
Essay

Who Decides Where the Renewables Should Go?: A Response to Danielle Stokes' *Renewable Energy Federalism*

Michael B. Gerrard[†]

One of the central tasks in addressing the climate crisis is transitioning from an energy system based on fossil fuels to one that mainly uses renewable energy. In her article "*Renewable Energy Federalism*," Professor Danielle Stokes has highlighted one of the key impediments to this transition—delays in state and local permitting of renewable energy facilities.¹ She has proposed a new approach that would give more authority to the federal government.² Stokes' approach has much to commend it. However, I differ on some aspects.

I will begin by describing the magnitude of the problem—the amount of new renewable capacity that is needed for the United States to meet its climate objectives. Then I will describe the current system (if it can be called that) for deciding what renewable facilities are built where, and how Stokes would change that system. I will provide some historical perspective on how major projects have been sited, and the important role of private developers in energy generation projects. Finally, I will offer my views on which parts of Stokes' proposal I would follow and which I would modify or discard.

[†] Michael B. Gerrard is Andrew Sabin Professor of Professional Practice and Faculty Director of the Sabin Center for Climate Change Law at Columbia Law School, and a member and former chair of the faculty of Columbia's Earth Institute (now the Columbia Climate School). His most recent book is *Legal Pathways to Deep Decarbonization in the United States* (ed. with John C. Dernbach, 2019). Copyright © 2022 by Michael B. Gerrard.

1. See generally Danielle Stokes, *Renewable Energy Federalism*, 106 MINN. L. REV. 1757 (2022).

2. *Id.*

I. NEED FOR NEW RENEWABLES

In conjunction with rejoining the Paris Climate Agreement in 2021, the Biden Administration submitted a pledge to reduce U.S. greenhouse gas emissions by fifty to fifty-two percent below 2005 levels by 2030.³ President Biden has also announced the goals of having a zero-emissions power sector by 2035, and net zero emissions for the entire country by 2050.⁴ These goals are generally in line with the objective of keeping global average temperatures within 1.5°C above pre-industrial conditions, which the Intergovernmental Panel on Climate Change has shown to be about the level above which catastrophic climate change occurs.⁵

Several studies have examined the amount of new renewable electricity capacity that would be needed to achieve these goals. One study concluded that by 2050 the total U.S. wind and solar capacity would need to grow from the current 150 gigawatts (GW) to about 3,200 GW, with a buildout rate in the 2040s of more than 160 GW per year.⁶ Another study, using different methodologies and assumptions, came to roughly comparable conclusions.⁷ To put these numbers in

3. THE UNITED STATES OF AMERICA, NATIONALLY DETERMINED CONTRIBUTION, REDUCING GREENHOUSE GASES IN THE UNITED STATES: A 2030 EMISSIONS TARGET 1 (2021), <https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/United%20States%20of%20America%20First/United%20States%20NDC%20April%2021%202021%20Final.pdf> [<https://perma.cc/6KWB-WH5U>].

4. U.S. DEP'T OF STATE & EXEC. OFF. OF THE PRESIDENT, THE LONG-TERM STRATEGY OF THE UNITED STATES: PATHWAYS TO NET-ZERO GREENHOUSE GAS EMISSIONS BY 2050 1, 5 (Nov. 2021), <https://www.whitehouse.gov/wp-content/uploads/2021/10/US-Long-Term-Strategy.pdf?source=email#:~:text=The%20Long%2Dterm%20Strategy%20shows,every%20sector%20of%20the%20economy.&text=This%20will%20put%20the%20United,%2C%20resilient%2C%20and%20equitable%20economy> [<https://perma.cc/P2VS-4GAW>].

5. INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, GLOBAL WARMING OF 1.5°C 7–10 (2018), https://www.ipcc.ch/site/assets/uploads/sites/2/2019/06/SR15_Full_Report_Low_Res.pdf [<https://perma.cc/B6AN-W598>].

6. James H. Williams, Ryan A. Jones, Ben Haley, Gabe Kwok, Jeremy Hargreaves, Jamil Farbes, & Margaret S. Torn, *Carbon-Neutral Pathways for the United States*, 2 AGU ADVANCES 1, 7, 13 (2021), <https://agupubs.onlinelibrary.wiley.com/doi/epdf/10.1029/2020AV000284> (last visited May 2, 2022). In 2021, about twenty-eight GW was added. *Clean Power Quarterly Report Q4 2021*, AM. CLEAN POWER, https://cleanpower.org/resources/clean-power-quarterly-report-q4-2021/?utm_source=newsletter&utm_medium=email&utm_campaign=newsletter_axiosgenerate&stream=top [<https://perma.cc/EJ5L-3MZ3>] (“The U.S. clean energy industry installed 27,723 MW of wind, solar, and energy storage capacity in 2021 . . .”).

7. ERIC LARSON, CHRIS GREIG, JESSE JENKINS, ERIN MAYFIELD, ANDREW PASCALE, CHUAN ZHANG, JOSHUA DROSSMAN, ROBERT WILLIAMS, STEVE PACALA, ROBERT SOCOLOW, EJEONG BAIK, RICH BIRDSEY, RICK DUKE, RYAN JONES, BEN HALEY, EMILY LESLIE, KEITH PAUSTIAN, & AMY SWAN, NET-ZERO AMERICA: POTENTIAL PATHWAYS, INFRASTRUCTURE, AND IMPACTS 99,

perspective, the largest wind farm in the United States (onshore in the Mojave desert) has a capacity of 1.5 GW;⁸ the largest offshore wind farm in the world (off the coast of England in the North Sea) is 1.2 GW;⁹ the largest planned solar farm in the U.S. (in Nevada) is 0.7 GW.¹⁰ In other words, the U.S. would need to be building more than 100 of today's largest facilities each and every year. The amount of high voltage transmission capacity would need to about triple.¹¹

Two reasons that so much new renewable generating capacity is required are that all the existing coal and most of the natural gas power plants will need to be shut down and their electricity replaced with clean power, and at the same time the demand for electricity will soar.¹² An essential element of any effort to decarbonize the economy is to use clean-sourced electricity instead of fossil fuels wherever feasible.¹³ This would be led by having all new motor vehicles powered by electricity rather than by gasoline or diesel (except for some heavy trucks, which might need hydrogen or other technologies); converting the heating, cooling, and hot water systems of buildings from natural gas and oil to electricity; and switching many industrial processes to electricity.¹⁴ All of this, coupled with economic and population growth, will lead to a large increase in the demand for electricity—perhaps a doubling or tripling by 2050, depending on the scenario.¹⁵

Most of the studies that project the need for so much new wind and solar capacity place little reliance on new nuclear power.¹⁶ One that does calls for 250 new 1 GW nuclear power plants, or 3,800 small

100 (2020), https://environmenthalfcentury.princeton.edu/sites/g/files/toruqf331/files/2020-12/Princeton_NZA_Interim_Report_15_Dec_2020_FINAL.pdf [<https://perma.cc/PT8H-4YJ7>] (showing needed wind and solar buildout rates under various scenarios).

8. Jenn Cranney, *World's Largest Wind Farms*, NW. RENEWABLE ENERGY INST. (Aug. 20, 2021), <https://www.nw-rei.com/2021/08/20/worlds-largest-wind-farms> [<https://perma.cc/LTD3-PCCH>].

9. *Id.*

10. Darrell Proctor, *Feds Back Construction of Largest U.S. Solar Farm*, POWER (Jan. 2, 2020), <https://www.powermag.com/feds-back-construction-of-largest-u-s-solar-farm> [<https://perma.cc/PX86-CTLU>].

11. LARSON ET AL., *supra* note 7, at 106.

12. Williams et al., *supra* note 6, at 3.

13. *Id.*

14. *Id.* at 6–13.

15. *Id.* at 3 (reporting 4,170 TWh total electric generation in 2020; 9,550–12,840 TWh under various 2050 scenarios).

16. *Id.* at 4.

modular nuclear reactors,¹⁷ to supply much of the needed 3,200 GW (there are now ninety-three operating reactors in the U.S. and each one typically has a capacity of 0.5 to 1 GW; small modular nuclear reactors do not yet exist on a commercial scale).¹⁸ However, the economics of building new nuclear power plants in the United States have become impossible.¹⁹ Five years ago, four nuclear plants were under construction in this country—two in South Carolina and two in Georgia.²⁰ The severely delayed and over budget South Carolina plants were cancelled in 2017 after \$9 billion in expenditures, driving its builder, Westinghouse, into bankruptcy.²¹ The Georgia plants are costing more than double their initial \$14 billion price tag and are at least seven years behind schedule.²² New technologies such as small modular nuclear reactors and fusion plants are the subject of serious research projects, but commercial-scale application of them appears to be at least a decade or two away.²³ The technological and financial uncertainties are such that we cannot rely on them today to solve the problem.

17. LARSON ET AL., *supra* note 7, at 10.

18. *Frequently Asked Questions (FAQs): How Much Electricity Does a Nuclear Power Plant Generate?*, U.S. ENERGY INFO. ADMIN. (Nov. 5, 2021), <https://www.eia.gov/tools/faqs/faq.php?id=104&t=3#:~:text=In%202020%2C%20the%20R.E.%20Ginna,relatively%20high%20annual%20capacity%20factors> [https://perma.cc/BD3X-VHQ9].

19. MIT ENERGY INITIATIVE, *THE FUTURE OF NUCLEAR ENERGY IN A CARBON-CONSTRAINED WORLD* xi (2018), <https://energy.mit.edu/wp-content/uploads/2018/09/The-Future-of-Nuclear-Energy-in-a-Carbon-Constrained-World.pdf> [https://perma.cc/6WU9-VGVT].

20. Brad Plumer, *U.S. Nuclear Comeback Stalls as Two Reactors Are Abandoned*, N.Y. TIMES (July 31, 2017), <https://www.nytimes.com/2017/07/31/climate/nuclear-power-project-canceled-in-south-carolina.html> [https://perma.cc/YTU5-8BBH].

21. Akela Lacy, *South Carolina Spent \$9 Billion to Dig a Hole in the Ground and Then Fill It Back In*, INTERCEPT (Feb. 6, 2019), <https://theintercept.com/2019/02/06/south-caroline-green-new-deal-south-carolina-nuclear-energy> [https://perma.cc/2NT9-HXXH]; *Westinghouse Agrees to Pay \$20 Million over Failed Nuclear Project*, WASH. POST (Aug. 30, 2021), https://www.washingtonpost.com/business/economy/westinghouse-agrees-to-pay-20-million-over-failed-nuclear-project/2021/08/30/f8a13b6e-099c-11ec-aea1-42a8138f132a_story.html [https://perma.cc/5W9B-9EE4].

22. Kristi E. Swartz, *Plant Vogtle Hits New Delays; Costs Surge Near \$30B*, ENERGY WIRE (Feb. 18, 2022), <https://www.eenews.net/articles/plant-vogtle-hits-new-delays-costs-surge-near-30b> [https://perma.cc/3WF2-CB9M].

23. Arjun Makhijani & M. V. Ramana, *Can Small Modular Reactors Help Mitigate Climate Change?*, BULL. ATOMIC SCIENTISTS (July 21, 2021), <https://thebulletin.org/premium/2021-07/can-small-modular-reactors-help-mitigate-climate-change> (last visited May 2, 2022).

II. WHO NOW DECIDES WHAT RENEWABLES ARE BUILT AND WHERE THEY GO

Apart from military applications, there are few federal mandates to build new renewable energy facilities.²⁴ Federal tax incentives such as the production tax credit (used mostly for wind projects) and the investment tax credit (used mostly for solar projects) encourage but do not require the construction of new facilities.²⁵ The most important mandates are at the state level. Thirty-one states and the District of Columbia have adopted renewable portfolio standards—requirements that electric utilities provide a certain percentage of their electricity from renewable sources.²⁶ These have been important drivers of the construction of new renewables.²⁷ Increasingly, many large private companies are also committing to acquire much or all of their electricity from renewable sources in order to meet zero carbon goals.²⁸ Some states also call for bids to provide electricity from renewables; the resulting power is then sold to the electric utilities.²⁹ The plummeting costs of building wind and solar facilities and their very low operating costs (they do not need to buy fuel) have further created incentives to build such facilities.³⁰

24. CTR. FOR CLIMATE & ENERGY SOLS., CLEAN ENERGY STANDARDS: STATE AND FEDERAL POLICY OPTIONS AND CONSIDERATIONS ix (Nov. 2019), <https://www.c2es.org/wp-content/uploads/2019/11/clean-energy-standards-state-and-federal-policy-options-and-considerations.pdf> [<https://perma.cc/JER2-UFPH>].

25. MICHAEL B. GERRARD, THE LAW OF CLEAN ENERGY: EFFICIENCY AND RENEWABLES 145 (2011).

26. *Renewable Energy Explained: Portfolio Standards*, U.S. ENERGY INFO. ADMIN. (June 29, 2021), <https://www.eia.gov/energyexplained/renewable-sources/portfolio-standards.php> [<https://perma.cc/YN89-5RRT>].

27. GALEN BARBOSE, BERKELEY LAB, U.S. RENEWABLES PORTFOLIO STANDARDS: 2021 STATUS UPDATE: EARLY RELEASE (Feb. 2021), https://eta-publications.lbl.gov/sites/default/files/rps_status_update-2021_early_release.pdf [<https://perma.cc/CD87-9PYL>].

28. Catherine Thorbecke, *Over 200 Companies Pledge Net-Zero Emissions by 2040 as Pressure on Private Sector Mounts*, ABC NEWS (Sept. 20, 2021), <https://abcnews.go.com/Business/200-companies-pledge-net-emissions-2040-pressure-private/story?id=80124841> [<https://perma.cc/76TX-7WK5>].

29. *Solicitations for Large-Scale Renewables*, N.Y. CLEAN ENERGY STANDARD, <https://www.nyserda.ny.gov/All-Programs/Clean-Energy-Standard/Renewable-Generators-and-Developers/RES-Tier-One-Eligibility/Solicitations-for-Long-term-Contracts> [<https://perma.cc/CD9L-PBVV>].

30. Will Mathis, *Building New Renewables Is Cheaper than Burning Fossil Fuels*, BLOOMBERG GREEN (June 23, 2021), <https://www.bloomberg.com/news/articles/2021-06-23/building-new-renewables-cheaper-than-running-fossil-fuel-plants> [<https://perma.cc/NX8Q-NCE9>].

Almost none of these mandates or incentives specify *where* the new wind and solar facilities should be built. That choice is left almost entirely to private developers. They determine where they can acquire suitable land (by purchase or lease) in locations that have good sun or wind resources and are or could be served by transmission lines that would carry the power they generate to where it would be used.³¹ The federal government (usually through the Bureau of Land Management and the Bureau of Ocean Energy Management—both within the Department of the Interior) occasionally holds auctions to lease federal lands and waters for renewable facilities, but even there the private developers decide the exact locations and designs.³²

Upon getting the rights to a site, the private developers must then secure the necessary construction approvals.³³ Except for those to be built on federal land or waters, the projects almost always need approval from a local government—county, city, or town.³⁴ Some local governments have zoning codes and almost all of them require building permits or other approvals.³⁵ Obtaining these approvals often requires going through elaborate processes, such as those of town zoning or planning boards.³⁶ Some neighbors of proposed facilities oppose these projects because, for example, they do not like the sight of wind turbines.³⁷ In many places these neighbors have succeeded in persuading their local governments to ban or restrict the projects, or in bringing lawsuits that stop the projects.³⁸ To be sure,

31. *Wind Project Site Selection*, OFF. OF ENERGY EFFICIENCY & RENEWABLE ENERGY, <https://windexchange.energy.gov/projects/site-selection> [https://perma.cc/7J6D-5L64].

32. Peter Daniels, *Siting Renewable Energy on Public Lands: Existing Regulations and Recommendations*, HARV. L. SCH. ENV'T & ENERGY L. PROGRAM 5, http://eelp.law.harvard.edu/wp-content/uploads/PDaniels_EELP_Renewables-Siting_Final.pdf [https://perma.cc/24AD-RB64].

33. *Small Community Wind Handbook*, OFF. OF ENERGY EFFICIENCY & RENEWABLE ENERGY, <https://windexchange.energy.gov/small-community-wind-handbook#zoning> [https://perma.cc/7GZB-CLDX].

34. *Id.*

35. *Id.*

36. John R. Nolan, *Mitigating Climate Change by Zoning for Solar Energy Systems: Embracing Clean Energy Technology in Zoning's Centennial Year*, 38 ZONING & PLAN. L. REP. 1, 5–10 (2015), <https://digitalcommons.pace.edu/cgi/viewcontent.cgi?article=1995&context=lawfaculty> [https://perma.cc/26FE-XNBV].

37. Ben Hoen, Jeremy Firestone, Joseph Rand, Debi Elliot, Gundula Hübner, Johannes Pohl, Ryan Wisser, Eric Lantz, T. Ryan Haac, & Ken Kaliski, *Attitudes of U.S. Wind Turbine Neighbors: Analysis of a Nationwide Survey*, 134 ENERGY POL'Y 1 (2019).

38. HILLARY AIDUN, JACOB ELKIN, RADHIKA GOYAL, KATE MARSH, & NEELY MCKEE,

fossil fuel projects receive even more opposition.³⁹

Depending on their location, generation projects may also require other approvals.⁴⁰ If they are in a state with traditionally regulated vertical electric utilities, they require the approval of the state public utility commission.⁴¹ Projects that would intrude upon federally regulated wetlands or waters need the approval of the U.S. Army Corps of Engineers under the Clean Water Act.⁴² Those that could harm endangered species or their habitat may need approvals from the Fish and Wildlife Service.⁴³ Tall wind turbines, especially if near airports, may need signoff from the Federal Aviation Administration.⁴⁴ Many states have their own additional environmental, land use, or electricity permitting requirements.⁴⁵

III. THE STOKES PROPOSAL

Stokes proposes the designation of a centralized siting agency—probably the Federal Energy Regulatory Commission (FERC), though possibly the Renewable Transmission Organizations (RTOs) where they exist.⁴⁶ The agency would develop guidelines that

would prohibit: (1) the enactment [by state or local governments] of regulations that have the effect of preventing renewable energy projects within a jurisdiction; (2) restrictions in zoning regulations and certain private covenants that provide for an outright ban of renewable energy facilities (particularly in zones where a project is feasible or in close proximity to transmission lines); and (3) untimely project approvals.⁴⁷

The guidelines “could also make permit approval contingent

COLUM. L. SCH., SABIN CTR. FOR CLIMATE CHANGE L., OPPOSITION TO RENEWABLE ENERGY FACILITIES IN THE UNITED STATES (Mar. 2022), https://scholarship.law.columbia.edu/cgi/viewcontent.cgi?article=1186&context=sabin_climate_change [https://perma.cc/5AYX-UDNK].

39. David B. Spence, *Regulation & the New Politics of (Energy) Market Entry*, 95 NOTRE DAME L. REV. 327, 351 (2019).

40. See generally J.B. Ruhl & James Salzman, *What Happens When the Green New Deal Meets the Old Green Laws?*, 44 VT. L. REV. 693 (2020).

41. Kathryne Cleary & Karen Palmer, *US Electricity Markets 101*, RES. FOR THE FUTURE 1, 2 (Mar. 30, 2020), https://media.rff.org/documents/US_Electricity_Markets_101.pdf [https://perma.cc/8L92-PH84].

42. 33 U.S.C. § 1344(a).

43. Endangered Species Act, 16 U.S.C. §§ 1536(a), 1538(a).

44. 14 C.F.R. pt. 77.

45. Michael B. Gerrard, *Legal Pathways for a Massive Increase in Utility-Scale Renewable Generation Capacity*, 47 ENV'T L. REP. 10591, 10605–09 (2017).

46. Stokes, *supra* note 1, at 1819.

47. *Id.* at 1818.

upon compliance with general standards that require land restoration and environmental protection in an effort to hold developers and utility companies accountable in the climate change mitigation process.⁴⁸ Federal financial assistance would be conditioned on compliance with these standards.⁴⁹

The Stokes proposal provides that “states and localities would develop implementation plans to indicate how these objectives are being met and would also have the ability to impose additional requirements.”⁵⁰ When a state fails to submit an adequate plan, the federal siting body would be authorized to provide an implementation plan.⁵¹ “Localities would still be permitted to determine the exact location of [renewable] projects, but they would be provided a framework and recommendations based upon the transmission grid. Further, developers would only have to navigate one regulatory system to obtain siting permits.”⁵²

Stokes models parts of her proposal on the Clean Air Act, which requires states to develop implementation plans to achieve and maintain compliance with the National Ambient Air Quality Standards.⁵³ Other parts are modeled on the Telecommunications Act of 1996 (TCA), which limits the authority of local governments to block cell phone towers.⁵⁴

IV. ASSESSMENT OF THE STOKES PROPOSAL

The TCA has been very successful in driving the construction of cell phone towers nationwide.⁵⁵ The number of towers installed annually leapt from around 5,000 before the law’s enactment to more than 20,000 afterwards.⁵⁶ There are now over 417,000.⁵⁷ This has enabled mobile phones to become such a pervasive part of life today. While prior to the TCA many local governments banned or inhibited towers out of concerns over electromagnetic frequency (EMF)

48. *Id.*

49. *Id.*

50. *Id.* at 1818–19.

51. *Id.* at 1819.

52. *Id.* at 1823.

53. 42 U.S.C. § 7410(a).

54. 47 U.S.C. § 332(c)(7).

55. Thomas A. Wikle, *Cellular Tower Proliferation in the United States*, 92 GEOGRAPHICAL REV. 45 (2002).

56. *Id.* at 46.

57. 2021 ANNUAL SURVEY HIGHLIGHTS, CTIA, <https://www.ctia.org/news/2021-annual-survey-highlights> [<https://perma.cc/RU9D-FJ5A>].

radiation, the statute gives the Federal Communications Commission the sole authority to set EMF standards.⁵⁸ The TCA provides that local governments may not ban towers entirely and must provide detailed written explanations of any permit denials.⁵⁹ Local governments are required to act on tower applications “within a reasonable period of time.”⁶⁰ Tower applicants can obtain relief from the federal courts if local governments are violating the TCA.⁶¹

As Stokes acknowledges, the application of something similar to the TCA to renewable energy facilities was advocated by Professor Ashira P. Ostrow in 2011.⁶² Citing Ostrow, I called for it in 2017.⁶³

Using this model, Congress could prevent local governments from banning renewable projects on the basis of aesthetics. Ideally the impairment of views might be relevant to a permitting decision, but the urgency of the climate crisis, and the need for a massive number of new renewable facilities, mean that we no longer have this luxury. Congress could require certain mitigation measures to reduce the effects on birds, bats, and other species, but otherwise bar disapprovals based on species impacts. As with the TCA, Congress could require local review to be conducted in a reasonable time and provide for federal court review of violations.

So, Stokes and I agree on the use of a TCA-like statute.

With respect to state plans, I think their principal focus should be on transmission lines. As a prime example of how this can be done, in the early 2000s the Texas Public Utility Commission developed a plan for Competitive Renewable Energy Zones (CREZ).⁶⁴ As authorized by the State Legislature in 2005, it designated corridors to carry power from West Texas and the Texas Panhandle, where there are abundant wind resources, to the cities in Central and East Texas, where most of the population lives.⁶⁵ The 2,400 miles of transmission lines carrying

58. 47 U.S.C. § 332(c)(7)(B)(iv).

59. *Id.* § 332(c)(7)(B)(iii).

60. *Id.* § 332(c)(7)(B)(ii).

61. *Id.* § 332(c)(7)(B)(v).

62. Ashira P. Ostrow, *Process Preemption in Federal Siting Regimes*, 48 HARV. J. LEGIS. 289 (2011).

63. Gerrard, *supra* note 45, at 10608.

64. JULIE COHN & OLIVERA JANKOVSKA, CTR. ENERGY STUDS., TEXAS CREZ LINES: HOW STAKEHOLDERS SHAPE MAJOR ENERGY INFRASTRUCTURE PROJECTS (Nov. 2020), <https://www.bakerinstitute.org/media/files/files/eb251d15/ces-pub-texascrez-111720.pdf> [<https://perma.cc/2V4M-8BBZ>].

65. *Id.*

18.5 GW of power were completed in 2013.⁶⁶ Ratepayers ultimately pay the cost.⁶⁷ Since Texas has mostly isolated itself from the national grid, it is not subject to FERC's oversight and restrictions on rates and other matters.⁶⁸ The CREZ program, coupled with ample wind and solar resources and a deregulated electricity market, has been astonishingly successful. Wind farms sprouted up on lands leased from farmers and other landowners who were happy to have the extra income; total wind generation capacity went from 183 MW in 2000 to 33,133 MW in 2020.⁶⁹ Texas has by far the largest amount of wind capacity in the country and is also continuing to build new capacity at the fastest rate.⁷⁰

The absence of transmission lines and the difficulty in connecting with them are major impediments to the construction of new renewables.⁷¹ Grid operators have their own processes for approving connections with new generating facilities and these processes often lead to extensive delays.⁷² The pace of transmission line construction is far slower than what will be needed to achieve the necessary levels of renewables.⁷³ State transmission plans such as that of Texas could

66. *Id.*

67. *Id.*

68. *Id.*

69. *Id.*; *Transmission & CREZ Fact Sheet*, POWERING TEX., <https://poweringtexas.com/wp-content/uploads/2018/12/Transmission-and-CREZ-Fact-Sheet.pdf> [<https://perma.cc/EF6X-UZV7>]; *Texas Crez Projects*, ELEC. TRANSMISSION TEX., <http://www.ettexas.com/Projects/TexasCrez> [<https://perma.cc/4BXK-NRFC>]; *Texas as a National Model for Bringing Clean Energy to the Grid*, AM. CLEAN ENERGY GRID, <https://cleanenergygrid.org/texas-national-model-bringing-clean-energy-grid> [<https://perma.cc/43A8-3TY8>].

70. Dan Gearino, *Inside Clean Energy: Texas Is the Country's Clean Energy Leader, Almost in Spite of Itself*, INSIDE CLIMATE NEWS (Feb. 17, 2022), <https://insideclimatenews.org/news/17022022/inside-clean-energy-texas-clean-energy-leader> [<https://perma.cc/C7AF-789W>].

71. Robert Walton, *Propelling the Transition: New and Better Transmission Is Key to Zero Carbon; Here's What's Driving It*, UTILITY DIVE (Aug. 19, 2020), <https://www.utilitydive.com/news/propelling-the-transition-new-and-better-transmission-is-key-to-zero-carbo/582331> [<https://perma.cc/W6KV-XB98>].

72. JAY CASPARY, MICHAEL GOGGIN, ROB GRAMLICH, & JESSE SCHNEIDER, AM. CLEAN ENERGY GRID, *DISCONNECTED: THE NEED FOR A NEW GENERATOR INTERCONNECTION POLICY 1, 4* (Jan. 2021), <https://cleanenergygrid.org/wp-content/uploads/2021/01/Disconnected-The-Need-for-a-New-Generator-Interconnection-Policy-1.pdf> [<https://perma.cc/9L2R-GUTB>]; see, e.g., Miranda Wilson, *Renewables Backlog Plan for PJM Region Met with Mixed Reviews*, ENERGYWIRE (Feb. 14, 2022), <https://www.eenews.net/articles/renewables-backlog-plan-for-pjm-region-met-with-mixed-reviews> [<https://perma.cc/FR76-6TNX>].

73. Jonathan M. Moch & Henry Lee, *The Challenges of Decarbonizing the U.S. Electric Grid by 2035*, HARV. KENNEDY SCH. BELFER CTR. (Feb. 2022), <https://www>

help alleviate this problem.

State plans could serve another purpose. One could imagine a system in which each state is obligated to host clean energy facilities with the generating capacity at least equal to that state's percentage of anticipated U.S. electricity demand in, say, 2035, when President Biden has called for a zero-emissions grid.⁷⁴ Alternatively, each state could be required to host clean energy facilities sufficient to cover its own anticipated electricity load. This would lead to the closure of many fossil fuel generating plants, as once a wind or solar farm is built its operating costs are very low.⁷⁵ The wind and the sun are free and are not subject to the price fluctuations that, for example, led to spiking electricity bills in much of the United States in 2022, especially the states whose power was mostly generated by natural gas.⁷⁶ To be sure, many states with too little renewable capacity will want to buy power from states with an excess, which should be acceptable as a way of minimizing the overall costs. Congress would need to enact legislation that requires these state plans and enforces compliance with them.

It is not clear what the nature or purpose of *local* plans would be. There are about 39,000 general purpose local governments in the United States;⁷⁷ surely not every one would be expected to develop a renewables siting plan, and the federal government would not be expected to review them all. Some counties or towns might designate particular locations for wind or solar projects, which would be a

.belfercenter.org/publication/challenges-decarbonizing-us-electric-grid-2035 [https://perma.cc/S7GA-2V9X].

74. *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*, WHITE HOUSE (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> [https://perma.cc/3UJY-X57P].

75. *Renewables Increasingly Beat Even Cheapest Coal Competitors on Cost*, INT'L RENEWABLE ENERGY AGENCY (June 2, 2020), <https://www.irena.org/newsroom/pressreleases/2020/Jun/Renewables-Increasingly-Beat-Even-Cheapest-Coal-Competitors-on-Cost> [https://perma.cc/R5B5-4NRU].

76. Danielle Silva, *'A Lot of People Need Help': Soaring Electric Bills Leave Some Struggling to Pay*, NBC NEWS (Feb. 15, 2022), <https://www.nbcnews.com/news/us-news/-lot-people-need-help-soaring-electric-bills-leave-struggling-pay-rcna16347> [https://perma.cc/7XJF-Z28H].

77. John Haughey, *How to Understand and Contact Local Governments—Which Preside over 95% of the U.S. Population*, CQ (Apr. 6, 2016), <https://info.cq.com/resources/there-are-90000-local-governments-heres-why-you-need-to-know-who-runs-them> [https://perma.cc/2ZV7-N5MY].

positive development, but requiring them all to do so and then enforcing this requirement seems unworkable.

Rather, the task of identifying sites should chiefly be left to private applicants, in my view. Private companies have the ability and motivation to seek out land that is available from willing sellers or lessors, and to negotiate a price. Stokes wisely does not advocate the use of eminent domain for wind and solar farms, which would add a great deal of controversy⁷⁸—though eminent domain would still be needed for transmission lines, which necessarily cross over multiple properties; no landowner should be able to hold up the project.⁷⁹ Renewables developers are also well equipped to identify what transmission lines would meet their needs, and to determine what physical characteristics a site needs to be suitable for their projects.⁸⁰ Developers do this all the time, and the successful ones are proficient at it.⁸¹ Under the TCA, cell tower sites are chosen by their developers, not the government.⁸² Expecting government agencies to identify sites could be administratively cumbersome, sow local distrust, and subject the process to political interference by those who strongly favor or strongly oppose particular sites.

Moreover, government designation of sites for unpopular facilities has been shown to lead to ferocious local opposition.⁸³ Congress attempted this with both the Nuclear Waste Policy Act⁸⁴ (for the spent fuel from nuclear power plants) and the Low-Level Radioactive Policy Amendments Act.⁸⁵ State and local opposition mobilized so effectively that not a single gram of radioactive waste has been disposed of under either statute.⁸⁶ However, private companies

78. See, e.g., Perry Beeman, *GOP Lawmakers Look to Block Eminent Domain for Wind Farm Projects*, IOWA CAP. DISPATCH (July 31, 2020), <https://iowacapitaldispatch.com/2020/07/31/gop-lawmakers-look-to-block-eminent-domain-for-wind-farm-projects> [https://perma.cc/BR58-ZQ4X].

79. Alexandra B. Klass, *Takings and Transmission*, 91 N.C. L. REV. 1079, 1104 (2013).

80. Michelle Froese, *A Wind Developer's Guide to the Transmission Grid*, WINDPOWER (Sept. 14, 2016), <https://www.windpowerengineering.com/wind-developers-guide-transmission-grid> [https://perma.cc/6HUW-RER9].

81. Klass, *supra* note 79, at 1105.

82. *Information on Cell Tower Leasing and Development from Industry Experts*, CELLTOWERINFO.COM, <https://www.celltowerinfo.com/site-selection> [https://perma.cc/XM47-N49E].

83. MICHAEL B. GERRARD, *WHOSE BACKYARD, WHOSE RISK: FEAR AND FAIRNESS IN TOXIC AND NUCLEAR WASTE SITING* 103–07 (1994).

84. 42 U.S.C. § 10101.

85. 42 U.S.C. §§ 2021b–2021j.

86. GERRARD, *supra* note 83, at 70; Jacob Berman, *Wasting Away: America's*

have succeeded in building disposal facilities for low-level radioactive waste in Utah and Texas, without the benefit of any government siting process (though with the necessary federal and state permits),⁸⁷ and private companies are also now advancing projects for the storage of spent fuel in Texas⁸⁸ and New Mexico,⁸⁹ though both projects are facing local opposition. While wind and solar farms are not nearly as unpopular as nuclear waste, they can still engender serious opposition and litigation. At least some degree of local control—rather than having a project jammed down the throats of an unwilling community—seems important in securing approvals and ultimately getting projects built.⁹⁰

This was not always so. In a prior era, federal officials unilaterally selected sites for major projects. For example, the principal locations for the development and manufacture of nuclear weapons—Hanford, Washington; Los Alamos, New Mexico; Oak Ridge, Tennessee; Savannah River, South Carolina; and Rocky Flats, Colorado—were all selected swiftly, with little or no public consultation (or geologic study) by military officers or nuclear scientists between 1942 and 1951.⁹¹

There was a time when powerful local officials could almost unilaterally decide what facilities would be built and where, with little or no public consultation. The exemplar was Robert Moses, who was in charge of most road, bridge, tunnel, park, and public housing construction in New York City and much of the rest of New York state from the mid-1930s until the late-1960s.⁹² The “Moses era”—the

Dysfunctional System of Low-Level Radioactive Disposal, 3 SEATTLE J. ENV'T L. 271, 275-76, 285-86 (2013).

87. *Locations of Low-Level Waste Disposal Facilities*, U.S. NUCLEAR REG. COMM'N, (Mar. 12, 2020), <https://www.nrc.gov/waste/llw-disposal/licensing/locations.html> [<https://perma.cc/J9AD-Y5PR>].

88. Susan Montoya Bryan, *New Mexico Backs Texas in Opposing Nuclear Fuel Storage*, AP NEWS (Sept. 17, 2021), <https://apnews.com/article/business-environment-and-nature-texas-new-mexico-5963107ed241ad5e1a07c8217e691117> (last visited May 2, 2022).

89. Sammy Feldblum & Tovah Strong, *New Mexico Eyed for Major Nuclear Waste Storage Facility*, HIGH COUNTRY NEWS (Feb. 5, 2021), <https://www.hcn.org/articles/pollution-new-mexico-eyed-for-major-nuclear-waste-storage-facility> [<https://perma.cc/AN9S-BM57>].

90. See Ori Sharon, *Fields of Dreams: An Economic Democracy Framework for Addressing NIMBYism*, 49 ENV'T L. REP. NEWS & ANALYSIS 10264 (2019).

91. GERRARD, *supra* note 83, at 47-48.

92. ROBERT A. CARO, *THE POWER BROKER: ROBERT MOSES AND THE FALL OF NEW YORK* (1974).

ability of the government to ram through massive projects without public involvement—mostly ended with the enactment of the National Environmental Policy Act (NEPA) in 1970 and the other major federal and state environmental laws in the two decades that followed.⁹³ NEPA, the Endangered Species Act of 1973 (ESA), and other federal statutes have considerably slowed down many construction projects—including those involving both “brown” (fossil) and “green” (renewable) energy.⁹⁴

The most recent nationwide infrastructure program led by the federal government was the construction of the interstate highway system, which began in the mid-1950s and was basically completed in the early 1990s.⁹⁵ Though the federal Bureau of Public Roads sketched out the overall outlines of the system, with its east-west and north-south corridors, and the federal government paid ninety percent of the construction costs, the states and cities played the central roles in deciding the exact routes.⁹⁶ NEPA, once enacted, became a major impediment to the completion of some segments of the interstate system.⁹⁷

V. FEDERAL ROLE?

Stokes would bestow major approval authority for renewables upon one federal agency.⁹⁸ Under her proposal, “developers would only have to navigate one regulatory system to obtain siting permits.”⁹⁹ That would presumably be the system run by the centralized siting agency, which Stokes suggests be either FERC or the RTOs.¹⁰⁰ If we go in that direction, in my view the Department of Energy would be a better choice. FERC chiefly engages in economic regulation, and when it comes to electricity, it does so within the strictures imposed by the Federal Power Act (which, by the way,

93. Philip Weinberg, *SEQRA: Effective Weapon, If Used as Directed*, 65 ALB. L. REV. 315, 315 (2001).

94. Philip Rossetti, *R Street Policy Study No. 234: Addressing NEPA-Related Infrastructure Delays*, R STREET 1, 1 (July 2021), https://www.rstreet.org/wp-content/uploads/2021/07/FINAL_RSTREET234.pdf [<https://perma.cc/4XLF-6ZWW>].

95. Marcia Wendorf, *The Complex History of the U.S. Interstate Highway System*, INTERESTING ENG'G (Sept. 15, 2019), <https://interestingengineering.com/the-complex-history-of-the-us-interstate-highway-system> (last visited May 2, 2022).

96. MARK H. ROSE & RAYMOND A. MOHL, INTERSTATE: HIGHWAY POLITICS AND POLICY SINCE 1939 (3d ed. 2012).

97. *E.g.*, *Sierra Club v. U.S. Army Corps of Engineers*, 701 F.2d 1011 (2d Cir. 1983).

98. Stokes, *supra* note 1, at 1823

99. *Id.*

100. *Id.* at 1820–22.

leaves control of generating facilities—as opposed to transmission lines—to the states).¹⁰¹ The RTOs are in effect governed mostly by the electric utilities, which are not the entities we want in charge of this process, since the utilities' interests are not necessarily those of the public.¹⁰² The Department of Energy, in contrast, has expertise in a much broader array of energy issues.¹⁰³

However, there is a big problem with giving prime permitting authority to a federal agency—either FERC or the Department of Energy. If this agency needed to approve individual projects rather than only issue general guidelines, that could make those projects sufficiently federal to bring them within the ambit of NEPA,¹⁰⁴ Section 7 of the Endangered Species Act (ESA),¹⁰⁵ the National Historic Preservation Act,¹⁰⁶ and other federal laws. Projects on federal lands or waters, or receiving federal money, or being built by a federal agency such as the Tennessee Valley Authority, are already subject to those laws, but many other projects are not.¹⁰⁷ Being subject to these laws has the potential to greatly slow down project approval unless special provisions are enacted.¹⁰⁸ The Bureau of Land Management—the federal agency that approves the largest number of renewable energy projects—takes an average of three years to go through the NEPA process for a project, between the issuance of a notice of intent to prepare an environmental impact statement (EIS) and the issuance of the final EIS.¹⁰⁹ FERC takes about the same period of time.¹¹⁰ (To be fair, many factors external to NEPA delay the NEPA process.¹¹¹) Various methods could be attempted to shorten this process. For

101. 16 U.S.C. § 824(b).

102. Shelley Welton, *Rethinking Grid Governance for the Climate Change Era*, 109 CAL. L. REV. 209 (2021).

103. *About Us*, ENERGY.GOV, <https://www.energy.gov/about-us> [<https://perma.cc/TN3G-HJ7V>].

104. 42 U.S.C. § 4332(C).

105. 16 U.S.C. § 1536(a).

106. *Id.* § 306101.

107. C. H. Eccleston & B. D. Williamson, *Determining When NEPA Applies to Nonfederal Activities* 1, 2 (July 1996), https://digital.library.unt.edu/ark:/67531/metadc707542/m2/1/high_res_d/657359.pdf [<https://perma.cc/H55Y-PX2C>].

108. Rossetti, *supra* note 94, at 2–3.

109. CHARLES P. NICHOLSON, NAT. ASS'N OF ENV'T PROS., 2020 ANNUAL NEPA REPORT 10 (Nov. 2021), https://naep.memberclicks.net/assets/annual-report/NEPA_Annual_Report_2020.pdf [<https://perma.cc/PWM8-TBFJ>].

110. *Id.*

111. John C. Ruple, Jamie Pleune, & Erik Heiny, *Evidence-Based Recommendations for Improving National Environmental Policy Act Recommendations*, 46 COLUM. J. ENV'T L. 275, 304–22 (2022).

example, a generic EIS could be prepared for a class of projects (e.g., solar projects in western deserts), and then each project might be reviewed with a shorter supplemental analysis.¹¹² The ESA process could be conducted simultaneously with the NEPA process.

The BLM employed this method for its Western Solar Plan, but it had a long startup time. The NEPA process for the programmatic EIS for this plan took four years and two months.¹¹³ Specific projects were then approved in less than ten months.¹¹⁴

Once a programmatic EIS is completed, specific projects can be approved in less than one year, but the time to prepare the programmatic EIS is daunting. One way to avoid this problem would be if these types of projects were somehow exempted from NEPA. Congress has occasionally exempted projects from NEPA; it did so for the construction of a border wall between the United States and Mexico in a law called the Illegal Immigration Reform and Immigrant Responsibility Act of 1996, and during the Trump Administration, the use of this provision by the Department of Homeland Security was approved by the U.S. Court of Appeals for the Ninth Circuit in 2019.¹¹⁵ The border wall involved distinctive political issues, and there is no assurance that Congress would grant a similar exemption for renewable energy projects—or if it did, that the exemption would not also be available for fossil fuel projects. Exempting projects from NEPA, one of the nation's bedrock environmental laws, would lead to great controversy.

In order to speed up the NEPA and other federal approval processes for infrastructure projects, in 2015 Congress passed and President Obama signed Title 41 of the Fixing America's Surface Transportation Act, now commonly known as the FAST-41 program.¹¹⁶ For projects that require approvals by several different federal agencies, the program seeks to coordinate the reviews.¹¹⁷ It

112. *Id.*

113. The Notice of Intent to prepare an EIS was published on May 29, 2008. 73 Fed. Reg. 30908. The Notice of Availability of the draft EIS was published on December 17, 2010. 75 Fed. Reg. 78980. The Notice of Availability of the Final EIS was published on July 27, 2012. 77 Fed. Reg. 44267.

114. Herman K. Trabish, *BLM Fast Tracks Permitting for 3 Solar Projects Worth 440 MW on Federal Land*, UTIL. DIVE (June 3, 2015), <https://www.utilitydive.com/news/blm-fast-tracks-permitting-for-3-solar-projects-worth-440-mw-on-federal-land/400142> [<https://perma.cc/7TYW-BQXR>].

115. *In re Border Infrastructure Environmental Litigation*, 915 F.3d 1213 (9th Cir. 2019).

116. 42 U.S.C. § 4370m.

117. Nathan Eady, Christopher Kane, Christian Marsh, & Patrick Veasy,

aims to have the entire NEPA process completed within two years.¹¹⁸ The “Permitting Dashboard” established under the program displays the status of each covered project, and shows how long each step has taken.¹¹⁹ Of the five wind and solar projects that are shown on the dashboard as having completed the BLM approval process, two were completed in less than two years, one in two years five months, and two in more than four years.¹²⁰ Nine offshore wind projects are listed as “in progress.”¹²¹ For all of them the NEPA process is scheduled to take about two years (plus or minus two or three months), but we do not yet know whether this will actually be achieved.¹²² All in all, the FAST-41 process may be speeding up project approvals, but it is too early to know for certain.

Rather than putting projects that otherwise have no federal involvement into NEPA by giving approval power to a federal agency and further risking local antagonism by centering all power in Washington, I believe that a better approach would be to leave permitting authority with state or local agencies but impose certain federal restrictions on how those agencies may act. This method would not invoke NEPA, as federal agencies would not be making decisions on particular projects.

Some states are moving toward one-stop shopping for renewable energy facilities. In 2020, New York enacted the Accelerated Renewable Energy Growth and Community Benefit Act.¹²³ A new state agency established by this Act, the Office of Renewable Energy Siting (ORES), is in charge of issuing statewide regulations and then acting on all applications for renewable energy projects larger than twenty-

Streamlining the Federal Environmental Review Process: The Pros and Cons of FAST-41, NAT. RES. & ENV'T 2 (Summer 2020), <https://www.scsengineers.com/scs-white-papers/streamlining-federal-environmental-review-process-fast-41> [https://perma.cc/22MQ-8MMD].

118. *Id.* at 1.

119. For the Permitting Dashboard site, see *FAST-41 Covered Projects*, PERMITTING DASHBOARD, https://www.permits.performance.gov/projects/fast-41-covered?title=&term_node_tid_depth=All&term_node_tid_depth_1=2411&field_permitting_project_adpoint_administrative_area=All&field_project_status_target_id=3036&field_eo_mip_value=All [https://perma.cc/T2KM-H9BP].

120. *Id.*

121. *Id.*

122. *Id.*

123. N.Y. EXEC. LAW § 94-c; see also Michael B. Gerrard & Edward McTiernan, *New York's New Statute on Siting Renewable Energy Facilities*, 263 N.Y.L.J. 1, 1 (May 14, 2020).

five megawatts.¹²⁴ ORES must make its final decision on a permit application within one year of receiving a complete application.¹²⁵ Any judicial challenges must be filed within ninety days and go straight to the intermediate appellate court.¹²⁶ Municipalities are consulted and have a right to a hearing, but they do not have permitting authority.¹²⁷ Substantive municipal laws on these facilities are followed unless ORES finds them to be “unreasonably burdensome.”¹²⁸ Final permits must provide for host community benefits, such as utility bill discounts.¹²⁹ This New York law could provide a good model for other states.

VI. FUNDING AND INCENTIVES

Stokes suggests making federal funds contingent on states following the federal guidelines on siting processes and possibly other requirements, such as land restoration.¹³⁰ Eligibility requirements will clearly have to be set for federal funds, but it is not clear that following any particular siting process should be one of the requirements. The principal objective is building a large number of renewable projects quickly and adding more rules and limitations can only impede the process, while, in my view, providing only marginal benefits that do not warrant the delay that would be caused. Moreover, there is not now much federal money (other than tax incentives) available for the construction of new renewable energy projects, though if the Build Back Better law is ever enacted in something like the form proposed by President Biden, it would contain \$555 billion for clean energy.¹³¹

Stokes writes that “a policy that is directly tied to federal funding will likely garner more support than would a policy solely based on Commerce Clause authority and no reliance on financial

124. N.Y. EXEC. LAW §§ 94-c.2(h), 94-c.3.

125. *Id.* § 94-c.3(f).

126. *Id.* § 94-c.3(g).

127. *Id.* § 94-c.5(c)(ii), 94-c.6.

128. *Id.* § 94-c.5(e).

129. *Id.* § 94-c.5(f).

130. Stokes, *supra* note 1, at 1818, 1818 n.355.

131. *President Biden Announces the Build Back Better Framework*, WHITE HOUSE (Oct. 28, 2021), <https://www.whitehouse.gov/briefing-room/statements-releases/2021/10/28/president-biden-announces-the-build-back-better-framework/#:~:text=The%20framework's%20%24555%20billion%20investment,practices%20across%20lands%20and%20waters> [https://perma.cc/CVF5-7SX2].

incentives.”¹³² That is surely true, but it is no guarantee that all states will accept this money with the attached strings. Twelve states rejected the large amounts of federal money for the expansion of Medicaid that were available under the Affordable Care Act.¹³³ Many did so for ideological reasons that might also be at play in the realm of moving away from fossil fuels.¹³⁴ The traditional electric utilities also have important sway over many state governments, and many of them push back strongly against competition from renewable energy.¹³⁵

Most economists appear to agree that the best method for advancing the transition from a fossil fuel-based economy to one based on clean energy is through the imposition of a carbon tax.¹³⁶ If the tax were set high enough, it would render almost all coal-fired power plants uneconomical, and it would greatly discourage the construction of natural gas plants and spur many renewable energy projects.¹³⁷ Congress could impose such a tax, but enactment there seems very unlikely. Early drafts of the Build Back Better bill contained a Clean Energy Payment Program, which had some resemblance to a carbon tax on just the electric power industry, but that provision was removed at the insistence of Senator Joe Manchin

132. Stokes, *supra* note 1, at 1817.

133. *Status of State Action on the Medicaid Expansion Decision*, KFF, <https://www.kff.org/health-reform/state-indicator/state-activity-around-expanding-medicaid-under-the-affordable-care-act/?currentTimeframe=0&sortModel=%7B%22collId%22:%22Location%22,%22sort%22:%22asc%22%7D> [<https://perma.cc/E47X-BWP6>].

134. Ed Kilgore, *Ideology Is Still at the Heart of the Red-State Refusal to Expand Medicaid*, N.Y. MAG. (May 5, 2021), <https://nymag.com/intelligencer/2021/05/ideology-not-money-at-heart-of-refusal-to-expand-medicaid.html> (last visited May 2, 2022); Allison M. Baker & Linda M. Hunt, *Counterproductive Consequences of a Conservative Ideology: Medicaid Expansion and Personal Responsibility Requirements*, 106 AM. J. PUB. HEALTH 1181 (2016).

135. See generally LEAH CARDAMORE STOKES, *SHORT CIRCUITING POLICY: INTEREST GROUPS AND THE BATTLE OVER CLEAN ENERGY AND CLIMATE POLICY IN THE AMERICAN STATES* (2020).

136. Heather Long, *'This Is Not Controversial': Bipartisan Group of Economists Calls for Carbon Tax*, WASH. POST (Jan. 16, 2019), <https://www.washingtonpost.com/business/2019/01/17/this-is-not-controversial-bipartisan-group-economists-calls-carbon-tax> [<https://perma.cc/LHA5-6ZAP>]; PETER HOWARD & DEREK SYLVAN, INST. POL'Y INTEGRITY, *EXPERT CONSENSUS ON THE ECONOMICS OF CLIMATE CHANGE* (Dec. 2015), <https://policyintegrity.org/files/publications/ExpertConsensusReport.pdf> [<https://perma.cc/GK46-2PEX>].

137. Kathryn Cleary & Karen Palmer, *Carbon Pricing 201: Pricing Carbon in the Electricity Sector*, RES. FOR THE FUTURE (Aug. 20, 2020), <https://www.rff.org/publications/explainers/carbon-pricing-201-pricing-carbon-electricity-sector> [<https://perma.cc/8TNL-TKUM>].

of West Virginia.¹³⁸ States could impose a carbon tax, but that would have limited coverage and would encounter serious difficulties under the dormant Commerce Clause.¹³⁹ A nationwide renewable portfolio standard may be more plausible, but in the current political climate there can be no confidence that Congress will enact it.

The same can be said about the Stokes proposal. The current Congress—and certainly the one that seems likely to be elected in the 2022 election—has no inclination to pass the kinds of laws that are needed to address the climate crisis at anything approaching the massive and comprehensive scale that is needed. However, should a Congress be elected someday that is truly serious about climate change, it will be very useful for it to consider the Stokes proposal, perhaps with the modifications that I have suggested here. Meanwhile, and perhaps even then, central roles will be played by the states, including those that embrace renewables for economic rather than ideological or environmental reasons, such as Texas.

138. Kate Aronoff, *Biden's Incredible Shrinking Climate Plan*, NEW REPUBLIC (Oct. 21, 2021), <https://newrepublic.com/article/164098/biden-climate-plan-build-back-better-shrinking> [<https://perma.cc/2JA5-UXWQ>]; see generally NICHOLAS ROY, DALLAS BURTRAW, & KEVIN RENNERT, RES. FOR THE FUTURE, COST ANALYSIS AND EMISSIONS PROJECTIONS UNDER POWER SECTOR PROPOSALS IN RECONCILIATION (Oct. 2021), https://media.rff.org/documents/IB_21-15_cTjoFj.pdf [<https://perma.cc/HU3Q-DB37>].

139. See generally Darien Shanske, *State-Level Carbon Taxes and the Dormant Commerce Clause: Can Formulary Apportionment Save the World?*, 18 CHAP. L. REV. 191 (2014); Tyler Runstein, *Climate Change Regulation, Preemption, and the Dormant Commerce Clause*, 72 HASTINGS L.J. 1313 (2021).