr., *Is Chevron Deference Still Alive?*, Reg. Rev. (July 14, 2022) https://www.theregreview.org/2022/07/14/pierce-chevron-deference.

182. Interview with Russell Owen, *supra* note 154.

183. Cynthia Fowler & Evelyn Konopik, *The History of Fire in the Southern United States*, 14 Hum. Ecology Rev. 165 (2007).

184. Sarah M McCaffrey, *Prescribed Fire: What Influences Public Approval?*, *in* Fire in Eastern Oak Forests: Delivering Science to Land Managers 192 (Matthew B. Dickinson ed., 2006).

185. *Id.* at 193–94.

186. *Id.* at 194–96, 197.

> that increasing acceptance of prescribed fire is simply a case of providing information . . . . [T]he most trustworthy and most helpful methods of information dissemination were guided field trips and interaction with agency personnel. Such interactive methods are most effective at changing attitudes and behavior as they allow people to question and clarify new information . . . . Manager[]s in turn can learn through this process about key public concerns and issues and tailor their management efforts to account for them.[187]

The type of involvement that changes opinions about fire is precisely what NEPA should, in theory, be providing, but, in reality, is stifling. Agencies do often organize public field trips to discuss projects.[188] Having attended several myself, few participants on these trips are curious citizens interested in a project near their community, tagging along to learn more. Participants are far more likely to be well-informed staff members from state or county governments, partner federal agencies, environmental NGOs, or industry—in other words, the NEPA regulars. The agency staff thus tailors their presentation to the experienced players, who already know the basics of prescribed burns. That leaves those few community members who do show up mostly at a loss and without the type of two-way engagement necessary to change minds. The NEPA process then chugs along, leaving community perceptions of fire unchanged. Perhaps this lack of accessible engagement explains the lack of variation in fire perceptions between people who live within a National Forest wildland-urban interface and residents of metropolitan Chicago.[189]

C. NEPA creates out-of-date agency perceptions and perverse incentives

The combination of NEPA's funding hurdles, emphasis on risks, and discouragement of local participation distorts agency staff's feelings towards fire. On the one hand, the high cost of NEPA and bundling of controlled burns onto larger timber packages creates a perception that burns are expensive and may require timber sales to pay for them.[190] NEPA's inherent focus on risks also emphasizes the downsides of fire, in particular smoke.[191] The upsides it features tend to be focused on fuel reduction and wildfire prevention. Combined, this enables timber shops to cannibalize funding from fire.[192] Agency staff may argue that mechanical thinning (cutting trees at fixed intervals) provides the same protection from wildfire

187. *Id.* at 197.

188. *See, e.g.*, Press Release, White Mountain Nat'l Forest, Prescribed Burn Planned (Mar. 29, 2021) (on file with author) ("At a date to be determined after the fire, the USFS will host an informational field trip for the public. All are welcome to take a tour of Hudson Farm and learn more about why prescribed fire is used to manage grassland bird habitat on this property."); Press Release, Shasta-Trinity Nat'l Forest, South Fork Sacramento Public Safety and Forest Restoration Project Public Field Trip (June 11, 2021), https://www.fs.usda.gov/detail/stnf/news-events/?cid=FSEPRD921639; Gus Smith & Isaiah Hirschfield, Nat'l Park Serv., Fire Ecology Annual Report: Yosemite Nat'l Park (2008), https://irma.nps.gov/DataStore/DownloadFile/520874.

189. McCaffrey, *supra* note 182, at 196.

190. Interview with Russell Owen, *supra* note 154.

191. *See,* Suraj Ahuja & Laurie Perrot, National Environmental Policy Act Disclosure of Air Quality Impacts for Prescribed Fire Projects in National Forests in the Pacific Southwest Region (Proceedings of the 2002 Fire Conference: Managing Fire and Fuels in the Remaining Wildlands and Open Spaces of the Southwestern United States), https://www.fs.usda.gov/research/treesearch/34703. Federal regulations often consider the impacts of smoke from prescribed burns, but exempt impacts from potential wildfire smoke. *See, e.g.*, Scott L. Stephens et al., *U.S. Federal Fire and Forest Policy: Emphasizing Resilience in Dry Forests*, 7 Ecosphere e01584 (2016) ("Wildfire smoke in the Clean Air Act is exempted from regulatory compliance standards, while smoke from prescribed and managed fire is regulated.").

192. Interview with Russell Owen, *supra* note 154.

without any of the risks of prescribed burns,[193] but the two treatments are not interchangeable. While both are helpful tools to fight wildfire, fire often has broader benefits to ecosystems that thinning cannot replicate.[194]

On the other hand, NEPA imbues fire with a sense of fear and risk that deters agency staff from pursuing prescribed burns.[195] This emphasis on potential disasters over reliable results is exacerbated by the rare cases when a fire does escape. For years following the 2000 Cerro Grande Fire, for instance, federal agency officials remained "leery" about the risks of controlled fire.[196] The Cerro Grand began as a prescribed burn managed by NPS on the Bandelier National Monument in New Mexico.[197] Overnight, wind gusts intensified the flames while fire crews were short-handed, and the fire broke free, eventually burning over 43,000 acres.[198] While no one died, the resulting wildfire burned over 200 homes and threatened facilities storing radioactive materials at the Los Alamos National Laboratory.[199] The damage to the town and its infamous National Laboratory cost one billion dollars.[200]

In part because of the potential danger to Los Alamos's nuclear facilities, the fire quickly became political. Articles and opinion pieces questioning prescribed burning appeared in national press outlets, including CBS,[201] the *New York Times*,[202] and the *Chicago Tribune*.[203] A particularly scathing opinion piece in the *Wall Street Journal* declared that "the history of prescribed fires shows it is a largely failed policy."[204] Unsurprisingly, the fire instigated a flurry of litigation.[205] NPS,[206] the National Interagency Fire Center,[207]

193. *See, e.g.*, James D. Johnston et al., *Mechanical Thinning Without Prescribed Fire Moderates Wildfire Behavior in an Eastern Oregon, USA Ponderosa Pine Forest*, 501 Forest Ecology & Mgmt. 119674 (2021).

194. Eric E. Knapp et al., *Efficacy of Variable Density Thinning and Prescribed Fire for Restoring Forest Heterogeneity to Mixed-Conifer Forest in the Central Sierra Nevada, CA*, 406 Forest Ecology & Mgmt. 228 (2017); Malcolm North, Jim Innes & Harold Zald, *Comparison of Thinning and Prescribed Fire Restoration Treatments to Sierran Mixed-Conifer Historic Conditions*, 37 Can. J. For. Res. 331 (2007).

195. Interview with Russell Owen, *supra* note 154.

196. Scott Wyland, *Cerro Grande Fire Remains Burned into New Mexico's Memory 20 Years Later,* Santa Fe New Mexican (May 10, 2020), https://www.santafenewmexican.com/news/local_news/cerro-grande-fire-remains-burned-into-new-mexicos-memory-20-years-later/article_190f6252-896c-11ea-8ab4-e78b330ac4e3.html.

197. *Id.*; Lonnie et al., *supra* note 25.

198. Wyland, *supra* note 194; Lonnie et al., *supra* note 25.

199. *Id.*

200. *Id.*

201. *Fire Policy Under Scrutiny*, CBSNews.com (May 11, 2000, 6:40 PM), https://www.cbsnews.com/news/fire-policy-under-scrutiny.

202. George Johnson, *Ideas & Trends: Chaos Theory; Harness Fire? Mother Nature Begs to Differ*, N.Y. Times (May 21, 2000), https://www.nytimes.com/2000/05/21/weekinreview/ideas-trends-chaos-theory-harness-fire-mother-nature-begs-to-differ.html.

203. *U.S. Suspends Controlled Fires*, Chi. Trib. (May 13, 2000), https://www.chicagotribune.com/news/ct-xpm-2000-05-13-0005130098-story.html.

204. Micah Morrison, *Environmental Dogma Goes Up in Flames*, Wall St. J. (May 16, 2000), https://www.wsj.com/articles/SB958435213779302914.

205. *See, e.g.*, Evans-Carmichael v. United States, 250 F. App'x 256 (10th Cir. 2007); Velarde v. Rio Arriba Bd. of Cty. Comm'rs, No. CV 01-0877 DJS/RLP, 2005 WL 8163908 (D.N.M. Apr. 1, 2005); Safeco Ins. Co. of Am. v. Oliver, No. CV-03-1268 JC/DJS, 2006 WL 8444554 (D.N.M. Jan. 23, 2006).

206. Nat'l Park Serv., Cerro Grande Prescribed Fire Board of Inquiry Final Report (2001), https://www.nwcg.gov/sites/default/files/wfldp/docs/sr-cg-cerro-grande-board-of-inquiry-report-feb-2001.pdf.

207. Lonnie et al., *supra* note 25.

and Congress all launched investigations into the fire.[208] Interior Secretary Bruce Babbitt ordered a month-long suspension of all controlled burning activity.[209]

Future prescribed burns live under the cloud of this history. A fuels manager noted that he must discuss the potential for escape in every NEPA analysis.[210] For agency staff conducting forest management who live in small rural communities, the risks of escape feel perilously personal. Although the fuels manager is confident in his and his team's skills, he obtained personal liability insurance—just in case a prescribed fire escapes.[211] "You need to be gutsy to make a difference with prescribed burns . . . . [I]t takes personal risk-taking to make it happen."[212]

The uproar the Cerro Grande fire caused was extreme but not isolated. NEPA forces the acting agency to confront concerns around smoke with every project.[213] Smoke is dangerous, whether it stems from prescribed burns or a raging wildfire.[214] "Wood smoke contains many of the same toxic and carcinogenic substances as cigarette smoke" and leads to "increased risk of acute respiratory and cardiovascular outcomes, including exacerbations of asthma and chronic obstructive pulmonary disease, acute lower respiratory tract infections, myocardial infarction, stroke, and arrhythmias."[215] NEPA public comments regularly raise smoke as a potential reason to avoid or limit prescribed burns.[216] The question of smoke became particularly difficult following the outbreak of Covid-19. Because the virus attacked lungs, commentators worried that prescribed burns could exacerbate an already deadly situation.[217] USFS and several other state and federal agencies opted to cancel all burns for the 2020 season.[218]

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208. *Fire Management: Lessons Learned from the Cerro Grande (Los Alamos) Fire and Actions Needed to Reduce Fire Risk: Hearing Before the Subcomm. on Forests and Forest Health of the H. Comm. on Resources*, 106th Cong. (2000).

209. *U.S. Suspends Controlled Fires*, *supra* note 201.

210. Interview with Russell Owen, *supra* note 154.

211. *Id.* This concern about liability is not driven by state laws, which are relatively similar across the Northwest and Southeast. *See* Melvin, *supra* note 150, at 15 fig.17.

212. *Id.* The fuels manager elaborated in a subsequent email that "the risk assumed by a burn boss is primarily related to the potential of having anyone injured or killed in connection to a prescribed fire, or the loss of private property or infrastructure resulting from a prescribed fire. This is also a risk that line officers have to bear. Burn bosses know, though, that when a burn goes wrong, they will be the focus of attention (not to diminish the pressure and repercussions for others." E-mail from Russell Owen, former Rocky Mountain Ranger District Fuels Specialist, Helena-Lewis & Clark Nat'l Forest to Jane Jacoby (Apr. 7, 2022, 19:15 EST) (on file with author).

213. *See, e.g.*, Bureau of Land Mgmt., Final Programmatic EIS for Fuel Breaks in the Great Basin—Volume 1: Executive Summary, chs. 1–5, at 25–26, https://eplanning.blm.gov/public_projects/nepa/71149/20012654/250017231/FuelBreaks_FEIS_Vol1_ES-Ch1-5.pdf (2020).

214. *See, e.g.*, Benjamin A. Jones & Robert P. Berrens, *Prescribed Burns, Smoke Exposure, and Infant Health*, 39 Contemp. Econ. Pol'y 292 (2021); Balmes, *supra* note 8, at 881.

215. Balmes, *supra* note 8, at 881–82.

216. *See, e.g.*, Bureau of Land Mgmt., Final Programmatic EIS for Fuel Breaks in the Great Basin - Volume 3: Apps. B through N at N50, N55–56, N61 N72, https://eplanning.blm.gov/public_projects/nepa/71149/20012654/250017231/FuelBreaks_FEIS_Vol1_ES-Ch1-5.pdf (2020).

217. *See, e.g.*, Editorial, *COVID-19 Era Is No Time to Play with Fire*, Yakima Herald-Republic (Apr 14, 2020), https://www.yakimaherald.com/opinion/editorials/editorial-covid-19-era-is-no-time-to-play-with-fire/article_992880c0-3a2c-5b65-b260-aa410b07d0e3.html.

218. Will McCarthy, *Will Smoke from Controlled Burns Hurt Covid-19 Patients?*, N.Y. Times (May 4, 2020), https://www.nytimes.com/2020/05/04/us/coronavirus-california-air-pollution.html; Eli Cahah, *COVID-19 Worries Douse Plans for Fire Experiments*, Science (Sept. 11, 2020), https://www.science.org/content/article/

In reality, smoke concerns from prescribed burns are likely overblown. The amount of smoke produced by a prescribed burn is generally less dangerous and more controllable than wildfire smoke.[219] But the attention that smoke gets reflects a more significant problem with agency attitudes toward fire, one reflected in NEPA's structure. Agencies often act as if the actions they consider taking exist in a vacuum. Analyses may ignore the realities of climate change[220] or the impact of actions taken over international borders.[221] Although courts have held agencies accountable for the former, which was particularly egregious and obvious under the Trump administration,[222] the pattern reflects a more systemic issue.

In conducting a NEPA review, an acting agency analyzes a set of discrete hypothetical scenarios. The agency will compare the impacts of one or more "action alternatives"—each scenario within the range of potential scenarios the agency is considering constitutes one "alternative"— against a "no action alternative"—what the conditions would be if the agency did nothing.[223]

But when it comes to fire management on today's federal lands, there is no such thing as a "no action" alternative. Fires are inevitable in Western and Southeastern landscapes. And although agencies are moving away from the 10 a.m. policy to a more fire-friendly future, fire suppression is still the norm. So, paradoxically, prescribed burn alternatives more closely mirror the landscape as it would exist without agency action—mottled by fire—and no-action alternatives reflect high-intensity action. This inverted description of action and inaction produces an imbalance of perceived risk. As one commenter noted,

> Fire-dependent forests will burn eventually, meaning the responsible choice is between periodic, lower concentrations of smoke in planned dispersal patterns or unplanned, heavy emissions where smoke drift and accumulation is uncontrolled. Current policy treats "unmanaged" wildfire occurrence and the resultant effects as "an act of God" when human management decisions and inaction have actually contributed to conditions that support large, severe fires.[224]

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covid-19-worries-douse-plans-fire-experiments; Press Release, U.S. Army, Prescribed Burns of Forest Debris, Halted During Pandemic, Back on with Much Work Ahead (Mar. 24, 2021), https://www.army.mil/article/244613/prescribed_burns_of_forest_debris_halted_during_pandemic_back_on_with_much_work_ahead; Nichola Groom, *Trump Administration Halts Wildfire Prevention Tool in California over Coronavirus*, Reuters (Apr. 15, 2020), https://www.reuters.com/article/us-health-coronavirus-usa-wildfires-idUSKCN21X1HD.

219. North, Collins & Stephens, *supra* note 172, at 398; Bureau of Land Mgmt., Final Programmatic EIS for Fuel Breaks in the Great Basin - Volume 1: Executive Summary, chs. 1–5, at 25–26, https://eplanning.blm.gov/public_projects/nepa/71149/20012654/250017231/FuelBreaks_FEIS_Vol1_ES-Ch1-5.pdf (2020).

220. *See, e.g.*, Wilderness Workshop v. U.S. Bureau of Land Mgmt., 342 F. Supp. 3d 1145, 1156 (D. Colo. 2018) ("BLM acted in an arbitrary and capricious manner and violated NEPA by not taking a hard look at the indirect effects resulting from the combustion of oil and gas in the planning area under the RMP. BLM must quantify and reanalyze the indirect effects that emissions resulting from combustion of oil and gas in the plan area may have on GHG emissions.").

221. David Heywood, *NEPA and Indirect Effects of Foreign Activity: Limiting Principles from the Presumption Against Extraterritoriality and Transnational Lawmaking*, 2013 BYU L. Rev. 691 (2013).

222. Christy Goldfuss, Sally Hardin & Marc Rehmann, *12 Climate Wins From the National Environmental Policy Act*, Ctr. for Am. Progress (May 29, 2019), https://www.americanprogress.org/article/12-climate-wins-national-environmental-policy-act.

223. 43 C.F.R. § 46.30 (No action alternative "has two interpretations. First 'no action' may mean 'no change' from a current management direction or level of management intensity (e.g., if no ground-disturbance is currently underway, no action means no ground-disturbance). Second 'no action' may mean 'no project' in cases where a new project is proposed for implementation").

224. North, Collins & Stephens, *supra* note 172, at 398.

Because NEPA creates an aversion to risk, prescribed burns remain controversial, at least to agency politicos if not to foresters.[225] The irony of this fear of prescribed burns is perhaps ironically encapsulated by the aftermath of the Cerro Grande fire: just a decade after it wreaked havoc on Los Alamos, it saved the town from further destruction by yet another fire.[226] Even bad fire can be good.

D. NEPA's disconnect from nature: A theoretical framework

Each of these three hurdles—funding, litigation, and counterproductive incentives—points to a more profound defect within NEPA: the statute assumes that human activity is innately bad for nature. In many cases, as discussed above in section III.C, this baseline assumption matches the reality of proposed projects, and NEPA's tendency to reduce projects protects natural environments and communities. When NEPA analysis reviews a hazardous mining operation, a highway proposed to run through a neighborhood, or a proposed clearcut, this assumption tends to align with reality. Little that stems from these types of development is good for the earth. But just because many agency actions are harmful to the environment does not mean *all* potential human activity is environmentally harmful. Humans are capable of taking positive action too. We can restore wetlands, compost urban waste, or reintroduce native species.

These kinds of restorative actions are often *better* than doing nothing. Yet many Americans evaluate any human activity the same way NEPA does, assuming net harm. Surveys confirm that although people see themselves as part of nature, they simultaneously perceive nature as spaces where humans are absent.[227] Environmentalists often hold this same perception, a trend Robin Wall Kimmerer describes in *Braiding Sweetgrass*:

> One otherwise unremarkable morning I gave the students in my General Ecology class a survey. Among other things, they were asked to rate their understanding of the negative interactions between humans and the environment. Nearly every one of the two hundred students said confidently that humans and nature are a bad mix. These were third-year students who had selected a career in environmental protection, so the response was, in a way, not very surprising. They were well schooled in the mechanics of climate change, toxins in the land and water, and the crisis of habitat loss. Later in the survey, they were asked to rate their knowledge of positive interactions between people and land. The median response was "none."[228]

The very language of the historic (and predominantly white) American environmental movement reflects this perception. Terms like "preservation" convey that the environmentalist's work is defending nature from humanity and that the end goal is to have two separate and closed systems, with humans kept away from nature.

We can see this type of understanding in the structure and flaws of NEPA. To an agency, a prescribed burn and a timber harvest are essentially the same activity: they both remove trees from woods, so both are analyzed in practically the same way and at the same cost. This high cost leads to the bundling and

225. Interview with Russell Owen, *supra* note 154.

226. April Reese, *Previous Burn, Restoration Work Helped Spare Los Alamos from Catastrophe*, N.Y. Times (July 7, 2011), https://archive.nytimes.com/www.nytimes.com/gwire/2011/07/07/07greenwire-previous-burn-restoration-work-helped-spare-lo-38246.html.

227. *See, e.g.*, Joanne Vining, Melinda S. Merrick & Emily A. Price, *The Distinction Between Humans and Nature: Human Perceptions of Connectedness to Nature and Elements of the Natural and Unnatural*, 15 Hum. Ecology Rev. 1 (2008).

228. Robin Wall Kimmerer, Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge and the Teachings of Plants (2013).

defunding of prescribed burns discussed above. The few mechanisms to change agency action through NEPA—primarily but not exclusively litigation—reflect a pessimistic view of human activity. NEPA's impact decreases agency activity on a fairly large scale.

BIA's success in implementing prescribed burns points to a fundamentally different understanding of nature and human activity, one grounded in indigenous practice. Many Native traditions emphasize the connectedness of humans and nature as one system.[229] "In Indigenous cultures, resilience is considered as a holistic concept—everything is related."[230] Contemporary activism by tribes reflects this understanding that human activity can be beneficial and that traditions of prescribed fire connect directly to indigenous land practices. "[F]ire-dependent American Indian communities such as the Karuk and Yurok peoples stalwartly advocate for expanding prescribed burning as a part of their efforts to revitalize their culture and sovereignty . . . . However, land dispossession and centralized state regulations undermine Indigenous and local fire governance."[231] And BIA stewardship is no anomaly. Successful, controlled-burn regimes are led by indigenous communities internationally: "In exceptional Australian and South American contexts where fire governance is comparatively decentralized and Tribal sovereignty and land title are no longer as encumbered by colonial regulations, Indigenous cultural burning is achieving desired social and ecological outcomes without a heavy reliance on external funding and metrics."[232]

Recognizing that NEPA's tacit assumption—that all human activity is dangerous to nature—is out of line with best fire practices identifies a fundamental problem. The following section dives into several strategies to combat the impact of this assumption.

IV. How to Return Fire to Western Landscapes

NEPA stands in the way of fire on federal lands. Its procedural emphasis on inaction causes budget constraints, excludes local engagement in favor of outsider litigation, and creates paradoxical incentives and understandings of risk. Policymakers and the Biden administration can increase prescribed burns in the West by addressing the individual issues within the existing NEPA framework, fundamentally changing how NEPA works, or reconsidering who should manage federal lands.

A. Increase earmarked funding

One relatively straightforward solution would be to designate significant funds for executing and analyzing prescribed burns. Increased funds could help untangle controlled burns from more complicated (and likely to be litigated) NEPA analyses, allowing agencies to take advantage of existing CEs or smaller, smoother EAs. By increasing money for burns specifically, agencies also might have additional capacity to conduct community education about fire management, increasing local involvement with and understanding of controlled burns.

B. Make NEPA and agency processes more inclusive of those impacted by wildfire

To reduce the high levels of litigation involving NEPA-prescribed burns, legislators could amend NEPA's participation structure to increase the role of commenters in driving agency action. Revised participation

229. *See, e.g.*, Indigenous Principles of Just Transition, Indigenous Environmental Network (2017), http://www.ienearth.org/wp-content/uploads/2017/10/IENJustTransitionPrinciples.pdf ("A Just Transition affirms the need for restoring indigenous life ways of responsibility and respect to the sacred Creation Principles and Natural Laws of Mother Earth and Father Sky, to live in peace with each other and to ensure harmony with nature, the Circle of Life, and within all Creation.").

230. Lake & Christianson, *supra* note 171, at 1–9.

231. Marks-Block & Tripp, *supra* note 171, at 37.

232. *Id.*

structures might create local stakeholder groups with diverse membership, require that agencies involve the stakeholders in all NEPA projects, or increase the level of deference due to an agency action if a community stakeholder group signs off on a given project. Increased community power would build off of existing stakeholder coalitions like the Northeast Washington Forestry Coalition on the Colville National Forest.[233] On the Colville National Forest, a robust collaborative process that limits litigation allows USFS to sell a timber project *before* completing NEPA, in an "A to Z" project.[234] This reversing of the normal process ensures the agency has funds to include prescribed burns and other conservation activities in the NEPA process. Increasing stakeholder involvement would replicate BIA processes[235] and, it is hoped, result in similarly successful fire management.

This solution is not without its downsides. In particular, it might allow groups with the most money, interest, and local influence—essentially industry—to capture the supposedly representative stakeholder process. But, in many places, industry capture happens regardless. If industry is already driving agency decision-making (especially at USFS, where timber shops rule the roost), it is worth exploring ways to expand the use of much-needed prescribed fire.

C. Expand Categorical Exclusions for suppression activities

A third way to increase prescribed burns would simply be to expand the scope of CEs. The availability of CEs certainly aids the BIA in expediting burns, and additional prescribed burn-specific CEs could free other agencies to follow their lead. But CEs are controversial.[236] Many environmental advocates are rightly concerned about the potential for CEs to be exploited (particularly when the exception is not limited to non-fire thinning) or for unanalyzed fire to cause unintended damage.[237] But policymakers could limit the applicability of CEs to cover *only* prescribed burns without additional treatments. And the increasing use of CEs might help begin the process of righting agency understandings of fire and inaction. If agencies were free to conduct small-scale "good" fire, it might open their eyes (and those of community members) to the long-term benefits of habitual fire.

D. Legislation that prioritizes science and community over procedural rights

A more fundamental solution would be to overhaul NEPA and its related statutes to center substantive rights for natural improvement grounded in science. Legislation could establish fire on landscapes as the baseline for no-action alternatives or require agencies to manage some set percentage of land for fire conditions. It could constitute a more essential revision to NEPA and require more significant consideration of context and dynamic conditions. Any of these solutions would complement the legacy of the substantive federal environmental law statutes, reflecting our new age of wildfire and climate change.

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233. *See Who We Are*, Ne. Wash. Forestry Coal., https://www.newforestcoalition.com/our-vision (last visited Dec. 27, 2022).

234. Colville Nat'l Forest, North Fork Mill Creek A to Z Project Environmental Assessment (2016), https://www.fs.usda.gov/nfs/11558/www/nepa/97804_FSPLT3_3106469.pdf; Russ Vaagen, *A to Z Forest Restoration Project*, Vaagen Timbers, https://vaagentimbers.com/stories/finding-the-perfect-log-while-conserving-the-forest-2 (last visited Dec. 27, 2022).

235. Off. of the Assistant Sec'y–Indian Affs., 59 IMA 3-H, Indian Affairs National Environmental Policy Act (NEPA) Guidebook (2012), https://www.bia.gov/sites/default/files/dup/assets/public/raca/handbook/pdf/59_IAM_3-H_v1.1_508_OIMT.pdf.

236. Stephanie Young, *Categorical Exclusions: Are Agencies Silencing the Public's Voice?*, 23 Nat. Res. & Env't 39 (2009).

237. Kevin H. Moriarty, *Circumventing the National Environmental Policy Act: Agency Abuse of the Categorical Exclusion*, 79 N.Y.U. L. Rev. 29 (2004).

Some within within Congress exists to overhaul NEPA,[238] but current efforts tend to focus on speeding up analysis or reducing procedural hurdles.[239] These potential reforms reflect industry concerns about the length of the process and may reduce rigorous NEPA review of truly environmentally degrading activities. Given the deeply divided nature of Congress and Republican support for NEPA reform (even if on murky bases fundamentally opposed to the critiques discussed in this paper), it is unlikely that the Democratic caucus—most likely to be pro-fire and ecosystem-based management—could get behind a similarly framed (if fundamentally different) change to NEPA.[240]

E. Return lands to tribal control

One final way to increase prescribed burns would be to return federal lands to tribal jurisdiction. Recognition of indigenous sovereignty, including over public lands, is a goal of the Land Back movement, an international campaign to restore stolen indigenous land to Native people.[241] Land Back is deeply connected to other movements recognizing the injustices of American colonialism.[242]

> Discussions about reparations have become a larger part of the public consciousness in recent years. Yet, to date, there has never been a good faith attempt at restorative justice under American democracy. Even the few attempts at reparations for disenfranchised communities have come at the cost of another community's resources. For example, the 40 acres and a mule promised to formerly enslaved people were, in fact, 40 acres of stolen Indian land.[243]

Although the federal government has yet to enact any kind of systemic land-back regime, transfers are happening on a smaller scale.[244] In 2020, after decades of advocacy by the Confederated Salish and Kootenai Tribes, Congress passed legislation returning the 18,000-acre National Bison Range in Montana to the tribes.[245] Similarly, relatively small-scale transfers are happening internationally. In 2017, Australia

238. *See* S. 716, 117th Cong. (2021).

239. *See, e.g.*, Press Release, Office of Congresswoman Liz Cheney, Cheney Introduces NEPA Reform Bill to Streamline Regulations & Empower State/Local Leaders (June 11, 2021), https://cheney.house.gov/2021/06/11/cheney-introduces-nepa-reform-bill-to-streamline-regulations-empower-state-local-leaders.

240. Efforts by democrats to endorse widespread NEPA reform have had limited impact, and raised concerned eyebrows at environmental organizations. *See* Emma Dumain & Kelsey Brugger, *The House Democrat Trying to Move His Party on NEPA Reformi* E&E News (Feb. 17, 2023), https://www.eenews.net/articles/the-house-democrat-trying-to-move-his-party-on-nepa-reform.

241. Kanahus Manuel & Naomi Klein, *Opinion: 'Land Back' Is More Than a Slogan for a Resurgent Indigenous Movement*, Globe & Mail (Nov. 19, 2020), https://www.theglobeandmail.com/opinion/article-land-back-is-more-than-a-slogan-for-a-resurgent-indigenous-movement. Between the arrival of European settlers and today, Indigenous people in North America were disposed of ninety-nine percent of their land. Justin Farrell et al., *Effects of Land Dispossession and Forced Migration on Indigenous Peoples in North America*, 374 Science eabe4943 (2021).

242. *See* LANDBACK, https://landback.org (last visited Dec. 27, 2022); Jim Robbins, *How Returning Lands to Native Tribes Is Helping Protect Nature*, Yale E360 (June 3, 2021), https://e360.yale.edu/features/how-returning-lands-to-native-tribes-is-helping-protect-nature; Anna V. Smith, *When Public Lands Become Tribal Lands Again*, High Country News (Aug. 16, 2019), https://www.hcn.org/issues/51.15/tribal-affairs-when-federal-lands-become-tribal-lands-again-public-lands.

243. #*LandBack Is Climate Justice*, Lakota People's L. Project (Aug. 14, 2020), https://lakotalaw.org/news/2020-08-14/land-back-climate-justice.

244. Robbins, *supra* note 242.

245. *Id.*

handed management of 87,000 hectares to a consortium that centered the Tribal Council of the Nari Nari, a local indigenous group.[246]

Fee-simple transfers of America's federal lands require congressional action. But federal agencies already have the power to transfer lands to tribal management. Under the Indian Self Determination Act,[247] agencies may form sovereign-to-sovereign agreements with tribes to operate federal programs, including land management.[248] Co-management case studies reveal these contracts' successes, including for agencies' bottom lines. For example, the Grant Portage Band of Minnesota Chippewa was able to reduce maintenance costs for the Grand Portage National Monument, compared with NPS services. [249] Yet today, co-management is underutilized; despite hundreds of tribes and millions of acres of public land, federal land management agencies currently have fewer than two dozen such contracts.[250]

Respecting and restoring tribal sovereignty is its own end, not merely a means to more sustainable fire management. It is an end that the federal government and non-natives are increasingly supporting.[251] Co-management agreements of the type authorized by the Indian Self-Determination Act probably does not meet the demands of the Land Back movement; self-determination is not the same thing as

246. *Id.*; *see also The Nimmie-Caira Project*, New S. Wales Gov't, https://www.industry.nsw.gov.au/water/plans-programs/state-significant-projects/nimmie-caira (last visited Dec. 27, 2022); *Exploring Gayini–Nari Nari Country*, Nature Conservancy Austl., https://www.natureaustralia.org.au/what-we-do/our-priorities/land-and-freshwater/land-freshwater-stories/gayini (last visited Dec. 27, 2022).

247. Indian Self-Determination and Education Assistance Act of 1975, Pub. L. 93-638, § 2, 88 Stat. 2203 (codified as amended at 25 U.S.C. § 450a–n).

248. *See* Kevin Washburn, *Facilitating Tribal Co-Management of Federal Public Lands*, 2022 Wis. L. Rev. 263 (2022). As Washburn notes, there are multiple parallels to the type of relationship created by ISDA contracts: "Philosophically, the ISDA contracting regime can be seen, on the one hand, as tribes acting like independent government contractors that provide federal services for a fee. On the other hand, ISDA also could be viewed as treating tribes like states. Numerous federal programs, across a wide spectrum ranging from entitlement programs to environmental policy, simply provide a framework, and sometimes financing, for programs that are actually implemented by *state* governmental agencies. But the tribal self-determination regime is a little different from a state running a federal program . . . . " *Id.* at 271. For more on state management of federal lands, see Carol Hardy Vincent & Alexandra M. Wyatt, Cong. Rsch. Serv., R44267, State Management of Federal Lands: Frequently Asked Questions (2016).

249. Mary Ann King, *Co-Management or Contracting? Agreements Between Native American Tribes and the U.S. National Park Service Pursuant to the 1994 Tribal Self-Governance Act*, 31 Harv. Env't L. Rev. 475, 521 (2007) ("The [Grand Portage Band, Minnesota Chippewa Tribe] has run the [Grand Portage National Monument] maintenance program more efficiently and cost-effectively than the NPS.").

250. Washburn, *supra* note 248, at 290. ("For the most recent reporting period, the BLM has two such contracts; the Bureau of Reclamation has four; the National Park Service has three . . . and the Fish and Wildlife Service has only one."). In the months after Washburn's survey, USFS announced eleven additional co-stewardship agreements, bringing the current total to twenty one. USDA Forest Serv., USDA Forest Service Signs 11 New Agreements to Advance Tribal Co-stewardship of National Forests (2022), https://www.fs.usda.gov/news/releases/new-agreements-advance-tribal-co-stewardship (last visited Jan. 24, 2023).

251. *See, e.g.*, Memorandum from Arati Prabhakar, Office of Sci. & Tech. Pol'y to Fed. Dep'ts & Agencies (Nov. 30, 2022), https://www.whitehouse.gov/wp-content/uploads/2022/12/OSTP-CEQ-IK-Guidance.pdf ("The Federal Government recognizes the valuable contributions of the Indigenous Knowledge that Tribal Nations and Indigenous Peoples have gained and passed down from generation to generation and the critical importance of ensuring that Federal departments and agencies' . . . consideration and inclusion of Indigenous Knowledge is guided by respect for the sovereignty of self-determination of Tribal Nations . . . .").

full sovereignty.[252] But tribal co-management presents an opportunity to restore tribal management and indigenous fire to federal lands.

Conclusion

Climate change is an existential threat, both globally and locally. Wildfires are a prime example of the type of harm threatening communities in a hotter, dryer world, and prescribed burning is one of the few tools we have to combat this destruction directly, to protect communities and ecosystems. Yet, in the American West, the legal framework of NEPA stands in the way of effective fire management.

As Part IV discussed, this problem has any number of solutions, from overhauling NEPA to agency rulemaking to legislative reapportioning. Only one of these solutions could be enacted by the Biden administration tomorrow: large-scale tribal co-management. Professor Kevin Washburn described the relative simplicity of this approach: "[The l]egal infrastructure already exists in federal law to support greater tribal management or co-management of federal public lands. While some modest federal appropriations could help, no major new legislation is essential to achieve substantially more progress."[253]

Restoring indigenous sovereignty would almost certainly lead to fundamental shifts in fire management.[254] BIA and American Indian tribes have demonstrated that they can restore prescribed burns to landscapes. If the federal agencies tasked with land management are struggling to manage fire appropriately, why not support those who can and who have, in fact, been sustainably stewarding this land for millennia?

252. Sibyl Diver, *Co-management as a Catalyst: Pathways to Post-colonial Forestry in the Klamath Basin, California*, 44 Hum. Ecol. 533, 534 (2016) ("Risks of co-optation are a particular challenge for Indigenous communities working to achieve greater self-determination, a term that signifies the ability of Indigenous communities to participate meaningfully in the creation of the government institutions that they live with.").

253. Washburn, *supra* note 248.

254. *See* Adlam & Martinez, *supra* note 173.

Combatting Your Environmental Impact After Death: An Exploratory Analysis of Local Solutions to Facilitate Dying Green

Kaitlin Flores*

Abstract

An unfortunate reality of the human experience is that everyone will die one day—and while you may have led a sustainable and eco-friendly life while living, how can you continue that trend through death? This Note seeks to point out the necessity of adapting our current deathcare practices in the context of the recent COVID-19 pandemic and ongoing concerns for degrading air quality and consequences of rapid climate change. Beginning in Section I, this Note provides context of the rising death rates during the pandemic and explores the history of deathcare practices in the United States. Through an in-depth overview of current deathcare practices, this Note addresses the increasing popularity of choosing cremation and the environmental concerns that accompany it. Turning to a discussion focused on the specific, environmentally harmful effects our deathcare practices have had, and continue to have, Section II provides concrete examples of the consequences traditional burial and cremation pose, such as toxic runoff, wastewater infiltration, and air pollution, which could easily be more heavily regulated within the industry. Section III then provides a brief definition of what *dying green* means and a quick example of what it might look like before diving into Section IV, which summarizes the various laws that govern cemeteries, crematoriums, and deathcare land space. By discussing the relevant zoning and land use laws that regulate our deathcare practices, which are largely controlled by local ordinances and state cemetery codes, this Section highlights how consistent federal guidance in the deathcare industry could quell environmental consequences of traditional deathcare practices. Finally, Section V explores a handful of practical solutions that could be implemented to encourage *dying green* and how local governments can help make these greener options more accessible by way of permits, park fees, tax credits, mixed-use spaces, and the legalization of innovative, new options like *aquamation* and human composting. This Note then concludes that, through these solutions, local governments can help address current, environmentally harmful deathcare practices that are contributing to air quality degradation and climate change by issuing a call for action to state and local legislatures.

INTRODUCTION

During the height of the COVID-19 pandemic, we saw a surge in national and global death rates that was met by a combative, nation-first mentality in many countries, including the United States. This *truly* global, tangible health emergency posed a significant threat to the safety, comfort, and diplomatic relationships of nations everywhere.[1] Degraded air quality and climate change remain a threat. The link

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1. Stefan Lehne, *What the COVID-19 Pandemic Tells Us About Climate Change and Diplomacy*, Carnegie EU (Oct. 26, 2021), https://carnegieeurope.eu/2021/10/26/what-covid-19-pandemic-tells-us-about-climate-change-and-diplomacy-pub-85643.

between the overwhelming number of Americans living in unhealthy air quality conditions[2] and the rise in pollution emissions by various production industries has caused major concern. When accounting for pre-existing conditions, socioeconomic status, and access to healthcare, those who smoke or live in places with poor air quality due to pollution were more likely to die from COVID-19.[3]

Climate change exacerbates these circumstances, as it creates more favorable conditions for the spread of infectious diseases through temperature changes, rainfall pattern disruptions, and deforestation, causing unnatural wildlife migration that leads to an increase in viral transmissibility from animals to humans.[4] Furthermore, the increase in greenhouse gas emissions and global warming, coupled with deforestation and other destructive measures affecting animal habitats, forces wildlife to find new sources of food and water, often where people are living.[5]

An alarming and tragic result of the COVID-19 pandemic was the significant increase in community deaths.[6] To accommodate the surge of dead bodies, the number of cremations dramatically increased. This reliance on cremation during the pandemic reflects two concerning developments in the United States: (1) the exponential shift from burial to cremation, beginning pre-pandemic; and (2) the probability of industry-wide legal challenges due to existing zoning law and land use practice procedures that inhibit efforts to amend our current deathcare practices to more sustainable methods. These issues create accessibility barriers to what is becoming known as *dying green*,[7] which are practices that encourage more environmentally-friendly, and sustainable methods of caring for the dead. As climate change continues to increase the likelihood of future pandemics, and populations continues to rise gloablly, finding more eco-friendly ways to care for the dead has never been more timely.

I. HISTORY OF DEATHCARE TRENDS

In 2019 and the years prior, the annual death rate in the United States was approximately 2.8 million people.[8] The Center for Disease Control and Prevention ("CDC") reported 3.36 million deaths in 2020—a significant uptick from prior years—of which roughly 350,000 were caused by COVID-19.[9] An additional 30,000 had COVID-19 listed as a contributory cause.[10] In 2021, the CDC reported another 3.4 million deaths, of which approximately 463,000 had death certificates listing COVID-19 as their cause of death.[11]

2. *Understanding Air Pollution*, Respiratory Health Ass'n, https://resphealth.org/clean-air/understanding-air-pollution (last visited Jan. 12, 2022).

3. *Coronavirus, Climate Change, and the Environment: A Conversation on COVID-19 with Dr. Aaron Bernstein, Director of Harvard Chan C-CHANGE*, Harvard T.H. Chan – Sch. Pub. Health, https://www.hsph.harvard.edu/c-change/subtopics/coronavirus-and-climate-change (last visited Jan. 12, 2022).

4. *Id.*

5. *See Coronavirus Disease (2019) Situation Report – 94*, World Health Org. (Apr. 23, 2020), https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200423-sitrep-94-covid-19.pdf?sfvrsn=b8304bf0_4#:~:text=All%20available%20evidence%20for%20COVID,has%20a%20zoonotic%20source.

6. *Id.*

7. *See generally* Suzanne Kelly, Greening Death: Reclaiming Burial Practices and Restoring Our Tie to the Earth (2015).

8. Jiaquan Xu et al., *Deaths: Final Data for 2019,* 70:8 Nat'l Vital Stats. Rep. 1, 1 (2021).

9. Farida B. Ahmad et al., *Provisional Mortality Data – Morbidity and Mortality Weekly Report*, Ctrs. for Disease Control & Prevention (Apr. 9, 2021), http://dx.doi.org/10.15585/mmwr.mm7014e1; *COVID-19 Mortality Overview*, Ctrs. for Disease Control & Prevention, https://www.cdc.gov/nchs/covid19/mortality-overview.htm (last visited Oct. 2, 2022).

10. *Id.*

11. *Id.*

This increase of over half a million more deaths per pandemic year meant the possibility of more than a half million or more cremations than usual,[12] which caused a significant strain on the deathcare industry and those who handled the influx.[13]

Historically, burial had been more popular than cremation. In 2010, only about forty percent of the U.S. population chose cremation, and fifty-three percent chose burial.[14] Over the subsequent decade, the preference for burial has decreased to approximately thirty-eight percent, and cremation has become the majority's preference at fifty-six percent.[15] In the next ten to twenty years, projections estimate that less than one fifth of the country will choose burial,[16] and cremation will dominate end-of-life care.

Several explanations exist for increased cremations and fewer traditional burials, the first of which would be cost. Standard cremation costs range from $1,500 to $3,000, depending on whether a funeral home is involved in the arrangement or if the body is taken directly to a crematorium.[17] In contrast, a traditional burial and funeral ceremony can result in a bill of $6,000 to $12,000.[18] Another factor contributing to the popularity of cremation is a lack of space; as more Americans live and die in dense urban cities, their loved ones face the difficult issue of finding *where* they can bury the deceased, which becomes increasingly difficult for those who want to frequently visit burial sites.[19]

Finally, another developing factor that may reduce traditional burial even further is a growing community focus on green burial options and greener death practices, known as *dying green*, rather than relying on traditional burial methods. This movement away from traditional burial towards *dying green* is largely influenced by environmental concerns, such as the overconsumption of natural resources; toxic runoff and pollution resulting from burial; and the use of carcinogenic products in burial preparation, as well as the desire to avoid the pollutive nature of cremation practices. But encouraging *dying green* means first addressing several barriers to accessibility that exist in our legal structures. Before considering these barriers, it is important to understand the environmental consequences that traditional deathcare practices pose and why *dying green* must be made more accessible.

II. Environmental Concerns with Our Deathcare Practices

Over the years, the shift from traditional burials and subsequent rise in cremation rates came partially in response to the environmentally problematic practicalities of burial. For example, only a fixed amount of limited natural resources are available for the manufacturing of caskets, which are typically made

12. Bryan Wood & Jamina Zhang, *A Million Americans Have Died From Covid-19 with More Than Half Cremated*, South China Morning Post (May 6, 2022), https://www.scmp.com/video/world/3176834/million-americans-have-died-covid-19-more-half-cremated.

13. Kat Eschner, *How COVID Has Transformed the Death Care Industry for 'Last Responders,'* Fortune (Aug. 7, 2021), https://fortune.com/2021/08/07/covid-funerals-death-care-industry-burial-cremation-pandemic.

14. Nat'l Funeral Dirs. Ass'n, 2015 NFDA Cremation and Burial Report: Research, Statistics and Projections 2 (2015).

15. *Statistics*, Nat'l Funeral Dirs. Ass'n, https://nfda.org/news/statistics (last visited Oct. 3, 202).

16. Nat'l Funeral Dirs. Ass'n, 2021 NFDA Cremation and Burial Report 2 (2021).

17. *Understanding the Costs of Cremation vs. Burial*, Smart Cremation, https://www.smartcremation.com/articles/understanding-the-costs-of-cremation-vs-burial (last visited Jan. 12, 2022).

18. *Id.*

19. Vaughn Greene Funeral Services, *Five Reasons Why Cremation Is Surging in Popularity*, VGFS (Feb. 8, 2020), https://vaughncgreene.com/blogs/blog-entries/3/News-Events/90/Five-Reasons-Why-Cremation-is-Surging-in-Popularity.html.

from steel, copper, zinc, and lead.[20] Once constructed, caskets are coated in sealers, wood varnishes, and other preservatives. In the ground, these preservatives make their way into our ecosystems and are toxic to animals.[21] Another major environmental concern is the use of embalming fluid, a product containing formaldehyde, that is used in the embalming process in traditional burials. In the United States alone, about 5.3 million gallons of embalming fluid are used and buried each year.[22] The use of embalming fluid, materials currently used in casket manufacturing, and other potential toxins in bodies (e.g., pharmaceuticals, diseases, etc.) all contribute to potential stormwater and groundwater pollution originating from cemeteries over time.[23]

However, as burials downtrend in popularity, the harmful environmental impacts of cremation have recently garnered attention. Cremation is problematic for several reasons. The main concern is air pollution, which is excreted during cremation through the release of gases, including nitric oxide, ammonia, and mercury.[24] Additionally, cremation consumes large quantities of energy. Although negligible in comparison to industrial power plants, the rise of cremation practices should nonetheless spark concern for their consumption of natural gas energy.[25] One new emerging alternative to address the concerns of noxious gases released during cremation is a form of water cremation, called alkaline hydrolysis or "*aquamation*." Through this new technology, most of the carbon dioxide released into the atmosphere during traditional cremation practices is preventable.[26] *Aquamation* is one of a few cremation alternatives, but it also poses environmentally harmful consequences if its liquified waste is not handled properly. Also, this practice is not yet legal for human cremation in over half of the states, including New York and New Jersey.[27]

Another environmental concern with both burial and cremation is the regulation, disposal, and management of deathcare industry waste. To evaluate deathcare waste regulations, one must first understand the processes involved in both burial and cremation and the environmental deficiencies associated with these practices. These include harmful substances used in burial practice, lax oversight in waste management within the industry, and pollution emissions resulting from cremations. Beginning with traditional burial, the next subsections will provide a substantive overview of the various environmental

20. *See* Harald Ulrik Sverdrupa et al., *On the Long-Term Sustainability of Copper, Zinc and Lead Supply, Using a System Dynamics Model*, 4 Resources, Conserv., & Recycling: X, Science Direct 1 (2019), https://www.sciencedirect.com/science/article/pii/S2590289X19300052.

21. Mark Shelvock, Elizabeth Anne Kinsella & Darcy Harris, *Beyond the Corporatization of Death Systems: Towards Green Death Practices*, 30 Illness, Crisis & Loss 640 (2021), https://journals.sagepub.com/doi/full/10.1177/10541373211006882.

22. *Green Burial, An Environmentally Friendly Choice*, Funeral Consumers All., https://funerals.org/?consumers=green-burial (last visited Jan. 12, 2022).

23. *See* Jeremiah Chiappelli & Ted Chiappelli, *Drinking Grandma: The Problem of Embalming*, 71:5 J. Envt. Health 24, 24 (2008).

24. Bill Schlesinger, *Casting Your Last Environmental Footprint*, Nicholas Sch. Env't Duke Univ. (Oct. 31, 2017), https://blogs.nicholas.duke.edu/citizenscientist/casting-your-last-environmental-footprint.

25. Barbara Kemmis, *Environmental Impact of Cremation*, Cremation Ass'n N. Am. (Oct. 21, 2020), https://www.cremationassociation.org/blogpost/776820/357871/Environmental-Impact-of-Cremation.

26. Georgina M. Robinson, *Dying to Go Green: The Introduction of Resomation in the United Kingdom*, 12:97 Religions 15, 15 (2021).

27. Andrew McGee, *Where Is Aquamation Legal? Which States Have Legalized Aquamation or Bio Cremation?*, U.S. Funerals Online (Nov. 19, 2021), https://www.us-funerals.com/where-is- aquamation-legal-which-states-have-legalized-aquamation-or-bio-cremation/#.YwVPw-zMLlZ.

challenges our current deathcare practices produce, before analzying the applicable laws governing the deathcare industry.

A. Environmental Problems Caused by Traditional Burial Practices

Traditional burial presents several environmental issues that warrant consideration. Traditional burial consumes a large amount of resources and land. Around 13,000 tons of steel and 1.5 million tons of concrete are used for burial vaults and cemeteries annually,[28] and if all caskets and coffins were made of hardwood, an estimated 150 million feet of wood would be buried each year.[29] Further, existing cemeteries currently occupy about 1.4 million acres of land in the United States and are projected to consume an additional 1,600 acres each year,[30] land which might be inaccessible, not zoned for burial, or nonexistent depending on location.

The issue of having enough land space for deathcare is often overlooked because although technically *enough* space exists to accommodate cemeteries, in certain locations where death rates are higher, zoning regulations often prevent land from being allocated for burial purposes, and thus space for cemeteries is typically not *accessible*.[31] However, this growing concern for scarcity is just one factor of many leading towards a decline in traditional burial. The sheer amount of inorganic substances and materials buried along with bodies has caused concern for many eco-minded persons making deathcare choices. The use of steel, wood, and concrete not only depletes production resources but causes direct harm to the earth in which they are buried.

The concern for the pollution generated by embalming bodies in preparation for a burial has also created a large societal shift away from traditional burials.Although burial is the oldest and most traditional funerary practice in the United States, the process of embalming can be traced back to Egyptian origins.[32] Embalming became popular in this country during the American Civil War Era, as soldiers were lost and families desired to transport their loved ones' bodies home for proper, sentimental burial.[33] This method became more well-known when President Abraham Lincoln was embalmed following his assassination;his open casket funeral, which traveled through thirteen cities, was on display for over two weeks, and his body was re-embalmed at each stop.[34]

At its inception in Western practices, embalming fluid contained arsenic,[35] a natural chemical element that is highly toxic in its inorganic form. In the late nineteenth century and early twentieth century, arsenic was banned from use in embalming fluid, and morticians transitioned to replace it with formaldehyde,[36]

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28. *The Environmental Impact of Funerals and Cremation Infographic*, Talkdeath (Apr. 22, 2021), https://www.talkdeath.com/the-environmental-impact-of-funerals-and-cremation-earth-day-infographic.

29. *Id.*

30. *Id.*

31. *See, e.g.*, Am. Plan. Ass'n, Cemeteries in the City Plan (July 1950), https://www.planning.org/pas/reports/report16.htm.

32. *Egyptian Mummies*, Smithsonian, https://www.si.edu/spotlight/ancient-egypt/mummies (last visited Jan. 12, 2022).

33. Erich Brenner, *Human Body Preservation – Old and New Techniques*, 224 J. Anatomy 316, 319 (2014); *see also* Chiappelli & Chiappelli, *supra* note 23.

34. Lisa Singh, *8 Things You Didn't Know About Abraham Lincoln's Funeral*, HuffPost (Apr. 14, 2015), https://www.huffpost.com/entry/8-things-you-didnt-know-abraham-lincoln_b_7062044.

35. Brenner, *supra* note 33.

36. *Id.*

a colorless, flammable gas that is also toxic and, when handled improperly, increases the risk of cancer in the handler.[37]

Formaldehyde is on the EPA's list of the top ten percent worst chemicals for hazardous impact on the environment.[38] Although the percentage of formaldehyde that gets manufactured, consumed, and then actually finds its way into embalming fluid each year may be relatively small compared to other industries, almost *all* of the formaldehyde used in the deathcare industry will find its way directly back into our environment via embalmed bodies that decompose.[39]

When preparing a body for embalming, the mortician drains all the blood and fluids and replaces it by pumping approximately two to three gallons of the embalming fluid into the body.[40] The drained liquid is then discarded directly into the locality's wastewater treatment and sewage systems by being flushed down the drain of the facility.[41] Funeral homes commit several harmful procedures when handling burial waste, which is typically flushed down the drain onsite. With respect to New York, the discharge of embalming and bodily fluid liquids down the drain, directly into municipal sewage, has been well-studied because of obvious potential health risks.[42] Large wastewater treatment facilities, such as treatment, storage, and disposal facilities (TSDFs), predominantly, are adequately equipped to handle this relatively small volume of diluted embalming fluid and blood as compared to other discharged substances that would require heavier regulation, for example any hazardous waste products. In a study from 2003, the National Funeral Directors Association found that septic systems, properly installed, could reduce flushed formaldehyde levels to a safe level in facilities that were *not* connected to a sewer system.[43]

However, another major concern comes from waste pollution from embalmed bodies that are buried and the carcinogenic fluid that might seep into the earth, groundwater, and water systems, the effects of which are not yet fully understood. This pollution could pose significant danger to the areas surrounding cemeteries or burial grounds where groundwater may be at risk of contamination from decomposed bodies containing formaldehyde and the other various chemicals or harmful pollutants used in casket manufacturing that may be released in stormwater runoffs.[44]

Decomposing bodies themselves also contribute to environmental degradation. For example, in a recent study on the potential for burial grounds to affect nitrogen loads in headwater streams in developed watersheds, researchers observed the nitrate levels of a headwater stream located in and around St. Mary's Cemetery, which is located just outside Syracuse, New York.[45] The study found an increase in the groundwater nitrate concentration in or near the burial sites that was between 1.1 and 7.1 times

37. *Facts About Formaldehyde*, EPA, https://www.epa.gov/formaldehyde/facts-about-formaldehyde (last visited Jan. 12, 2022).
38. Chiappelli & Chiappelli, *supra* note 23.
39. *Id.*
40. *Medical Waste in the Deathcare Industry*, Malsparo, https://www.malsparo.com/mortuaries.htm (last visited Jan. 12, 2022).
41. *Id.*
42. Chiappelli & Chiappelli, *supra* note 23.
43. *Id.*
44. Laura K. Lautz et al., *Legacy Effects of Cemeteries on Groundwater Quality and Nitrate Loads to a Headwater Stream*, 125012 Env't. Res. Lett. 15, at 2, 5–6, 10 (2020), https://iopscience.iop.org/article/10.1088/1748-9326/abc914/pdf.
45. Lautz, *supra* note 44, at 2.

higher than the levels observed at residential waters used as control sites.[46] The results of this and similar studies, show that byproducts of body decomposition from degrading remains in burial sites can be swept into nearby water supplies after heavy rainfall or flooding. Although this study focused on a church-owned cemetery that was not regulated by New York State, it demonstrates an important reason to shift deathcare practices towards more environmentally conscious regulation.[47]

Traditional burials contribute to environmental harms directly in several ways, and because of these various pollutive consequences, many people have chosen to avoid burial altogether.[48] From the manufacturing of the casket to the placement of a body filled with chemicals into the ground, burial has increasingly become less favored over the years. In conjunction with environmental harms, the high costs associated with burials and lack of space to bury loved ones close by has pushed society even further towards choosing cremation. But cremation does not come without its own costs, both environmentally, and practically.

B. Environmental Problems Caused by Cremation

As burial downtrends, cremation has risen in popularity over the last twenty years,[49] mostly due to its cost-effective and timely nature, making it a more accessible and more efficient funerary option, especially for urban dwellers. The flexibility of cremation allows families to plan their funeral services during a time of grief without the constraints and haste that burial requires. When choosing cremation, families can more easily arrange travel, a service, a procession, and the method of ash disposition, and can then communicate memorial arrangements to others,[50] all while avoiding the risks and environmental concerns that accompany a traditional burial.

Generally, the cremation process involves heating the human body to a temperature of 1400 to 1600 ºF, depending on the state's requirement. For example, the New York Environmental Conservation Code prohibits any emissions having a six-minute average opacity of ten percent or greater and requires the maintenance of a one-hour average temperature of at least 1600 ºF.[51] This process lasts about two to four hours until the organs, tissues, liquids, and fats, along with the casket, turn to gas and ash[52]—a process that occurs in the first of two combustion phases.

In the second phase, as the body continues to undergo combustion, the bone fragments remain in the primary chamber, along with inorganic particle matter, and begin to settle on the floor of the secondary chamber.[53] Then the gases that have formed as a by-product of the combustion process are discharged through a stack in the roof of the crematory building, along with carbon dioxide, water, oxygen, and other

46. *Id.*

47. New York has more than double the amount of religious or municipal owned cemeteries than not-for-profit owned cemeteries, which are the only ones under the authority of the Division of Cemeteries (4,000 to 1,900, respectively). *See FAQ's*, NYS Assoc. of Cemeteries, http://nysac.com/faqs/#:~:text=Over%201%2C900%20cemeteries%20in%20New,by%20the%20Division%20of%20Cemeteries (last visited Nov. 27, 2022).

48. Vaughn Greene Funeral Services, *supra* note 19.

49. *Western History of Cremation*, Cremation Ass'n N. Am., https://www.cremationassociation.org/page/HistoryOfCremation (last visited Jan. 12, 2022).

50. Vaughn Greene Funeral Services, *supra* note 19.

51. N.Y. C.P.L.R. § 219–4.4(a)–(b).

52. *Cremation Process*, Cremation Ass'n N. Am., https://www.cremationassociation.org/page/CremationProcess (last visited Jan. 12, 2022).

53. *Id.*

gases.[54] Thus the cremation process generates many environmentally harmful air pollutants, including particulate matter, sulfur dioxide, nitrogen oxides, volatile organic compounds (VOCs), heavy metals, and polychlorinated dibenzo-p-dioxins and dibenzofurans.[55]

Additionally, mercury is often combusted and excreted during the cremation process as a byproduct of dental care treatments that are typical in the United States. The most common form of dental filling is dental amalgam, which is made from mercury.[56] EPA estimates that over 1,000 tons of mercury, in the form of dental amalgam, exists in the mouths of Americans today.[57] Globally, about 3.6 tons of mercury will be released from cremated dental fillings each year, entering our environment through air pollution and waste.[58]

Mercury waste from dental implants often goes down the drains of dental offices and crematoria with other medical waste. Once down the drain, mercury waste can contribute to groundwater pollution following any major storm that causes sewers to overflow and most often ends up in a publicly owned treatment works (POTW) plant[59] where it settles into biosolid sludge.[60] The majority of municipalities will then burn this sludge, and the mercury in the incinerated sludge vaporizes, releasing it into the air.[61]

Additionally, when bodies are cremated, any mercury that was previously in the deceased's teeth becomes vaporized pollution.[62] According to official estimates from EPA, the amount of mercury released or emitted into the air from burning sewage sludge and from cremation is considered insignificant.[63] However, actual mercury emissions from sludge incinerators and crematoria could be more than five times greater than EPA's "official estimates," as the EPA itself has admitted their estimates of these air emissions are "poor and unreliable."[64] These estimates are also quite dated and taken from a small sample size (one crematorium in the early 2000s).[65]

EPA has not released new air emission estimates for sludge incinerators and crematoria since then, but a 2010 congressional hearing provided testimony from one EPA scientist who conducted research on *actual* emissions from these practices.[66] This research helped demonstrate that the true range of mercury air emissions attributable to dental mercury might be as high as seven to nine tons per year, which was

54. *Id.*
55. Yifeng Xue et al., *Emission Characteristics of Harmful Air Pollutants from Cremators in Beijing, China*, PLoS One, May 2, 2018, at 1.
56. *Assessing EPA's Efforts to Measure and Reduce Mercury Pollution from Dentist Offices: Hearing on Serial No. 111–139, Before the Subcomm. on Domestic Pol'y of the Comm. on Oversight and Gov. Reform*, 111th Cong. (2010), https://www.govinfo.gov/content/pkg/CHRG-111hhrg65133/pdf/CHRG-111hhrg65133.pdf.
57. *See id* at 1–3.
58. United Nations Environment Programme, Global Mercury Assessment 2013: Sources, Emissions, Releases and Environmental Transport. UNEP Chemicals Branch, Geneva, Switzerland 9 (2013).
59. *See infra* text accompanying notes 97–104
60. *See supra* text accompanying notes 36–49; *see also Facts About Formaldehyde*, *supra* note 36.
61. *Assessing EPA's Efforts to Measure and Reduce Mercury Pollution from Dentist Offices*, at 2–6.
62. Ezine, *What Happens to Gold Teeth?*, Funeral Consumers All. of AZ (Aug. 2, 2021), https://fcaaz.org/1761-2.
63. *Assessing EPA's Efforts to Measure and Reduce Mercury Pollution from Dentist Offices*, at 6–7.
64. *Id.*
65. *Id.*
66. *Id.*

previously estimated by EPA to be about 0.9[67] tons per year.[68] This number brings sludge incinerators' and crematoriums' mercury emissions to a level classifiable as a major source of mercury air emissions.[69] Dental amalgam can be prevented from leaving dental offices in wastewater through a process of capturing mercury in technology known as an amalgam separator. In the case of cremations, the solution could be even simpler—teeth should simply not be burned along with their bodies.

The deceased may also be embalmed before being buried or cremated, a process that contributes significantly to the environmental concerns that we should be seeking to avoid. The process of cremation, when it involves embalmed remains, releases a large quantity of formaldehyde into the air, and, once this enters the air, it can last for up to 250 hours, depending on weather conditions.[70] Because formaldehyde is a highly soluble substance, it easily and readily attaches to atmospheric moisture, which washes out in precipitation.[71] Embalming prior to cremation also can create slightly carcinogenic cremains, or ashes,[72] and when embalmed remains are cremated and scattered, regulation of where, when, and how they may be scattered[73] is quite important for maintaining environmentally friendly deathcare practices.

With either method of deathcare, embalming, theoretically, should not be necessary, but it is nevertheless often suggested to the deceased's family,[74] and it, unfortunately, has become standard practice to embalm a body prior to cremation. Because talking about death is still relatively taboo, conversations with deathcare providers might not properly disclose deathcare standards of care and costs. In 2015, the Federal Trade Commission launched an investigation into deathcare facilities to find out whether they were providing adequate disclosures regarding deathcare services.[75] The lack of transparency at a time of heightened emotion further exacerbates the risk that deathcare providers will not provide families with cheaper options or, on the flip side, will pressure families into unnnecesary additional procedures, further contributing to environmental harms.

Finally, a structural defect in the design and erection of crematoriums lends itself to another environmental consequence of cremation. Typically, these facilities are built lower to the ground, rendering their chimney heights relatively short, which in turn releases air pollutants closer to ground level where they directly affect air quality around the location of the crematory.[76] This exhaust is called flue gas, which typically emanates from combustion plants and often contains the reaction products of fuel and

67. This is the sum of 0.6 and 0.3 tons per year from sludge incinerations and cremations, respectively.
68. *Assessing EPA's Efforts to Measure and Reduce Mercury Pollution from Dentist Offices*, at 6–7.
69. *Id.*
70. Chiappelli & Chiappelli, *supra* note 23.
71. *Id.*
72. *Id.*
73. *See infra* text accompanying notes 191–95.
74. Chiappelli & Chiappelli, *supra* note 23.
75. *See Undercover Inspections of Funeral Homes in Six States Prompt Compliance with Funeral Rule Disclosure Requirements*, Fed. Trade Comm'n (May 5, 2015), https://www.ftc.gov/news-events/news/press-releases/2015/05/undercover-inspections-funeral-homes-six-states-prompt-compliance-funeral-rule-disclosure; *see also* Fed. Trade Comm'n, Complying with the Funeral Rule (Aug. 2012), https://www.ftc.gov/business-guidance/resources/complying-funeral-rule#who-must-comply-with-funeral-rule (detailing the Funeral Rule and required disclosures for consumers).
76. *Id.*; *see also* Juliette O'Keeffe, *Crematoria Emissions and Air Quality Impacts, the Design of the System*, Nat'l Collaborating Centre for Env't Health (Mar. 24, 2020), https://ncceh.ca/documents/field-inquiry/crematoria-emissions-and-air-quality-impacts.

combustion air plus other residual substances like particulate matter, sulfur oxides, nitrogen oxides, and carbon monoxide.[77]

Consequentially, many countries require flue gas to be processed through a dry gas abatement plant or to have what is called "flue gas abatement procedures" in place to help cleanse emissions before they are released.[78] While most states and local governments regulate a facility's daily allowance of cremations or their flue gas emissions,[79] during the COVID-19 pandemic, these limitations were paused in densely populated areas experiencing high death rates.[80] Increased cremation rates led to several adverse side effects that burdened neighboring residences, including the increased presence of smoke, noxious odors, and flue gas emissions, and caused subsequent respiratory irritation—all side effects that exacerbated the ongoing outbreak of a highly transmissible respiratory virus causing above-average death rates.[81]

Central to the issues with both burial and cremation are the waste and environmental externalities described above. The next subsection sheds light on the lack of stringent regulation for the treatment of waste from deathcare facilities.

C. Lack of Regulation over Deathcare Pollution and Waste

To understand the environmental challenges associated with current deathcare practices, it is important to examine the regulatory framework governing the deathcare industry. Pollution management for deathcare is significantly lacking in several areas. For burial, regulation fails to adequately manage the discarded liquid waste from embalmed bodies. When it comes to cremation, there is a failure to regulate air pollution. Both methods could be more stringently regulated, but to date few regulations have been amended.

Typically, the regulation and management of waste discarded down drains is under the control of state and local governments, which in some instances requires certain businesses to obtain permits for specific waste types—for example, any TSDF, like a landfill, would need a permit to handle and manage hazardous waste.[82] The disposal of hazardous waste, which is defined as waste that has "properties that make it dangerous or capable of having a harmful effect on human health or the environment," is regulated through a permitting system under the Resource Conservation and Recovery Act (RCRA) under

77. James G. Speight, *Flue Gas*, *in* Nat. Gas, Sci. Direct (2019), https://www.sciencedirect.com/topics/earth-and-planetary-sciences/flue-gas.

78. *Flue Gas Abatement*, Matthews Env't Sols., https://matthewsenvironmentalsolutions.com/en-us/flue-gas-abatement (last visited Nov. 27, 2020).

79. *See, e.g.*, N.Y. Comp. Codes R. & Regs. tit. 6, § 219-4.3 (New York's law on particulate emissions).

80. O'Keeffe, *supra* note 75; *see also Backlog of Bodies Caused by COVID-19 Forces California Air Quality Agency to Suspend Cremation Limits,* CBS News (Jan. 18, 2021), https://www.cbsnews.com/news/covid-19-backlog-bodies-cremation-limits-suspended-california-air-quality-agency; S. Coast Air Quality Mgmt. Dist., Exec. Order No. 21-01x10 (2021), http://www.aqmd.gov/docs/default-source/covid-19/crematoria-limits-suspension.pdf.

81. Kevin Pirehpour, *Neighbors Hope for Relief from Crematorium Smoke as COVID-19 Deaths Decrease*, Cronkite News (Mar. 25, 2021), https://cronkitenews.azpbs.org/2021/03/25/neighbors-hope-for-relief-from-crematorium-smoke-as-covid-19-deaths-decrease.

82. *Hazardous Waste Management Facilities and Units*, EPA, https://www.epa.gov/hwpermitting/hazardous-waste-management-facilities-and-units#:~:text=The%20most%20common%20type%20of,groundwater%20and%20surface%20water%20resources (last updated June 16, 2022); *see also Solid Waste management (SWM) Planning*, N.Y. Dep't of State, Env't Conserv., https://www.dec.ny.gov/chemical/47861.html (last visited Nov. 14, 2022); *Elements of a Waste Management Plan*, Malsparo, https://www.malsparo.com/plan.htm (last visited Jan. 12, 2022).

the authority of the U.S. Environmental Protection Agency (EPA).[83] Crematoriums and funeral homes are not considered TSDFs and thus do not require permits for their waste disposal, despite using chemicals and potentially toxic substances in embalming procedures.

In contrast to hazardous waste, medical waste includes blood and bodily fluids that are excreted from healthcare facilities, blood banks, and laboratories, and the regulation of this type of waste is delegated to the state's environmental protection and health agencies.[84] Although EPA does not list crematoriums and funerary care facilities in their list of "medical waste" producers, most states tend to classify the waste produced in the embalming and cremation processes by deathcare treatment facilities as medical.[85] This classification means deathcare facilities are able to discard human remains (liquid or otherwise), along with embalming fluid and other substances, down the drains of their facilities.

Once down the drain, deathcare waste ends up in POTWs, which are sewage treatment plants, typically owned and operated by government agencies. EPA currently regulates the operation of POTWs, which must obtain permits compliant with the National Pollutant Discharge Elimination System (NPDES) to discharge treated wastewater into regulated waters; however, each state and locality adopts different standards of treatment levels.[86] POTWs monitor and control where, when, and how much treated wastewater is discharged.[87] The facilities and businesses that discharge waste directly to a POTW are not required to obtain a NPDES compliant permit, which, in the case of the deathcare industry, means these businesses can discharge their waste directly to a POTW without oversight. That same POTW, which may not have treatment technology equipped to handle toxic waste, might nevertheless receive some toxic waste, along with regular waste, discharged from a funeral facility, which could pose significant issues for the POTW.[88]

This lack of oversight is important to consider through the lens of the COVID-19 pandemic because, when these facilities responded to unfathomable rates of death, they were, in turn, producing more than expected levels of waste, which likely led to some discharges of waste that should not have been sent down the sewage drain to the POTW. During this time, deathcare facilities and hospitals were also tasked with handling and discharging potentially dangerous and infectious bodies and waste while caring for the afflicted dead. It is very likely that these conditions will happen again during the next global pandemic, leading to environmental degradation when toxic and infectious waste is discharged improperly or in adbundance.

While EPA prohibits discharge that directly interferes with and damages POTWs, the agency only punishes a discharger when such waste causes the POTW to violate their own permit.[89] One way to avoid this is by requiring an industry-specific waste management plan that details the regulated entity's procedures for waste removal, the type of waste handled, the identification of waste handlers, and the volume estimates for waste production, among other things.[90] Currently, EPA is promulgating pre-

83. *Hazardous Waste Permitting*, EPA (Nov. 17, 2022), https://www.epa.gov/hwpermitting.
84. *Medical Waste*, EPA (May 14, 2022), https://www.epa.gov/rcra/medical-waste.
85. *See, e.g., Funeral Home Embalming Wastewaters, Frequently Asked Questions (FAQ)*, Mich. Dep't of Envt., Great Lakes & Energy (May 2019), https://www.michigan.gov/egle/-/media/Project/Websites/egle/Documents/Programs/MMD/Medical-Waste/Funeral-Home-Wastewater-FAQ.pdf; *see also Medical Waste*, *supra* note 84
86. *About NPDES*, EPA, https://www.epa.gov/npdes/about-npdes (last visited Jan. 12, 2022).
87. 33 U.S.C. § 1251 Pt. 501 (1989).
88. *Id.*
89. *Id.*
90. *Id.*

treatment requirements, but local governments can, on their own, adopt higher standards, such as an industry specific Waste Management Plan, to further regulate the discharge of funeral industry facilities; however, to date, many have not done so, despite the rise in cremations and influx of COVID-19 deaths.

This failure to implement or adopt any regulations to require waste management plans, frequent inspections, or to regulate emissions and discharges into POTWs,[91] exacerbates the consequences of this lack of oversight during times of increased death. New York has some of the strictest funerary industry regulations in place, requiring annual inspections of crematoriums[92] and approving certain activities of public cemeteries. Only the Cemetery Board or the New York Supreme Court can approve a crematorium's incorporation, the purchase or sale of land, any changes in service charges, additional of alternative construction on site, the operation of a cemetery, and their process of record keeping,[93] but these regulations do not govern waste disposal of human remains.

Additionally, New York's Cemetery Board, the health department, and the environmental department all have a hand in overseeing registered not-for-profit cemeteries,[94] but are not authorized to oversee privately owned or religious cemeteries. A reclassification of deathcare waste as potentially hazardous, requiring a RCRA permit for handling or a NPDES permit for discharge, could help better regulate deathcare waste sent to POTWs. When it comes to overseeing deathcare facilities, much more could be done to ensure more environmentally friendly practices are employed.

In addition to deathcare waste discharged down drains, cremations also create environmental consequences via air pollution. Because EPA has distinguished that the human body and its byproducts are not within EPA's definiton of "solid waste," crematoriums are not regulated under the Clean Air Act (CAA), the primary federal law governing air quality and regulating emissions.[95] This means that crematoriums might not always be properly ventilated and have appropriate air pollutation control mechanisms in place, as typically required under the CAA.[96]

Consequentially, funeral homes and crematoriums do not face strict limitations on toxic air pollutants, such as mercury, dioxide, and furans, like other industries.[97] EPA has further explained that if a crematorium were to burn solid or hazardous waste, that would bring it within the confines and

91. Pam Belluck & Greg Winter, *Crematory Case Underlines Gaps in Oversight of Funeral Business*, N.Y. Times (Feb. 23, 2002), https://www.nytimes.com/2002/02/23/us/crematory-case-underlines-gaps-in-oversight-of-funeral-business.html; *see also* Report to Congresional Requesters GAO-03-757, *Death Care Industry: Regulation Varies across States and by Industry Segment*, U.S. Gen. Acct. Off. (Aug. 2003), https://www.gao.gov/assets/gao-03-757.pdf.

92. Stephen Lee, *Round-the-Clock Cremations Stoke Mercury Fears for Neighborhoods*, Bloomberg Law (May 15, 2020), https://news.bloomberglaw.com/environment-and-energy/round-the-clock-cremations-stoke-mercury-fears-for-neighborhoods.

93. *About Cemeteries in New York State, Public Cemetery Regulation in New York State*, NYS Div. of Cemeteries (2021), https://dos.ny.gov/system/files/documents/2021/06/publiccemeteryregulations.pdf.

94. See *infra* text accompanying notes 117–59.

95. 40 C.F.R § 261, *Management Standards for Hazardous Waste Pharmaceuticals and Amendment to the P075 Listing for Nicotine*, EPA, at 582–26 (Feb. 22, 2019), https://www.federalregister.gov/documents/2019/02/22/2019-01298/management-standards-for-hazardous-waste-pharmaceuticals-and-amendment-to-the-p075-listing-for.

96. *Crematory Frequently Asked Questions*, N.Y. Dep't of State, https://dos.ny.gov/crematory-frequently-asked-questions (last visited Apr. 24, 2023).

97. *Id.*

regulation of the CAA,[98] which would likely require stricter limitations on crematorium's emissions and air pollution.

If crematoriums are not techinically producing solid or hazardous waste and therefore are not under CAA authoritiy for *special* regulation and permitting, what governs their waste?[99] In New York, state law restricts the ability of any person or crematory to inter or disinter human remains unless they have a permit, registered with the state.[100] These permits require the caretaker to keep a record of the name of each deceased person, the place of their death, the date of burial or disposal, and the name and address of the funeral director or undertaker, which at any time is subject to official request and inspection.[101] The permits are all subject to denial, revocation, or suspension at any time if the funeral director or undertaker is found to have committed serious or repeated violations of the required protocol.[102] These permits require adherence to environmental regulations, like air permits for combustion practices and registration with air facilities through the Department of Environmental Conservation;[103] however, the air pollution control permits are administered by the Division of Air Resources (DAR), which categorizes sources and varies requirements by source size.[104] Among these categories are large industrial facilities like power plants and small commercial operations like dry cleaners; crematoriums can fall into either category. Similarly, New York subdivides into three regulated categories: Title V facility permits, state facility permits, and air facility registrations—crematoriums may fall under all three depending on their emissions.[105] So while a crematorium may be required to obtain a permit, its emissions are still nonetheless allowed, and, in the wake of the pandemic, coupled with the rise in popularity of cremation, these emissions are likely to continue increasing when they could easily be more restricted.[106]

Current deathcare practices, both traditional burial and cremation, create significant consequences for our environment through air, water, and waste impacts. The existing regulatory framework for waste management insufficiently addresses pollution in the deathcare industry. One of the few tangible solutions to combatting the harmful effects of the deathcare industry is through *dying green*—a more natural way of death. Changes in regulatory controls for traditional deathcare will likely require significant legislative and judicial battles, but *dying green* can be encouraged in many different ways, some without requiring changes to law. The next section will further define what *dying green* can mean and what is needed to make it practical.

98. 40 C.F.R. § 261; *see also A Note on Why EPA Doesn't Regulate Crematories*, No2Crematory (Jan. 7, 2015), https://no2crematory.wordpress.com/2015/01/07/a-note-on-why-epa-doesnt-regulate-crematories (explaining in simpler terms how and why EPA does not regulate or classify this waste under their possible authority over "solid" wastes).

99. *Human and Animal Crematories*, N.Y. Dep't of Envt'l Conserv., https://www.dec.ny.gov/chemical/71624.html (last visited Nov. 27, 2022); N.Y. Dep't of State, *supra* note 41.

100. 45 N.Y. Pub. Health art. 41 tit. 4 § 4145.

101. *Id.*

102. N.Y.C. Health Code, Deaths and Disposal of Human Remains, art. 205 §§ 21(b)(1), 33.

103. N.Y. Dep't of Env't Conserv., *supra* note 99.

104. Air Facility Permits, Registrations and Fees, NYS Dep't of Conserv. (2022), https://www.dec.ny.gov/chemical/8569.html.

105. *Id.*

106. *Id.*

III. HOW TO DIE GREEN

Dying green can take many forms. From Tibetan sky burials, mushroom body suits,[107] and aquamation, to human composting, there are many, far more sustainable methods we can implement to care for our dead. In January 2023, New York became the sixth state to legalize human body composting,[108] a process that turns the deceased into compostable soil that can be used to plant or scatter, providing an environmentally conscious deathcare practice. Human composting allows microbes that naturally exist in plants and on and in our bodies to transform the deceased into soil.[109] Over the course of four to seven weeks, the body will break down inside a vessel naturally.[110] The resulting soil is screened to remove any non-organic items then dried and cured for a few more weeks before being returned to its loved ones or donated in conservation efforts.[111] This greener form of a natural burial, although very different from traditional style burials, may provide some comfort in its similarities.

On the flip side, aquamation has been gaining traction in other countries and some states, which may provide some relief when it comes to alternative, greener cremation options.[112] Aquamation is a form of water cremation—instead of cremating via heat incineration, aquamation uses heated water to essentially boil down the body to a liquified substance that can be drained.[113] The concern for flushed waste and air emissions from aquamation is relatively minimal, as this method uses about ninety percent less energy than regular flame-based cremation, uses fewer fossil fuels, and emits far less pollution.[114] Additionally, inorganic materials, such as hip replacements, tooth fillings, and implants that normally create harmful emissions when burned in regular cremation do not actually burn in aquamation, making this method much more environmentally friendly.[115] Aquamation leaves approximately a tenth of the carbon footprint of regular cremation and uses only one-tweltfh the amount of energy as flame-based cremations.[116]

Human compositing and aquamation are examples of *green* alternatives to existing deathcare practices, the rest of which will be explained later in Section V's discussion of solutions. The goal of a *green* death is to prevent or lessen the environmental harms one's death has on the planet, the likelihood of which is high when opting for a traditional burial or cremation. Greener options for deathcare face many barriers, including a lack of necessary land space due to natural population growth and rigid laws that make it difficult to designate, expand, and maintain land for burial and crematory uses.

To carry out greener deathcare choices, we need more deathcare space. To dedicate space for death, state and local laws must facilitate this use. What happens when zoning allows deathcare uses, but no physical space exists or required local consent for a deathcare use is denied without remedy or explanation? These issues are quite common and will be discussed at length in the next section to help shed light on legal barriers to *dying green*.

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107. *See infra* text accompanyingSection V.

108. Kari Paul, *From Cradle to Compost: The Disruptors Who Want to Make Death Greener*, Guardian (Feb. 19, 2023), https://www.theguardian.com/society/2023/feb/19/human-composting-industry-deathcare.

109. *The Cycle*, Recompose, https://recompose.life/our-model/#the-process (last visited Feb. 22, 2023).

110. *Id.*

111. *Id.*

112. Robinson, *supra* note 26.

113. *Id.*

114. *Five Things You Didn't Know About Water Cremation*, Talk Death (Apr. 27, 2021), https://www.talkdeath.com/five-things-you-didnt-know-about-water-cremation.

115. *Id.*

116. *Id.*

IV. LAWS GOVERNING DEATHCARE LAND USE THAT CREATE BARRIERS TO DYING GREEN

From a bird's eye perspective, land regulation begins with state constitutions as well as the power to adopt land use laws derives from state police powers. State legislatures delegate significant power to local governments to adopt and implement local legislation.[117] In New York, the Municipal Home Rule Law grants local legislatures the authority to create planning boards, adopt comprehensive plans, and adopt land use reglations.[118]

A significant power delegated from the states to local bodies is the authority to adopt zoning laws. Zoning laws divide land within a municipality into districts and prescribe the land uses and intensity of development allowed therein.[119] The following subsections examine in further depth the interplay of state law with local zoning laws and approvals in the context of designating, accessing, and maintaining deathcare space and the legal barriers this poses to implementing greener death choices.

A. Barriers to Designating and Accessing Land for Burial

A state's ability to designate space for burial and deathcare purposes is authorized by the state's inherent police powers. Implied in the Tenth Amendment of the U.S. Constitution, a state's authority to govern the use of property in relation to public health and welfare enables the state to regulate and make laws for the creation, operation, and usage of cemeteries.[120] Through this power, the U.S. Supreme Court has held that states may regulate the location of cemeteries and other property used for burial purposes and restrict usage in or near densely populated areas, if they so choose.[121] For example, in 1827, the Supreme Court of New York held that New York City had the authoritative power to pass laws as "they, from time to time, should deem necessary and proper, for filling up and regulating grounds, yards and cellars, . . . 'and for regulating, or . . . preventing the interment of the dead within the said city[,]'" as well as the power to impose punitive fines for violations.[122]

In some states, local governments, under their home rule authority, authorize cemeteries via zoning ordinances that can be broadly construed to allow any location within a certain area to be used for burial purposes if the zoning's use regulations allow for it.[123] But in some states, such as New York, cemetery designations are much stricter, requiring an exclusive state authority, such as the Board of Supervisors in New York, to predetermine very specific locations for burials.[124] Thus, where local zoning may have allowed burial or cremation uses, the Board has final say on that designation or approval, creating a shift in power by delegating some local authority back to the state to allow cemetery use and site planning.

To establish a new cemetery, an entity must typically first get formal approval and consent[125] from the local governing authority to designate a tract of land for the intended use of burying the dead.[126] In New York, specifically, the land must then be set apart, marked, and distinguished from the surrounding land

117. John R. Nolon, Well Grounded: Shaping the Density of the Empire State, ch. 1 (1988).
118. *Id.*
119. *Id.*
120. *See, e.g.*, Masonic Cemetery Ass'n v. Gamage, 38 F.2d 950, 951–52 (9th Cir. 1930).
121. *See* Laurel Hill Cemetery v. San Francisco, 216 U.S. 358 (1910).
122. Coates v. Mayor, Aldermen & Commonalty of N.Y., 7 Cow. 585 (1827).
123. Am. Planning Ass'n, *supra* note 31.
124. *Id.*
125. *See, e.g.*, N.Y. Not-for-Profit Corp. art. 15, § 1506 (b)(1).
126. *The Basic Laws Pertaining to Cemeteries*, Stimmel, Stimmel, & Roeser, https://www.stimmel-law.com/en/articles/basic-laws-pertaining-cemeteries (last visited Jan. 12, 2022).

as a graveyard,[127] and, in some states, the intended land cannot neighbor or adjoin an already existing cemetery or result in the corporation owning more than 200 aggregate acres of cemeterial lands.[128] Consequentially, most states have implemented numerous rigorous laws that specifically apply to cemeteries and their land use,[129] governing where they can be built, how many are allowed, and how many an entity may own.

The determination of a cemetery's location not only poses significant property value threats and aesthetic concerns for neighboring residences,[130] but may also unintentionally create health risks,[131] of which some state legislatures have taken notice. When adopting cemetery law, New York imposed restrictions on rural and city-based cemeteries, specifically limiting the acreage cemetery corporations could obtain and own in the aggregate.[132] Additionally, New York imposed specific, narrow regulations to prevent the erection of cemeteries near cities "of first class" which are denser in population.[133] After 1890, it became unlawful for any corporation to set aside land for burial use that was "adjoining a city of the first class and having a population of between eighty thousand and eighty-five thousand according to the federal census of nineteen hundred ten."[134]

Recently, a New Jersey district court heard a constitutional challenge to New Jersey's police powers to authorize and regulate burial grounds and the manner in which townships provide their consent for the construction of new cemeteries.[135] The lawsuit was brought by plaintiff Rosedale and Rosehill Cemetery Association, a cemetery not-for-profit that applied to the Township of Readington for its consent to open a new cemetery under New Jersey state law that requires local consent for the establishment or enlargement of new cemeteries.[136] The cemetery would be constructed on a 180-acre plot of land that was under contract to be purchased from the township and which had already been zoned for cemetery use as a lawful purpose of the plot.[137]

The plaintiff engaged in lengthy negotiations with the township over the course of multiple hearings to gain consent for the establishment of a new cemetery. The township's planning board refused to review plaintiff's final site plan until the township gave its consent for its intended use of the space.[138] The township subsequently denied plaintiff's application pursuant to its discretionary authority under New Jersey statutes governing burial land.[139]

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127. *Id.*
128. *See, e.g.*, N.Y. Not-for-Profit Corp. art. 15, § 1506 (b)(1).
129. Stimmel, Stimmel & Roeser, *supra* note 126.
130. *Id.*
131. Ahmet S. Üçisik & Philip Rushbrook, The Impact of Cemeteries on The Environment and Public Health (World Health Org. 1998), https://apps.who.int/iris/bitstream/handle/10665/108132/EUR_ICP_EHNA_01_04_01(A).pdf;sequence=1.
132. N.Y. Not-for-Profit Corp. art. 14, § 1506 (c)–(d).
133. *See id.* § 1506 (e)(1).
134. *Id.*
135. Rosedale & Rosehill Cemetery Ass'n v. Twp. of Reading, 510 F. Supp. 3d 250, 255 (D.N.J. 2020); Rosedale & Rosehill Cemetery Ass'n v. Twp. of Reading, Civ. Action No. 3:19-cv-16428 (FLW), 2021 U.S. Dist. LEXIS 82848 (D.N.J. Feb. 23, 2021).
136. *Rosedale & Rosehill Cemetery Ass'n*, 510 F. Supp. 3d at 255.
137. *Id.*
138. *Id.*
139. *Id.*; *see* 45 N.J. Stat. Ann. ch. 27 § 25(a)–(c) (West 2022).

The statute provides that "[a] cemetery shall not be established or enlarged in any municipality without first obtaining the consent of the municipality by resolution," which plaintiff attempted to do and was denied.[140] Additionally, the statute dictates a maximum number of cemeteries allowed to exist in any one municipality and imposes a limitation on the percentage of land allowed to be devoted to cemetery usage, which plaintiff's plot would not have violated, if approved.[141] The statute also mandates that no cemetery may exceed, by expansion or establishment, 250 acres of land at any one location, again which would not be violated.[142] Finally, the statute authorizes that the governing body of the municipality, in this case the township, by way of resolution, can waive the limitations of the statute "if it finds that there is a public need for additional cemetery lands and that it is in the public interest to waive them."[143] However, the statute requires that no "cemetery company shall . . . dedicate additional land to cemetery purposes without board approval,"[144] making the approval and consent from the township essential to plaintiff's mission.

Despite showing the increasing number of deaths and necessity for additional cemetery land, the plaintiff was denied consent for the additional cemetery by the township, which referenced their ultimate authority for approval and consent over new cemeteries. One commissioner even noted that "if this were an application from a church [it] would be a different story,"[145] alluding to the discrentionary power the municipality has in this process and the overall lack of justifiable reasoning for the denial, such as a public health risk or nuisance basis. Additionally, other township commissioners noted a preference for farmland or other "less-trafficked uses," arguing that a cemetery would be an "inappropriate" use of the land despite the fact that the zoning ordinance of Readington allowed burial use in the land plaintiff sought to purchase.[146] The state's burial statute forbids cemetery companies, during the final stage of establishment, from dedicating additional land for cemetery purposes without prior local consent, as the plaintiff sought here and was subsequently denied—a decision that was upheld on appeal.[147]

Rosedale & Rosehill highlights the practical difficulty of finding land space for deathcare use under the current state law and the inherent barriers created when a local board is granted complete and unfettered discretion to establish or approve deathcare land spaces, access to which is necessary for dying green. New Jersey is but one example of the systemic issues threatening the implementation of efficient and environmentally friendly deathcare practices for the masses. *Rosedale & Rosehill* demonstrates that, even where zoning law allows cemetery uses, a local board may still be able to deny cemterial use of the space, without giving an explanation or justification for the denial.

Thus, deathcare space scarcity is not only a result of urbanization but of overly restrictive laws like in New Jersey, where the amount of space allowed for cemeteries is explicitly capped without room for a growing population. As we continue to run out of space for the dead, we face the dilemma of having to choose between disinterring the buried dead to make room for the *newly* dead or lengthy legal battles to designate more space or force approvals from planning boards.

140. *Rosedale & Rosehill Cemetery Ass'n*, 510 F. Supp. 3d at 256.
141. *Id.*
142. *Id.*
143. *Id.*
144. *Id.*
145. *Id.*
146. *Id.* at 257.
147. *Id.*

Even once designated, existing cemetery space can still be difficult to access. Bodies and cremated remains are most commonly buried in private or public cemeteries.[148] Cemeteries are set aside either by a private enterprise or the government. Private cemeteries are open only to a small portion of the community or a particular family,[149] and obtaining plots in public, municipally owned cemeteries can be difficult. Take Père Lachaise for example: a famous cemetery in Paris, France, that is so full it only allows native Parisians to be buried within it. Even still, after a few decades, these bodies will be exhumed to make room for new bodies.[150]

Because of these issues, actual public usage governs whether a cemetery is designated as "public," rather than its ownership status.[151] This label means that a privately owned or maintained cemetery could be deemed a public cemetery if it is held open to public use under reasonable regulations.[152] If a cemetery is privately owned but plots are sold to the public for burial use and purchase, the cemetery can be properly classified as a public one.[153] In contrast, a private, family burial ground where no plots are sold to the public, and in which interments are restricted to a group of persons related to each other by blood or marriage, has properly been defined by statute as a private cemetery.[154] In *Garland v. Clark*,[155] the Superior Court of Alabama held that whether a place is desginated a public cemetery hinges on the land owner's intention "to dedicate it for a public cemetery, together with the acceptance and use of the same *by the public*, or the consent and acquiescence of the owner in the long-continued use of his lands for such purpose, [is] sufficient."[156]

As of 2017, only 1,745 of 6,000 cemeteries in New York are regulated, not-for-profit cemeteries; the rest are owned by private corporations, families, religious organizations, or a municipality.[157] New York City itself has 35 privately owned cemeteries, and before the pandemic, there were rumored to be only a handful of years remaining until three of the five boroughs would completely run out of burial space.[158] Because private burial plots cost much more than their public counterparts,[159] this creates an additional barrier to those seeking green burial options or burial options in general. Access to burial land is necessary to encourage *dying green*, but if obtaining land for deathcare is impractical, so too is that greener option.

B. Loss of Burial Land to Forfeiture and Repurposing

The necessity of finding and designating new burial grounds, or expanding existing ones, is often due to the change in conditions of the surrounding area, where the discontinuance of cemeterial use might have

148. Stimmel, Stimmel, & Roeser, *supra* note 126.
149. *Id.*
150. Satxwdavis, *Lines of Cremains at Père Lachaise Cemetery*, Atlas Obscura, https://www.atlasobscura.com/places/cremains-of-pere-lachaise-cemetery (last visited Oct. 21, 2021).
151. Stimmel, Stimmel & Roeser, *supra* note 126.
152. *Id.*
153. *Id.*
154. *Id.*
155. Garland v. Clark, 88 So. 2d 367, 370 (Ala. Sup. Ct. 1956) (internal quotations omitted) (emphasis added).
156. *Id.*
157. *Abandoned Cemeteries and Municipal Responsibilites*, NYS Tug Hill Comission 2 (Issue Paper Series, Aug. 2018), https://www.tughill.org/wp-content/uploads/2018/08/AbandonedCemeteriesAndMunicipalResponsibilities2018.pdf.
158. Staten Island and the Bronx would be the only two left with burial space. *See* Farah Halime, *Buying for the Afterlife* RealDeal (Mar. 1, 2016), https://therealdeal.com/magazine/new-york-march-2016/buying-for-the-afterlife.
159. *Id.*

become necessary.[160] For example, in larger cities it has become necessary to prohibit further interments in certain cemeteries because of growing public health concerns and the encroachment of neighboring residences.[161] This need sometimes results in requiring the disinterment of bodies.[162] Additionally, sometimes cemeteries simply fill up, and denser, more populated cities then require new burial space.

A state's police powers to create and establish cemeteries also includes the power to abolish, seize by eminent domain, or block future construction of cemeteries.[163] As deemed necessary and proper, state legislatures may statutorily order the discontinuance of a cemetery and subsequent removal of the bodies buried therein.[164] These powers may be delegated to a municipality, which may then enact an ordinance to effectuate similar results on the local level.[165]

Similar to the stringent laws regulating the formation and designation of a cemetery, many laws govern what happens to an existing cemetery as populations increase, burial sites fill, or the property is forfeited or abandoned. In *Mayes v. Simons*,[166] the Supreme Court of Georgia found that, because the plaintiffs had abandoned their privately owned cemetery, it was justifiable to deny the injunction request against the defendant's purchase of that land.[167] The evidence reflected that the graves in question were never marked, except by rocks without inscription, there were signs of neglect and inattention for more than fifty years, and no signage likely to attract attention to their existence as burial sites remained visible.[168] The court also found that the space occupied had lost any and all appearance of being a cemetery before the defendant purchased the property in good faith and without notice of the existence of such cemetery, and therefore, the principles of laches or estoppel could be applied.[169]

The court's finding was also sustainable on the theory of abandonment because, in almost 100 years, none of the plaintiffs' other relatives was buried at the site, and it was appropriated as a private family cemetery with no claim of dedication to public use.[170] Additionally, there was no sign that any one of the plaintiffs or other family members ever cared for the grandparents' graves or maintained the cemetery as their private family burial grounds until after defendant's purchase of the land and subsequent lawsuit.[171]

The court mentioned that what constitutes abandonment of a cemetery has been loosely defined by prior courts but found for the defendants in reliance on the principles set forth in *American Jurisprudence*, which state:

> As long as a cemetery is kept and preserved as a resting place for the dead, with anything to indicate the existence of graves, or as long as it is known and recognized by the public as a graveyard, it is not abandoned. Thus, where the bodies interred in a cemetery remain therein and the spot awakens sacred memories in living persons, the fact that for some years no new interments have been made

160. Stimmel, Stimmel & Roeser, s*upra* note 126.
161. *Id.*
162. *Id.*
163. *Id.*
164. Masonic Cemetery Ass'n v. Gamage, 38 F.2d 950, 952 (9th Cir. 1930).
165. *Id.*
166. Mayes v. Simons, 8 S.E.2d 73 (Ga. Sup. Ct. 1940).
167. *Id.* at 77.
168. *Id.* at 74–75.
169. *Id.*
170. *Id.*
171. *Id.*

> and that the graves have been neglected does not operate as an abandonment and authorize the desecration of the graves. A cemetery does not lose its character as such merely because further interments in it become impossible, as where further burials are prohibited by ordinance or legislative enactment. The view has been expressed that a graveyard loses its character as such and is abandoned only when the remains interred therein are exhumed and removed by those having authority to remove them. On the other hand, even in jurisdictions which recognize the general rule that it is not abandoned so long as there are bodies there, if interments have not been made for a long time, and cannot be made therein, and in addition the public, and those interested in its use, have failed to keep and preserve it as a resting place for the dead, and have permitted it to be thrown out to the commons, the graves to be worn away, gravestones and monuments to be destroyed, so that the graves have lost their identity, or if it has been so treated or neglected by the public as entirely to lose its identity as a graveyard, and is no longer known, recognized, and respected by the public as such, then it has been abandoned.[172]

The court held that the jury was authorized to find that, since the graves and surrounding area exhibited obvious neglect, the entire plot had lost its identity and appearance as a place of burial and thus plaintiffs had indeed abandoned it.[173]

Because land space is limited and burial sites must be permitted and located in zoning districts that allow cemeteries, the abandonment of a cemetery poses significant challenges for future access to burial land. The risk of a cemetery becoming abandoned increases the risk of losing usable, zoned burial space necessary for an inevitably growing population.

C. Crematories Face Similar Legal Barriers

As for crematories, local boards have often viewed them negatively and tend to regard them as nuisances, often prohibiting crematories in certain areas altogether and restricting their existence to only industrial areas.[174] For example, the Toledo zoning ordinance allows crematories in the "light industrial district," the Lucas County zoning ordinance allows them only in the "heavy industrial district," and Chicago permits crematories in the "manufacturing zone."[175] This restriction creates another barrier in accessibility—for those wanting their dead nearby and for the creation or designation of more space for the dead in an appropriate zoning district that might already be built out with other industrial uses, leaving nothing for deathcare.

Legally, crematories are not considered a "nuisance in fact" because they do not offend by their emission of fumes or gases, which are considered to be relatively low. Rather, crematories offend symbolically as a reminder of death and unpleasantry, rendering them a nuisance *per se*.[176] But crematory emissions are not zero and can create air and groundwater pollution, which, as previously discussed, is not regulated as stringently as in other industrial sectors. The comparably low levels of pollutants from crematories and cemeteries may not rise to the pollution level of fracking or landfill incineration, but, if crematories that utilize greener methods like aquamation were more available, it would easily reduce pollution associated with deathcare.

172. *Id.* at 75–76 (quoting 10 Am. Jur. 512, § 36).
173. *Id.* at 76.
174. *Id.*
175. *Id.*
176. *Id.*

For the sake of zoning considerations and statutory interpretation, crematoriums are often considered a "cemetery purpose" even if no burial occurs on the land. In *Moore v. U.S. Cremation Co.*,[177] the New York Court of Appeals held that the defendant, intending to build a crematory and columbarium on purchased land, was in violation of state corporations and real property statutes, which prohibited the use of lands adjoining Nassau County for cemetery purposes.[178] Despite the fact that the defendant (1) was a corporation authorized to maintain and establish a crematory; (2) purchased land within an area properly designated and zoned for cemetery purposes; and (3) recieved a subsequent building permit approval from the authorized town officials, the defendant was nonetheless found to have violated New York Not-For-Profit Corporation Law § 1506, governing cemetery corporations.[179]

The Court of Appeals cited to Section 78:

> It shall not be lawful for any corporation, association or person hereafter to set aside or use for cemetery purposes any lands in any county within the state erected on and after January first, eighteen hundred and ninety, adjoining a city of the first class and having a population of between eighty thousand and eighty-five thousand according to the Federal census of nineteen hundred and ten. . . .[180]

This provision is almost identical to the corresponding one governing Nassau County.[181] The court went on to explain that a "cemetery corporation" means one organized for the "burial of the dead in a vault or a receptacle," and that the "cemetery purposes" referred to in the applicable statutory sections encompass any place that would be used for, or in preparation for, burial of the dead, whether in the ground, a vault, or a different receptacle.[182] Thus the court held that the statute prohibits any land herein from being set aside or used for cemetery purposes, which includes the preservation of remains, typically a step in the cremation process.[183]

Compare *Moore* with *Rosedale & Rosehill*; in *Moore*, we see the failure of the state legislature to adapt to the changing needs of a growing population and the consequences of outdated state cemetery laws at work. Equally troubling, in *Rosedale & Rosehill*, we see the consequences of unfettered discretionary local consent processes determining the outcome of the case, despite the corporation meeting the statutory criteria for lawful operation of a cemetery and the land in question being zoned for deathcare use.

Under New York Cemetery Law, the local legislative board has full discretion, so long as it is not implemented arbitrarily or unreasonably, to deny, approve, or stop the erection of a new cemetery, for any reason it deems proper, and the board has no obligation to elaborate on their reasoning after reaching a decision.[184] In *Moore*, if the proposed location of the new cemetery was near or adjoining a densely populated city, the board may, under the guidance of the statutes, properly deny new interment to safeguard the general public welfare and health but does not have to give a specific reason for doing so.[185]

177. Moore v. U.S. Cremation Co., 9 N.E.2d 795 (N.Y. 1937).
178. *See generally id.*
179. *Id.* at 797.
180. *Id.* at 797–98.
181. *Id.*
182. *Id.*
183. *Id.*
184. *Id.* at 797–98.
185. N.Y. Not-for-Profit Corp. art. 15, § 1506 (e).

Such broad discretionary power given to a local board can be implemented arbitrarily, without finite parameters or public guidance available to help providers and corporations find deathcare space for crematories. Under New York Cemetery Law, entities seeking expansion and designation of additional deathcare space have almost no guidance for obtaining approval, and applicants are forced to accept a local board's decision without any remedy or justification in the event of denial.

The laws that govern *future* development and expansion of burial grounds and crematoriums also create extensive legal barriers to making *greener* death options more accessible. While it is important to note that a net-zero[186] option for deathcare is not yet available, alternative options exist that, when aggregated as a majority choice, would greatly improve current environmental impacts of deathcare. The next section discusses several of these alternatives and the ways in which local governments can help facilitate *dying green* as a more common practice.

V. PRACTICAL SOLUTIONS TO ENCOURAGE DYING GREEN

This section addresses two main issues to facilitate *dying green*. First, this section suggests regulatory and policy solutions that governments can implement to help reduce the environmental consequences that result from traditional burial methods and cremation practices, such as permitting systems, fee collections, tax mechanisms, funding programs, and legalizing certain eco-friendly deathcare practices. To combat increasing scarcity of deathcare land space and facilitate *dying green*, this section then recommends amendments to state cemetery law, as well as local land use laws, through the adoption of mixed use spaces, rezoning for more lenient use allowances, and legalizing other innovative, and perhaps somewhat controversial, eco-burial practices.

A. Solutions That Combat Environmental Harms from Current Deathcare Practices

Within the existing legal framework surrounding deathcare, a few mechanisms can be implemented to help curb environmental harms. These solutions involve expanding on existing requirements of deathcare facilities at the local, state, and federal level, either by focusing on raising funds or collecting fees to help facilitate more costly, *greener* death choices, or through amending state law and the discretionary powers at play. As it currently stands, *dying green* methods are not widely implemented and often require a lot of space to be practically feasible. Because of this barrier, *dying green* can be costly—a cost that is often too high to bear for most families, regardless of any individual desire to die in a more environmentally friendly way. By implementing the methods discussed below, funding can be generated and applied to *greener* deathcare practices, making it more accessible to the masses and capable of actual change.

1. Implementing Burial or Landscaping Permits and Scattering Fees

One way state and local governments can begin to combat environmental harms stemming from the deathcare industry would be to require burial permits. As discussed above, New York requires registered burial permits to inter or disinter human remains.[187] Other states can use New York's burial permitting system as model for regulating and implementing compliance programs for deathcare entities, and the permitting requirements can be strengthened to include more environmentally friendly deathcare practices likelandscaping requirements and scattering fees.

Additionally, local ordinances can mandate landscaping permits that may help restrict toxic materials from migrating beyond contaminated burial sites. As the population increases and city densities rise,

186. *What Is Net Zero?*, Uni. Oxford, https://netzeroclimate.org/what-is-net-zero/ (last visited Mar. 14, 2023) ("Net zero refers to a state in which the greenhouse gases going into the atmosphere are balanced by removal out of the atmosphere.").

187. N.Y. Pub. Health art. 41, tit. 4 § 4145.

requiring existing cemeteries to first obtain a landscaping permit before expanding would be beneficial.[188] This permit could include requirements for the planting of mitigative native vegetation that is designed to reduce the impact of existing contaminated conditions.[189] This process can help quell the harms of climate change by introducing plants and other vegetation that can help capture toxic runoff from rainfall and help prevent flooding events—both of which are known risk factors that can contribute to the emergence of a pandemic.[190]

To fund mitigation methods at cemeteries, states and municipalities could allow and encourage not-for-profit cemeteries and burial grounds to designate plots and charge a fee for scattering ashes.[191] The costs for scattering ashes in designated garden plots are minimal, often including the addition of the deceased's name on a plaque or other measure indicating their memorial.[192] Prices start at $100 and range to $1,000, depending on location and services included.[193] Collected fees could be used to acquire land for expansions or new cemeteries, creating more space for *dying green*, [194] and to implement better sanitation and environmentally sound practices.

Eco-burial practices are still a relatively new concept, and the implementation of these efforts on a larger scale requires necessary funding to offset the expense of these less common practices.[195] Traditional burials are increasingly costly and a major reason cremations have risen in popularity. An unfortunately common misconception with cremation is that the body needs to be embalmed prior to burning, which is simply not true. However, this information is not always disclosed to families, and select funeral homes actually require it,[196] and, if a funeral ceremony takes place prior to cremation or the crematorium is backed up with demand, as was the case during the height of the pandemic, the body might need to be embalmed to preserve it temporarily. Thus funds generated from collecting ash scattering fees could be used to cover any costs of expediting a cremation if embalming is forgone, as well as other transportation and storage costs associated with preparing for a timely cremation. The fees collected from ash scattering could also be used to install the mitigative vegetation or remodel burial grounds to better prepare for severe rainfall and flooding events, a consequence of climate change that, as previously discussed, result in water pollution from burial grounds.

188. Bradley Adams & Kathryn Leidahl, Growing Solutions, A Policy Brief Concerning Vegetative Landscaping's Ability to Address the Effects of Climate Change in Cedar Rapids, IA, Haub School of Law Env't Law and Policy Hack Competition – Drake School of Law Team Brief (2020), https://law.pace.edu/sites/default/files/Team%20%231%20Brief.pdf.

189. *Id.* at 20–21.

190. *Id.*

191. *How Much Does Scattering Ashes Cost?*, Living Urn (Feb. 20, 2019), https://www.thelivingurn.com/blogs/news/how-much-does-scattering-ashes-cost.

192. *Id.*

193. *Id.*

194. Christopher Coutts et al., Planning for the Deceased (Am. Plan. Ass'n 2013).

195. Alex Brown, *More People Want a Green Burial, but Cemetery Law Hasn't Caught Up*, Pew (Nov. 20, 2019), https://www.pewtrusts.org/en/research-and-analysis/blogs/stateline/2019/11/20/more-people-want-a-green-burial-but-cemetery-law-hasnt-caught-up.

196. Chiappelli & Chiappelli, *supra* note 23; *see also Is Embalming necessary for Cremation?*, Nat'l Cremation, https://www.nationalcremation.com/ask-a-funeral-director/is-embalming-necessary-for-cremation (last visited Nov. 27, 2022).

2. Implementing Government Tax Credits and Subsidies or Direct Spending Programs

Dying green can be further facilitated through federal tax programs either through expenditures or programs implementing tax credits to families or exemptions that can be applied to facilities providing green burial options. A tax expenditure results in revenue losses, whereas regular taxation raises funds for a program directly, which then provides credits to applicable programs in the form of deductions on prices or deferrals in payment.[197] Tax expenditures are often considered more desirable than direct government spending programs for several reasons. First, they are considered less controversial because of their ease of implementation and ability to circumvent U.S. Senate filibustering by being passed in reconciliation legislation.[198] Tax expenditures are also generally favorable to the risk-averse public that views credits and deductions as positive spending behavior rather than as a negative consequence, as direct government spending programs are often viewed.[199]

In a highly polarized political climate, in which discussing environmental harms from corporations could be the source of controversy, a green burial tax incentive is likely one of the most effective and feasible ways to address environmental repercussions associated with deathcare.[200] The use of tax credits, through a death-focused, simulated insurance-like policy, would not only help financially prepared Americans but also those in marginalized or low-income households to die *green*.[201] The inclusion of low-income families in the tax credit schematic, in practice, would help offset the exorbitant cost of an unexpected death in a family not financially prepared for it, and also makes *dying green* deathcare methods accessible to a majority of the country, rather than a small subset of only the wealthy.

One proposed way of implementing this incentive is through the use of refundable tax credits that are tacked on to nonrefundable monthly payment plans for the prepayment and preparation of sustainable deathcare.[202] Monthly payments are predetermined based on income and tax liability, similar to tax brackets and life insurance.[203] A household with a lower income would qualify for lower monthly payments and their total cost of *green* deathcare could then be offset by the credit from a government program, which would be received after one-to-five or one-to-ten years, depending on the plan—higher-income households would pay higher monthly payments and have their credit capped at a certain limit to offset other households.[204] This structure helps those who cannot afford an unexpected death to prepare for and survive an eventual loss by eliminating the possibility of death-incurred debt.[205] The implementation of tax credits and pre-paid plans allows families who choose *dying green* methods to save for and benefit from an inevitable cost without having to rely on crowdfunding and social media fundraising after an unexpected tragedy.[206]

197. *Tax Expenditures*, U.S. Dept. of Treasury (2023), https://home.treasury.gov/policy-issues/tax-policy/tax-expenditures.
198. Victoria J. Haneman, *Tax Incentives for Green Burial*, 21 Nev. L.J. 491 (2021).
199. *Id.* at 521.
200. *Id.* at 526.
201. *Id.*
202. *Id.*
203. *Id.* at 526–28.
204. *Id.* at 528.
205. *Id.*
206. Laura M. Holson, *As Funeral Crowdfunding Grows, So Do the Risks*, N.Y. Times (June 5, 2018), https://nyti.ms/2xKHupx.

Additionally, the proposed tax credit program would encourage *green* death practices.[207] The program's definition of "sustainable deathcare" could exclude the use of embalming fluids and similar chemical preservatives; the use of fertilizers, pesticides, or herbicides in burial ground maintenance; the destruction of natural habitats for burial sites; and the use of non-biodegradable burial plot liners or vaults.[208] Additionally, the program might allow only caskets or shrouds made of natural, non-toxic, biodegradable materials and the use of grave markers that are plaques flush with the ground or native plants and trees.[209] Finally, the program would likely require sustainable options for cremation through any process that does not emit toxic substances or require the use of fire, such as aquamation and alkaline hydrolysis, another liquid form of cremation, or biodegradable burial materials like the mushroom suit.[210]

In an opposite approach, governments can adopt a direct spending program to implement green burial practices through revenue spending from existing tax collections and provide subsidies to deathcare providers to offset the costs of greener burial procedures, thus making the choice more widely accessible. This option, of course, may likely require an increase in current taxation percentages and a public referendum, which would likely be met with opposition. To facilitate the practice of green burial and expedite the implementation of these practices, a direct spending program is likely not the best choice; however, it may be a long-term, future possibility depending on the nature of the political climate at the time of proposal.

3. Legalize Eco-friendly Deathcare Methods

Among the most common solutions for combatting the environmental harms of current deathcare practices, the majority of existing *green* death practices are not yet legal in majority of jurisdictions in the United States. An important step, in conjunction with the revenue-collecting schemes previously discussed, will be to legalize *green* death practices that those revenues seek to fund. Without widespread legalization, there are very few options for *dying green* (i.e., options like aquamation or human composting, which are only available in some of the states) available to the public.

For example, mass cremations can help reduce environmental impacts of deathcare and offset deathcare costs.[211] Mass cremations, in the form of open burning of multiple bodies at once, have fewer adverse impacts on air quality and reduced energy costs since a traditional crematorium columbarium is not used.[212] Mass cremation does result in indistinguishable and inseparable ashes from multiple bodies, something likely not socially desired, but could offer a cost-effective alternative for families in more strenuous financial situations; however, at this time mass cremation is considered unethical and is illegal in the United States.

Another innovative alternative to prevent embalming before burial can be found in a new invention—a mushroom burial suit—a piece of clothing lined with mushroom spores.[213] Once buried, the mushrooms are able to absorb and purify toxins in a process called mycoremediation.[214] The human tissue is broken

207. Haneman, *supra* note 198.
208. *Id.*
209. *Id.*
210. See *infra* text accompanying notes 213–15.
211. Hope M. Babcock, *The High Environmental Cost of Dying and What if Anything Can Be Done About It*, Va. Env't L.J. 152, 159–62 (2022).
212. *Id.*
213. Daniela Fortino, *How the Mushroom Burial Suit Works and What Does It Cost*, Eirene (Oct. 11, 2022), https://eirene.ca/blog/how-mushroom-burial-suit-works.
214. *Id.*

down over time, and the mushrooms transfer nutrients from the body to the fungi in the soil in which the nutrients can be redirected to trees or other vegetation.[215] This process again can help mitigate the issue of groundwater pollution from stormwaters and flooding hitting burial grounds. Legalization of mushroom suits would enable families to access this deathcare for their deceased loved ones.

Some of the environmental impacts of human remains disposal that may be unavoidable can be mitigated by requiring more minimalistic or inventive approaches to offset harm by protecting resources, or by setting up a conservation funds, which are used to acquire and protect burial land.[216] The implementation of conservation easements in the application of mitigative strategies would not only protect the existing resources covered by the easement but would also create a legacy for future generations.[217] Alternatively, as practiced in other countries, cemeteries could stack bodies in a single grave or create vertical graves that reduce the amount of land needed for burials.[218] To enable this method, states would need to legalize vertical graves.

States could also authorize cemeteries to offer "time-shares" of cemetery plots that ration the limited amount of land that can be devoted to the burial of human remains and that offset deathcare costs.[219] Essentially, an existing cemetery or burial ground could place time limitations on the length of an interment. Once that time frame has run out, the body would be exhumed and replaced by another. Though this option is likely to face social backlash, the ability to cycle bodies in existing space for the dead would help combat the issues of scarcity in urban environments that are running out of room. This option may also help make burial plots more affordable since the purchase would be relatively temporary as opposed to perpetual. Additionaly, the maintainance costs of the deceased's plot could be spread across the plot's successors, instead of falling to one.

As burial grounds become more scarce, states could legalize other deathcare options that do not require a lot of land and that come from entirely different countries and cultures, which have more expansive views of deathcare. Though these methods are not likely to be widely accepted in the United States anytime soon, given the nature of religious ties in our country,[220] one example could be adopting the practice of Tibetan sky burials. A practice central to the spiritual values of Tibetans, sky burials involve placing bodies out on open, elevated grounds known to be inhabited by vultures. The deceased are left to natural processes for their decomposition and end of life "care."[221]

Similarly, the legalization of aquamation in New York and other states would be an important step in encouraging greener death choices; however, as previously discussed in Section III, human composting was recently legalized in New York. Similar alternatives to traditional deathcare practices may be on the horizon if such alternatives can overcome the many legal and social challenges that they will likely encounter.

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215. *Id.*

216. Babcock, *supra* note 211, at 163–64.

217. *Id.*

218. Kaushik Patowary, *The Rise of Vertical Cemeteries*, Amusing Planet (Nov. 29, 2017), https://www.amusingplanet.com/2017/11/the-rise-of-vertical-cemeteries.html.

219. Babcock, *supra* note 211..

220. *See id.* (explaining the cultural norms of religious groups in our society and how religious ties play a role in the choice of deathcare socially accepted regardless of their harmful environmental impacts).

221. Amy Houchin, *Tibetan Sky Burials*, Anthropological Perspectives on Death (Feb. 13, 2017), https://scholarblogs.emory.edu/gravematters/2017/02/13/tibetan-sky-burials; *see also* Babcock, *supra* note 211, at 163–64.

G. Solutions That Facilitate the Creation or Designation of More Deathcare Space and Combat Issues of Scarcity

1. Amending State Cemetery Law to Facilitate More Deathcare Space

One of the biggest challenges to implementing *greener* death practices lies in the construction of state laws that require local consent for deathcare facility siting, which is completely discretionary, without any requirement of a well-reasoned opinion accompanying a decision to withhold consent. Amending this aspect of state law to effectively weaken or loosen this local discretion would help remove barriers to entry when it comes to finding more deathcare space. Similarly, many practices that *dying green* encourages require land space, but the ability of the local planning board to reject a site plan application or reject a request to purchase land for cemeterial use, despite the zoning code allowing the use, is a tremendous flaw in our system. The local consent requirement does not necessarily need to be removed altogether but could be amended by requiring the local authority to to approve deathcare spaces if certain criteria are met (use allowance, permitting, incorporation, etc.) or preventing local boards from rejecting these spaces without a well-reasoned opinon and factual basis for doing so.

2. Adapting Local Comprehensive Plans and Amending State Cemetery Law to Facilitate Conservation Cemeteries.

Under state law, land use regulations like zoning typically must be in accordance with the comprehensive plan, which is the city's guide for the future use of its land space.[222] The inclusion of language encouraging conservation cemeteries in the comprehensive plan, and subsequent amendments to local land use regulations that would implement the plan's recommendations, could facilitate more deathcare space for *dying green*. As discussed previously, in New York and New Jersey, the acreage or percentage of land designated for burial and crematorium uses is essentially fixed—once this limit is reached, it is incredibly difficult to get new land approved for deathcare. The comprehensive plan is a map of community goals and visions for the geographical area's future uses.[223] In developing comprehensive plans, many municipalities will turn to educated, certified land use professionals and lawyers.[224] Establishing the comprehensive plan is a three-part process that generally involves taking stock of where the community's land use currently settles, developing a communal vision or goal for what the locality will be like in the future, and then developing a set of specific strategies and polices to implement those visions over time.[225] This process allows communities to identify issues before they have even become a problem and incorporate trends in land use development by anticipating and navigating foreseeable changes in populations and land use patterns.[226]

Through the comprehensive plan, a municipality can organize and prepare for the implementation of conservation cemeteries. A conservation cemetery is designed to preserve and expand existing wilderness areas, with designated space for non-toxic burials that help fund the environmental upkeep of the whole wilderness area.[227] Conservation cemeteries preserve land in its natural form by burying remains wrapped in biodegradable materials in shallow graves among native trees, surrounded with leaves and pine needle mulch, similar to the invention of the mushroom suit discussed above.[228] Once buried, remains decompose

222. *Id.*; *see* Nolon, *supra* note 117.

223. *What Is a Comp Plan?,* City of Johnston, https://www.cityofjohnston.com/929/What-is-a-Comp-Plan (last visited Jan. 12, 2022).

224. *Id.*

225. *Id.*

226. *Id.*

227. Brown, *supra* note 195.

228. See *supra* discussion accompanying notes 213–15.

naturally, thus returning nutrients to the soil.[229] Proceeds from fees charged for eco-burial within a conservation cemetery can fund the continuing acquisition of land, monitoring of invasive species, and forest management to reduce and prevent wildfire hazards.[230]

The legal hurdles for establishing conservation cemeteries boil down relate to barriers in state cemetery laws across the country.[231] In addition to barriers discussed in the previous section, state cemetery laws that require paved roads to burial plots largely hinder conservation cemeteries and are common in several states.[232] In other states, cemetery fencing is mandated, creating an additional, unnatural obstacle that obstructs the implementation of conservation cemeteries.[233] Thus, in addition to local planning for conservation cemeteries, states must amend cemetery laws to remove any such barriers. In amending the comprehensive plan and subsequently amending zoning to allow and facilitate conservation cemeteries, the local legislature can rework restrictive policy and create or designate more space for sustainable *green dying* practices. By planning for conservation cemeteries in the comprehensive plan, the municipality creates a policy framework for legislative change. Further, the implementation and designation of conservation cemeteries[234] may be extremely useful for local governments contemplating the risk of nuisance complaints.

3. Implementation of Mixed-Use Cemetery Spaces

If the designation of additional land space for conservation cemeteries is unattainable in specific localities, local zoning laws could be amended to allow mixed uses in cemeteries and burial grounds. By clustering gravesites (similar to cluster subdivisions), a small portion of designated burial ground could be devoted to graves, and other areas could be designated for spreading cremains, while the remaining property could be set aside for conservation and recreational use.[235] Incorporating mixed uses in cemeteries guarantees neighboring residents accessible, permanent green space because of the protections that accompany interments.[236]

For example, Baltimore has allowed existing lawns of cemeteries to be rezoned as permanent open spaces, which has maximized the utility of those spaces.[237] In an effort to address zoning barriers to creating or designating more space for the deceased, Baltimore's zoning ordinance allows its existing public and private cemeteries to be included within a "floating special zoning district" that seeks to "permanently preserv[e] open space as an important public asset."[238] The transformation of current cemeteries into alternative open spaces expands natural infrastructure and provides green space for residents without requiring the acquisition of new land.[239] The City of Baltimore also does not require any special permits or extra steps for multi-use cemeteries beyond obtaining a nonconforming use permit.[240] This process inherently encourages cemetery owners to allow their properties to become public, mixed-use spaces for maximum utility.

229. Brown, *supra* note 195.
230. *Id.*
231. *Id.*
232. *Id.*
233. *Id.*
234. *Id.*
235. Coutts, *supra* note 194, at 52.
236. *Id.*
237. *Id.*
238. *Id.*
239. *Id.*
240. *Id.*

Baltimore is just one example of mixed-use conservation efforts that localities can implement in cemeteries to combat the growing scarcity of land that prevents more people from *dying green*. Cities such as New York City, where burial land is exceedingly scarce, could imitate Baltimore's mixed-use cemetery efforts.[241] Baltimore's mixed-use cemeteries serve as a model for growing urban neighborhoods nationwide.

CONCLUSION

Current deathcare practices in this country are wasteful and unsustainable. The lack of environmentally friendly legislation for combatting the concerns that our current deathcare practices pose makes revisal of current deathcare and land use policies and law increasingly timely. The rise in cremation rates and the increase in interest for green burials have been contemplated by land use professionals and environmental scholars across the country for some time now. Consequentially, everyday Americans are focusing more on finding eco-friendly ways to minimize their environmental footprint when they pass. But with current exceedingly outdated cemetery laws, this search is often fruitless. With or without action, cremation will continue to increase, and the environmental harms resulting from this increase in cremation will only worsen as local governments continue to refrain from action. During the COVID-19 pandemic, the ill-prepared deathcare industry, when faced with soaring death rates, only further underscored the need for updated regulation of the deathcare industry.

Additionally, without direct action from local governments, there is only so much each person can do to die *green*. Currently, *dying green* is really only accessible to the wealthy, leaving marginalized groups—who were most at risk during the pandemic—without sustainable options, a pattern likely to repeat as climate change continues to threaten our environment. Over time and with local efforts, natural *greener* deathcare may gain popularity and become commonplace. A *green* burial not only provides comfort in its similarity to traditional burial but can also provide significant benefits to the living when incorporated into conservation efforts and mixed-use spaces.

Dying green, through these specific efforts, will help reduce environmental waste and pollution, provide future protection to natural ecosystems, and create spaces in which the living and dead can coexist. To achieve these goals, governments should remove barriers to green deathcare and adopt measures like burial permits, scattering fees, tax credit plans, and the inclusion of green death initiatives in a revamped, environmentally conscious comprehensive plan.

241. *Compare* Baltimore City Land Preservation, Parks & Recreation 2005–2010, https://www.baltimorecity.gov/sites/default/files/Baltimore%20Land%20Preservation%2C%20Parks%20and%20Recreation.pdf, *with* James T. Smith, Jr. et al., Baltimore County, Maryland Master Plan 2020 (Nov. 15, 2010), https://planning.maryland.gov/Documents/OurWork/compplans/20_CMP_BaltCo.pdf.

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THE COMMUNITY RESILIENCE HANDBOOK

Edited by Edward A. Thomas, George Blaine Huff, Jr. and Nancy McNabb

The current difficulties managing the worldwide response and recovery to the Covid-19 pandemic highlights the need for attorneys to take the lead on behalf of their clients and communities in an effort to create communities more capable of resisting and, if necessary, quickly recovering from natural disasters and other extreme events.

This comprehensive guide draws together the contributions of acknowledged experts from the legal community and from across the spectrum of professional disciplines, including architecture, agriculture, disaster risk reduction, engineering, social science, insurance, finance, and economics, building sciences, and facility management to demonstrate that improved community resilience is practical, achievable and in the best interests of Attorneys, their clients.

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- The role of lawyers in promoting resilience
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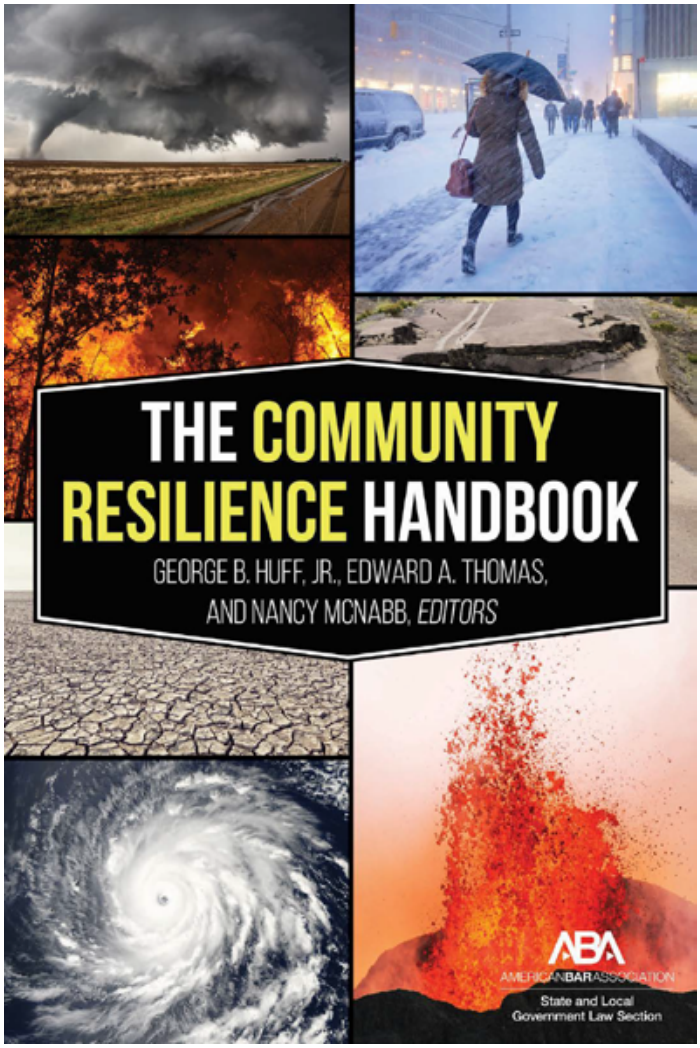

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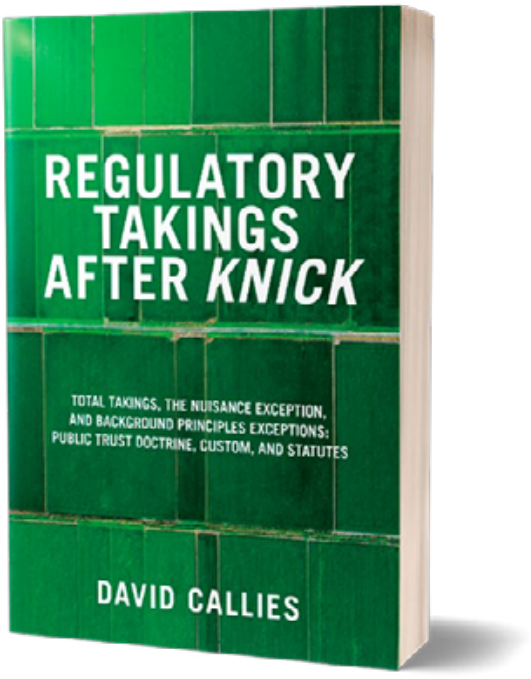

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