

# Dislocating The Separation of Powers State ‘Thumb’ on The Biden Sustainability Initiatives & Law

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I. THE COMPLICATED UNDERSIDE OF U.S. SEPARATION OF POWERS REGARDING SUSTAINABLE INFRASTRUCTURE .....	757
II. CONSTITUTIONAL SEPARATION OF POWER BLOCKS NATIONAL CLIMATE POLICY .....	762
A. FEDERAL INCENTIVES FOR RENEWABLE ENERGY TO MITIGATE CLIMATE CHANGE.....	762
1. The Preeminence of Wind Power .....	762
2. Federal Tax Incentives for Renewable Energy .....	764
3. Conservation Easements .....	767
B. THE FEDERAL POWER ACT AND SUPREMACY: INVISIBLE LEGAL BARRIERS .....	769
C. POWER’S RELATIONSHIP TO CLIMATE WARMING AND MITIGATION .....	771
III. STATES BLOCK TRANSMISSION WIRES TO DELIVER NEW SUSTAINABLE POWER TO CONSUMERS IN OTHER STATES .....	777
A. STATES AND CITIES PROHIBIT SUSTAINABLE ENERGY TECHNOLOGY SITING ON LAND .....	777
B. EXPANSIVE LAND REQUIREMENTS FOR SUSTAINABLE ENERGY .....	780

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C. SUPREME COURT DECISION: NO PREEMPTIVE FEDERAL JURISDICTION .....	781
D. WIND POWER AND CONSUMERS DO NOT OVERLAP GEOGRAPHICALLY .....	782
E. EXCLUSIVE STATE AUTHORITY TO PERMIT NEW INTERSTATE TRANSMISSION LINES.....	788
1. No Effective Federal Preemption.....	788
2. National and International Implications.....	791
F. BIDEN’S 2021 INFRASTRUCTURE LAW AND 2022 INFLATION REDUCTION ACT .....	794
G. 2022 SUPREME COURT SIGNIFICANT RESTRICTION ON FEDERAL INTRUSION .....	797
IV. STATES AND CITIES PROHIBIT SUSTAINABLE ENERGY TECHNOLOGY SITING ON LAND .....	800
A. STATE/LOCAL COMPARED TO FEDERAL AUTHORITY OVER LAND .....	800
B. TRADITIONAL ZONING TECHNIQUES .....	802
1. “Structure” Height Restrictions.....	803
2. Historic By-Law Restrictions on Wind Turbines.....	804
C. AESTHETIC OVERLAY ZONES THWARTING SUSTAINABLE WIND POWER .....	807
V. IN THE WIND .....	811

# I. THE COMPLICATED UNDERSIDE OF U.S. SEPARATION OF POWERS REGARDING SUSTAINABLE INFRASTRUCTURE

The much-lauded advantage of the U.S. federalist legal system of separation of legal powers among separate levels of federal, state, and local government is credited with seeding innovation, experimentation, and diversity as a positive variable in the resilient American legal system. Now, U.S. separation of power within the U.S. system of law poses a legal barrier to addressing climate change or rapidly transitioning to sustainable infrastructure. Inferior levels of state and local government now are placing their legal ‘thumb’ on and are legally blocking implementation of the recently enacted Infrastructure Investment and Jobs Act (2021 Infrastructure Law) and the 2022 Inflation Reduction Act.<sup>1</sup> This article analyzes elements supporting these legal barriers and relevant precedent. Concerning this most important sustainability legislation in a generation, successful implementation matters for the planet. This article develops and carves out a route to work around and dislocate this local barrier with no change in current U.S. law.

The federalist U.S. legal system exercises regulatory power through a matrix of federal, state, and local levels of governments. Electric power is designated as one of the three most important inventions in history, and the most important invention in the last one-thousand years.<sup>2</sup> Moreover, the electric sector is the critical segment of the American and world economies to arrest climate change and successively transition to a sustainable planet.<sup>3</sup> Now, however, the U.S. federalist legal system frustrates implementing this national sustainable climate policy.

The unprecedented large infrastructure “American Jobs Plan” was enacted and sets in motion what President Biden calls a “once-in-a-generation investment” to modernize the U.S. electric sector with renewable power

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1. H.R. 3684, 117th Cong. (2021); H.R. 5376, 117th Cong. (2022).

2. James Fallows, *The 50 Greatest Breakthroughs Since the Wheel*, ATLANTIC (Nov. 2013), <https://www.theatlantic.com/magazine/archive/2013/11/innovations-list/309536/> [https://perma.cc/WQC4-Q44R] (explaining that electricity finished behind only the invention of the wheel and the invention of the movable type printing press, which was invented in China in 1041); see also Robert Lechêne, *Printing*, ENCYCLOPAEDIA BRITANNICA (Oct. 1, 2020), <http://www.britannica.com/EBchecked/topic/477017/printing/36836/The-invention-of-typography-Gutenberg-1450> [https://perma.cc/FFT7-KULJ].

3. BLOOMBERG PHILANTHROPIES, FULFILLING AMERICA’S PLEDGE: HOW STATES, CITIES AND BUSINESS ARE LEADING THE UNITED STATES TO A LOW-CARBON FUTURE 24, 51–55, (2018), <https://www.bbhub.io/dotorg/sites/28/2018/09/Fulfilling-Americas-Pledge-2018.pdf> [https://perma.cc/KDG4-SQPJ]; *Sources of Greenhouse Gas Emissions*, EPA (Aug. 5, 2022), <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions> [https://perma.cc/KQY6-KV43].

generation technology; and a few elements of the not-passed Build Back Better plan from 2021 morphed into an extension of renewable energy tax credits in the Inflation Reduction Act of 2022.<sup>4</sup> Despite federal law, local and state inferior levels of government significantly now de-rail this federal transition to climate-sensitive infrastructure:

- A 2022 study identified 121 local policies restricting new sustainable wind and solar projects in thirty-one states<sup>5</sup>
- An article in Forbes documents more than 300 recent local decisions from California to Vermont blocking wind projects;<sup>6</sup>
- All local cities and towns have constitutionally reserved power unilaterally to block the siting of new renewable energy projects addressing climate warming<sup>7</sup>
- States have exclusive power to block, and several are blocking, needed new transmission lines necessary to transmit and carry this renewable electricity for use by consumers<sup>8</sup>

While the White House stresses that its new Infrastructure Law will focus on “ensuring early coordination and effective communication across Federal agencies” to promote “efficient and timely reviews,” this misses the essential issue embedded in legal separation of U.S. powers.<sup>9</sup> The Constitution’s

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4. *Schumer-Manchin Deal Includes Renewable Energy Provisions, Including ITC, PTC Extensions*, NOVOGRADAC (July 28, 2022, 9:00 AM), <https://www.novoco.com/news/schumer-manchin-deal-includes-renewable-energy-provisions-including-itc-ptc-extensions> [<https://perma.cc/J6WU-QPGN>] [hereinafter *Schumer-Manchin Deal*]; Jim Tankersley, *Biden Details \$2 Trillion Plan To Rebuild Infrastructure and Reshape the Economy*, N.Y. TIMES (Mar. 31, 2021), <https://www.nytimes.com/2021/03/31/business/economy/biden-infrastructure-plan.html> [<https://perma.cc/9FEF-QUNJ>]. See *infra* Part V for discussion of these incentives and subsidies.

5. HILLARY AIDUN ET AL., OPPOSITION TO RENEWABLE ENERGY FACILITIES IN THE UNITED STATES 2 (Mar. 2022 ed.), [https://scholarship.law.columbia.edu/cgi/viewcontent.cgi?article=1186&context=sabin\\_climate\\_change](https://scholarship.law.columbia.edu/cgi/viewcontent.cgi?article=1186&context=sabin_climate_change) [<https://perma.cc/WZ7F-UT8D>].

6. Robert Bryce, *Wind Projects Rejected in Nebraska and Ohio, Wind Rejections Across U.S. Now Total 328 Since 2015*, FORBES (Apr. 29, 2022, 9:48 AM), <https://www.forbes.com/sites/robertbryce/2022/04/29/wind-projects-rejected-in-nebraska-and-ohio-wind-rejections-across-us-now-total-328-since-2015/?sh=751edac3bab3> [<https://perma.cc/7RBP-QGMV>].

7. See *infra* Section III.C.

8. See *infra* Section III.E.

9. *Fact Sheet: Biden Harris Administration Releases Permitting Action Plan To Accelerate and Deliver Infrastructure Projects on Time, on Task, and on Budget*, THE WHITE HOUSE (May 11, 2021), <https://whitehouse.gov/omb/briefing-room/2022/05/11/fact-sheet-biden-harris-administration-releases-permitting-action-plan-to-accelerate-and-deliver-infrastructure-projects-on-time-on-task-and-on-budget> [<https://perma.cc/84KA-ZWET>]; see *infra* Section III.E.

Supremacy Clause makes federal power superior to and preempts state and local power. One might assume that this solves all problems once the 2021 Infrastructure Law was enacted. The opposite is true. With respect to sustainable infrastructure, federalist power now exercised at the local and/or state levels freezes out necessary sustainable infrastructure. This inverts operation of supposed constitutional federal legal supremacy.

The Supreme Court interprets the Constitution to support local and state veto of sustainable infrastructure: Regarding federal versus state power over climate change, a major new 2022 decision of the Supreme Court fundamentally restricts federal executive branch authority over the electric sector of the economy.<sup>10</sup> This has larger international legal repercussions: This federalist form of government is replicated by a finite number of world nations; federalist systems include the most significant and economically successful non-Communist countries on five continents.<sup>11</sup> And where goes the United States, goes the world addressing sustainability and climate.

This article dissects how the Constitution separates, bifurcates, and ultimately frustrates American legal power controlling sustainable infrastructure: The federal government exercises minimal power over

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10. See generally *West Virginia v. EPA*, 142 S. Ct. 2587 (2022) (outlining scope of federal versus state power to regulate climate-related issues).

11. See *List of Countries by System of Government*, WIKIPEDIA, [https://en.wikipedia.org/wiki/List\\_of\\_countries\\_by\\_system\\_of\\_government](https://en.wikipedia.org/wiki/List_of_countries_by_system_of_government) [https://perma.cc/7TB2-KJRY]. The significant nations with federalist forms of government include:

- The United States (50 states, a federal district, 5 major unincorporated territories, 9 minor outlying islands, and 326 Indian reservations with limited sovereignty). *United States*, WIKIPEDIA (Aug. 18, 2022, 7:22 PM), [https://en.wikipedia.org/wiki/United\\_States](https://en.wikipedia.org/wiki/United_States) [https://perma.cc/9ZFW-DBP6].
- Canada (ten provinces and two territories). *Canada*, WIKIPEDIA (Aug. 18, 2022, 11:49 PM), <https://en.wikipedia.org/wiki/Canada> [https://perma.cc/2AGC-SEPR].
- Mexico (31 states). *Mexico*, WIKIPEDIA (Aug. 17, 2022, 10:35 AM), <https://en.wikipedia.org/wiki/Mexico> [https://perma.cc/TA72-UZC9].
- Brazil (26 states). *Brazil*, WIKIPEDIA (Aug. 15, 2022, 12:42 PM), <https://en.wikipedia.org/wiki/Brazil> [https://perma.cc/YEM5-6VLV].
- Germany (16 states). *Germany*, WIKIPEDIA (Aug. 16, 2022, 12:32 AM), <https://en.wikipedia.org/wiki/Germany> [https://perma.cc/2D4U-FYSH].
- Switzerland (26 cantons). *Switzerland*, WIKIPEDIA (Aug. 18, 2022, 12:43 PM), <https://en.wikipedia.org/wiki/Switzerland> [https://perma.cc/3WJP-QVRW].
- Argentina (23 provinces). *Argentina*, WIKIPEDIA (Aug. 16, 2022, 11:44 AM), <https://en.wikipedia.org/wiki/Argentina> [https://perma.cc/XSS5-WUCH].
- Australia (six states and ten territories). *Australia*, WIKIPEDIA (Aug. 17, 2022, 5:22 PM), <https://en.wikipedia.org/wiki/Australia> [https://perma.cc/VQ56-QQYS].
- India (28 states and eight territories). *India*, WIKIPEDIA (Aug. 17, 2022, 5:52 AM), <https://en.wikipedia.org/wiki/India> [https://perma.cc/V8YC-R62W].

location or land use of now-critical electric infrastructure technology.<sup>12</sup> The twenty-first century's new renewable wind and solar power technologies require a significantly greater amount of land to generate electric power than do traditional more dense fossil fuels used to produce electricity—as much as 1000% more land.<sup>13</sup> This reality creates two key legal bottlenecks within the exclusive control of inferior levels of government.

First, a legal bottleneck is created when several states prohibitively now exercise their exclusive authority to block the siting of any electric transmission and distribution lines to move and deliver additional sustainable power in the United States.<sup>14</sup> Second, a significant number of cities and states are using their constitutionally reserved land-use power to enact new 'aesthetic' zoning laws to zone-out and prohibit the siting of new renewable energy technologies.<sup>15</sup> Federal efforts to flex constitutional Supremacy Clause authority to preempt inferior state and local governments from foiling national energy and climate policy is blocked by federal courts.<sup>16</sup>

The most recent decision of the Supreme Court at the close of its 2022 session took a major new step fundamentally blocking federal agency discretion to intrude into constitutionally-reserved state authority regarding the electric power sector and/or climate change decisions reserved to the states.<sup>17</sup> The Supremacy Clause of the Constitution empowering federal government regulatory decisions now has little force over inferior-level state critical-path bottlenecks, frustrating deployment of sustainable renewable energy technologies and necessary infrastructure. This article dissects this sudden new legal chasm in the current separation of powers to address climate and the electric power sector and how this impacts restoring and preserving the sustainability and ecology of the planet.<sup>18</sup>

Part II sets the stage, examining electric sector technologies which are and will remain a prolific source of U.S. GHG emissions warming the climate. Section II.B examines extensive federal incentives for renewable infrastructure. Section II.C analyzes the U.S. Constitution and Supreme Court precedents that regulate electric power technology uniquely and differently than everything else in the U.S. economy. Section II.C analyzes resulting constitutional legal barriers and court precedent that prevent use of federal authority to site renewable energy generation technologies in the United

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12. *See infra* Section III.C.

13. *See infra* Section III.B.

14. *See infra* Section III.E.

15. *See infra* Section IV.I.

16. *See infra* Section III.C.

17. *West Virginia v. EPA*, 142 S. Ct. 2587, 2606 (2022).

18. *See infra* Part V.

States. Section II.D places the United States in the context of international climate warming mitigation goals.

Part III analyzes state control over land use to the exclusion of federal regulation. Section III.A documents how renewable power today requires as much as 1,000% as much land to generate the same amount of power as conventional use of fossil fuel power generation technologies. States exclusively control the siting of electric power transmission line technologies within or anywhere traversing their states. Several states now are employing their exclusive power to block necessary interstate transmission lines, the infrastructure necessary to move renewable power to consumers. Part III also details the legal failure to date of federal laws to preempt arbitrary exercise of state authority over power transmission infrastructure, analyzing decisions of federal circuit courts blocking the supremacy of federal jurisdiction.

Part IV shifts to state and local legal facility-siting jurisdiction under the U.S. separation of powers. It analyzes the large and growing number of hundreds of local ordinances that do not permit renewable power to be sited or operated. Such new local ‘aesthetic’ zoning techniques are contrasted with traditional local dimensional zoning regulation. Federal law has proven constitutionally unable to preempt such renewable power-restrictive state and local laws.

Part V analyzes the most profound U.S. infrastructure subsidies and changes in decades incorporated in the Biden Administration-enacted trillion-dollar Infrastructure Law and the 2022 Inflation Reduction Act, promoting new sustainable energy technology development. This massive new federal initiative does not effectively address either of the inferior-level state and local legal bottlenecks confronting important federal objectives.<sup>19</sup> This article concludes on a positive note, presenting a method to work around these legal bottlenecks to implement necessary sustainable technology and infrastructure without changing any U.S. law or enacting any additional legislation. The result can mitigate key U.S. power sector contributions to world climate change and warming.

Part II next analyzes the constitutional separation of power, federal supremacy doctrine, and the role of electric power and climate change tipping the planet’s environment over the critical warming tipping point.<sup>20</sup>

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19. See Lesley Clark et al., Editorial, *What the Infrastructure Deal Means for Energy*, E&E NEWS: ENERGYWIRE (July 30, 2021, 7:29 AM), <https://www.eenews.net/articles/what-the-infrastructure-deal-means-for-energy/> [<https://perma.cc/WV5U-N8J3>].

20. See *infra* Part II.

## II. CONSTITUTIONAL SEPARATION OF POWER BLOCKS NATIONAL CLIMATE POLICY

### A. FEDERAL INCENTIVES FOR RENEWABLE ENERGY TO MITIGATE CLIMATE CHANGE

#### 1. The Preeminence of Wind Power

Wind power is the key infrastructure bridge to address world climate. New sources of electric energy recently deployed in the United States in the most recent decade are dominated by wind power technology.<sup>21</sup> In 2012, wind energy in the United States was the most installed new electricity generation source that year, accounting for 43% of total new installations.<sup>22</sup> By 2015, more than half of new annual electric power generating capacity was wind energy.<sup>23</sup> In 2016, wind and solar amounted to 6.9% of all traditional still-operating U.S. electricity generation capacity.<sup>24</sup> Total annual electricity generation from wind electricity generation in the United States increased from about 6 billion kilowatt-hours (KWh) in 2000 to about 300 billion KWh in 2019—a 5000% increase in two decades.<sup>25</sup> The amount of wind power added each year from 2006 until 2020 is shown in Figure 1.<sup>26</sup>

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21. See *Wind Explained: Electricity Generation from Wind*, U.S. ENERGY INFO. ADMIN. (Mar. 30, 2022), <https://www.eia.gov/energyexplained/wind/electricity-generation-from-wind.php> [<https://perma.cc/CRV2-399V>]; *Wind Power Facts*, AM. CLEAN POWER ASS'N, <https://cleanpower.org/facts/wind-power/> [<https://perma.cc/H6QV-TYHK>].

22. *Energy Dept. Reports: U.S. Wind Energy Production and Manufacturing Reaches Record Highs*, U.S. DEP'T OF ENERGY (Aug. 6, 2013), <https://www.energy.gov/articles/energy-dept-reports-us-wind-energy-production-and-manufacturing-reaches-record-highs> [<https://perma.cc/Z33L-FX5X>].

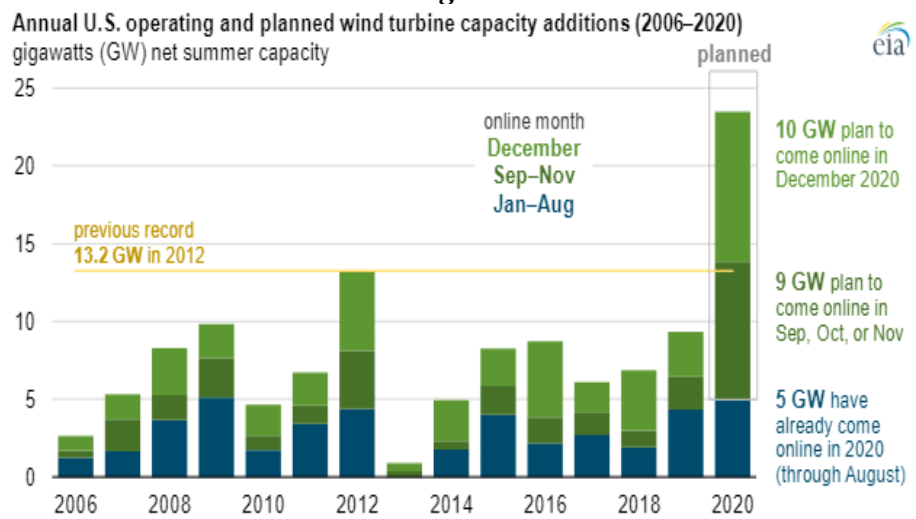
23. See Tim Shear, *Today in Energy: Scheduled 2015 Capacity Additions Mostly Wind and Natural Gas; Retirements Mostly Coal*, U.S. ENERGY INFO. ADMIN. (Mar. 10, 2015), <https://www.eia.gov/todayinenergy/detail.php?id=20292> [<https://perma.cc/AB3P-X3G2>].

24. ELECTRIC POWER MONTHLY WITH DATA FOR FEBRUARY 2017, U.S. ENERGY INFO. ADMIN. Tbls.1.1 & 1.1.A (Apr. 2017) [hereinafter ELECTRIC POWER MONTHLY], <https://www.eia.gov/electricity/monthly/> [<https://perma.cc/2SN8-DQX4>]; *Electricity Explained: Electricity in the United States*, U.S. ENERGY INFO. ADMIN. (July 15, 2022), <https://www.eia.gov/energyexplained/electricity/electricity-in-the-us.php> [<https://perma.cc/ZG74-26D4>].

25. Mary Pressler, *5 Quick Facts About Wind Power*, QUICK ELECTRICITY (Nov. 6, 2021), <https://quickelectricity.com/facts-about-wind-power/> [<https://perma.cc/6YDS-YCRW>]; *Wind Explained: Electricity Generation from Wind*, U.S. ENERGY INFO. ADMIN. (Mar. 30, 2022), <https://www.eia.gov/energyexplained/wind/electricity-generation-from-wind.php> [<https://perma.cc/2CP5-VK8L>].

26. Richard Bowers & Owen Comstock, *Energy Today: 2020 Could Be a Record Year for*



**Figure 1**<sup>27</sup>

With wind deployment increasing rapidly, Figure 2 shows the decrease in the levelized cost of wind energy during the prior two decades, decreasing from \$0.094/KWh (\$94/MWh (megawatt-hour)) to \$0.035/KWh (\$35/MWh). Wind power is forecast by the U.S. Department of Energy to be cheaper than electricity produced from natural gas by 2025, even without a continuing federal production tax credit incentive for wind.<sup>28</sup> Wind power in 2017 produced over 226 billion KWh per year in the United States, enough electricity to power about 17.5 million U.S. homes.<sup>29</sup> The levelized cost of generating electricity with wind will soon be the cheapest form of new electric energy.<sup>30</sup>

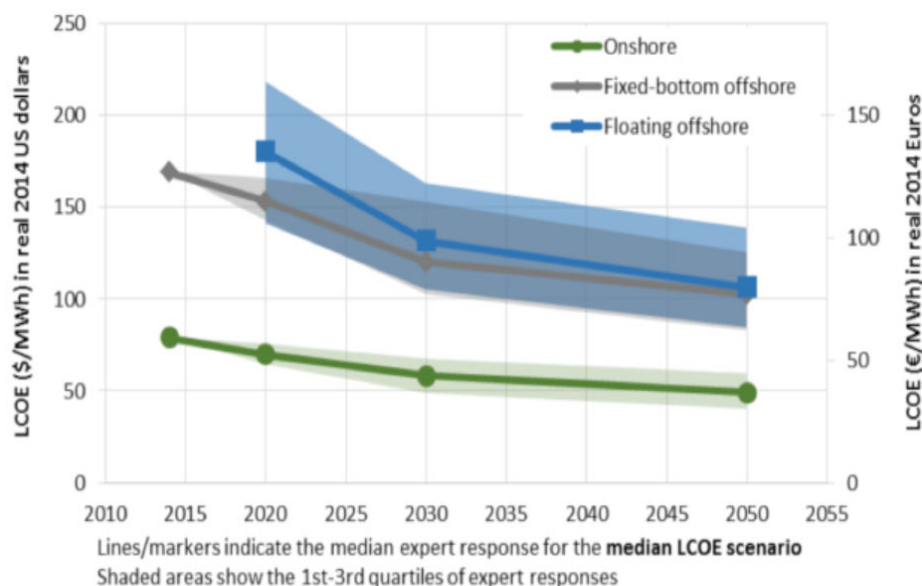
U.S. *Wind Turbine Installations*, U.S. ENERGY INFO. ADMIN. (Nov. 12, 2020), <https://www.eia.gov/todayinenergy/detail.php?id=45856#:~:text=EIA's%20November%202020%20Short%20Term,to%20reach%2010.3%25%20in%202021> [https://perma.cc/XWF2-F8S3].

27. *Id.*

28. See Christopher Martin & Justin Doom, *Wind Power Without U.S. Subsidy To Become Cheaper Than Gas*, BLOOMBERG BNA (Mar. 12, 2015). For more on the federal tax credits, see *infra* Section II.A.2.

29. See *U.S. Number One in the World in Wind Energy Production*, AM. WIND ENERGY ASS'N (Feb. 29, 2016), <https://cleanpower.org/news/u-s-number-one-in-the-world-in-wind-energy-product/> [https://perma.cc/Y857-M5CB]; see also *Wind*, INT'L ENERGY AGENCY (2020), <https://www.iea.org/reports/renewables-2020/wind> [https://perma.cc/VWN8-ZQVC].

30. See Eric Williams et al., *If We Keep Subsidizing Wind, Will the Cost of Wind Energy Go Down?*, PBS (Aug. 6, 2017, 10:39 AM), <https://www.pbs.org/newshour/science/keep-subsidizing-wind-will-cost-wind-energy-go> [https://perma.cc/P5WL-GQ96] (discussing how much more economically competitive wind energy is in comparison to fossil fuels).

**Figure 2: Recent and Future Levelized Cost of Wind Energy<sup>31</sup>**

## 2. Federal Tax Incentives for Renewable Energy

Renewable wind power technology deployment is encouraged by federal tax law<sup>32</sup> as well as encouraged by each of twenty-nine states that have enacted renewable portfolio standards subsidizing production of wind energy.<sup>33</sup> The U.S. Production Tax Credit (PTC) functions as a per-kilowatt-hour (kWh) credit for electricity generated by eligible renewable sources. First enacted in 1992, the PTC has been extended and modified in years since. The PTC was extended by Congress and phased down and out in 2020 after the PTC had previously expired at the end of 2014 and subsequently was revitalized.<sup>34</sup> For the PTC renewable project eligibility from 2017 until 2020, each year the credit value declined by 20% until there was a 60% reduction for projects begun in 2019.<sup>35</sup> However, at the end of December 2020, as part

31. Jon Weiner, *Wind Power Costs Reduced Dramatically*, Lawrence BERKELEY NAT'L LAB'Y (Sept. 20, 2016), <https://eta.lbl.gov/news/wind-power-costs-reduced-dramatically> [<https://perma.cc/CAC4-Z63X>].

32. See Steven Ferrey, *Counter-Intuitive Climate Forcing: Post Paris Agreement Corporate Incentives*, 43 VT. L. REV. 630, 646 (2019).

33. *Id.* at 660.

34. John Larson & Whitney Herndon, *Renewable Tax Extenders: The Bridge to the Clean Power Plan*, RHODIUM GRP. (Jan. 27, 2016), <http://rhg.com/notes/renewable-tax-extenders-the-bridge-to-the-clean-power-plan> [<https://perma.cc/LTL7-V45X>].

35. STEVEN FERREY, LAW OF INDEPENDENT POWER § 3:59.10 (Thomson-Reuters, 57th ed. 2022).

of other legislation, Congress extended the PTC at 60% of the full credit amount, or \$0.018 per kWh (\$18 per Mwh), for another year through December 31, 2021.<sup>36</sup>

An alternative federal tax incentive for renewable energy projects is the federal Investment Tax Credit (ITC), which initially provided a 30% tax credit of the capital investment upon completion of the renewable energy project.<sup>37</sup> The renewable ITC 30% tax credit was scheduled to decline in its percentage in 2020 and progressively decline thereafter, until stalled by the December 18, 2020 Covid-relief legislation,<sup>38</sup> and now it continues at a 26% ITC level.<sup>39</sup> While the PTC pays the renewable energy developer the PTC value for ten years based on renewable energy electricity production output, the ITC is realized in year one as a percentage of the capital investment in the renewable energy project.<sup>40</sup> Both the PTC and ITC were extended for a decade and bulked up to be substantially more generous for renewable wind power by the 2022 Inflation Reduction Act.<sup>41</sup>

While these two federal credits pertain only to specific renewable energy generation project technologies, including wind generation, there is another generic tax benefit that has strategic application to wind power generation that is location-specific as an economic development strategy. December 2017 tax law amendments added new Opportunity Zone incentives that offset capital gains, which could be utilized for renewable energy in any of the more than 8,700 designated U.S. Opportunity Zone geographic areas.<sup>42</sup> As specified later, many Opportunity Zones correspond to the less developed land areas where wind power is most available in the United States.<sup>43</sup> For renewable energy facilities, the Opportunity Zone capital gains tax incentive

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36. Richard Bowers, *U.S. Wind Energy Production Tax Credit Extended Through 2021*, U.S. ENERGY INFO. ADMIN. (Jan. 28, 2021), <https://www.eia.gov/todayinenergy/detail.php?id=46576> [<https://perma.cc/35Z9-6QGQ>].

37. I.R.C. § 48(a)(1)–(2) (2012); *see also* Ferrey, *supra* note 32, at 654 (“After the PTC phases out or is not renewed, renewable energy developers have the option of taking the ITC instead, which declines from 30% to 10% in 2021 and continues rather than phases out.”).

38. Ferrey, *supra* note 32, at 654

39. FERREY, *supra* note 35, at §§ 3:59.10, 3:59.40; Bowers, *supra* note 36.

40. *See* NAT’L RSCH. COUNCIL ET AL., *ELECTRICITY FROM RENEWABLE RESOURCES: STATUS, PROSPECTS, AND IMPEDIMENTS* 147–49 (2010) (explaining the applicability of PTC and the effectiveness of PTC and ITC).

41. Inflation Reduction Act of 2022, § 13101(d) (to be codified at 26 U.S.C. § 48(a)(5)(C)(ii)); §§ 13701, 13702 (to be codified at 26 U.S.C. §§ 45Y, 48E).

42. Tax Cuts and Jobs Act, Pub. L. No. 115–97, § 1400Z-2, 131 Stat. 2054, 2184 (2017) (codified as amended in I.R.C. § 1400Z-2); *Opportunity Zones Frequently Asked Questions*, INTERNAL REVENUE SERV., <https://www.irs.gov/newsroom/opportunity-zones-frequently-asked-questions#designated> [<https://perma.cc/J8YW-64R9>].

43. *See infra* at Section III D.

can be combined with the ITC and PTC federal credits.<sup>44</sup> The benefits of Opportunity Zone incentives are available to a taxpayer when he or she sells or disposes of an existing investment and, within 180 days thereafter, invests the proceeds into a qualified opportunity fund; that fund then invests in Opportunity Zone property, which can be either through direct investment in tangible business property or in newly-issued equity interests in a partnership or corporation operating a business in an Opportunity Zone.<sup>45</sup>

The Opportunity Zone incentive provides three key capital gain tax benefits to investors.<sup>46</sup> First, for each such investment, it allows federal capital gains taxes on the sold investment, if thereafter invested in qualified opportunity funds in Opportunity Zones, to be deferred until the 2026 tax year.<sup>47</sup> Second, if the taxpayer holds the new qualified opportunity fund for five years, the capital gain ultimately recognized as taxable income when that investment is sold could be reduced by 10%.<sup>48</sup> It may be further reduced by an additional 5% if the taxpayer holds the new investment in the Opportunity Zone for at least seven years.<sup>49</sup> Finally, if the taxpayer holds the investment for at least a decade, capital gains realized from the original sold investment before rolling that investment into an Opportunity Zone area, upon disposition of that subsequent investment, are free from federal income tax due to a step up in basis of the investment to its fair market value at the time of disposition.<sup>50</sup> In other words, all taxes on gain from both investments are forgone.

However, this utilization of these federal tax incentives, including the location-specific Opportunity Zone credit, can be blocked for use in their communities by any city or town by deploying location-specific zoning prohibitions.<sup>51</sup>

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44. *See Are Opportunity Zones Truly an “Opportunity” for Renewables?*, FTI CONSULTING (Mar. 28, 2019), <https://www.fticonsulting.com/emea/insights/articles/opportunity-zones-truly-opportunity-renewables> [<https://perma.cc/NC2B-EX8X>] (explaining that Opportunity Zone capital gains incentives are separate, but combinable, with existing tax credits for renewable energy projects such as ITC and PTC).

45. Tax Cuts and Jobs Act § 1400Z-2(d).

46. *Id.* § 1400Z-2(b).

47. *Id.* § 1400Z-2(b)(1).

48. *Id.* § 1400Z-2(b)(2)(B)(iii).

49. *Id.* § 1400Z-2(b)(2)(B)(iv).

50. *Id.* § 1400Z-2(c).

51. *See infra* at Section IV.C.

### 3. Conservation Easements

The federal government also provides federal tax benefits if a party places a conservation easement on lands they own, which easement does not necessarily preclude wind turbine or solar array placement and operation on that same land. Both of these sustainable technologies operate without need for regular attendants or intervention. Land could be conserved from development with conventional structures, while also capturing some of the wind or solar renewable resources on that land. Conservation easements are usually created by the conveyance of a deed that divides fee simple ownership of the property into possessory rights, retained by the grantor/landowner, and development rights, given to the grantee/easement holder.

Federal tax benefits are available to donors of conservation easements affecting federal income tax deductions, federal estate/gift tax deductions, and property tax relief. The Internal Revenue Code requires that there be donated (1) a qualified real property interest (2) to a qualified organization (3) exclusively for a conservation purpose.<sup>52</sup> If a conservation easement satisfies these requirements, the donor of the easement may receive a charitable income tax credit for the value of the easement.<sup>53</sup> The amount of a charitable contribution of a conservation easement is defined as “the fair market value of the perpetual conservation restriction at the time of the contribution.”<sup>54</sup>

Some estate tax benefits are also associated with the donation of qualified conservation easements, including, most broadly, the federal acknowledgment that property encumbered by a conservation easement is valued as restricted, rather than unrestricted, for estate valuation purposes.<sup>55</sup>

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52. I.R.C. § 170(h).

53. *Id.*

54. 26 CFR § 1.170A-14(h)(3)(i). This valuation must be verified in a qualified appraisal performed by a qualified appraiser, and the appraisal must be made no more than sixty days before the date of the conveyance of the easement and no later than the due date for the tax return in which the deduction is being claimed. Timothy Lindstrom, *Tax Notes: The Benefits of Conservation Easements*, MICH. B.J. (June 2000), <https://www.michbar.org/journal/Details/Tax-Notes--The-Tax-Benefits-of-Conservation-Easements?ArticleID=95> [<https://perma.cc/5XYC-YDSB>]. If the donation of a conservation easement increases the value of other property owned by the donor, the deduction for the easement shall be reduced by the increase in value of the other property. *Id.* A taxpayer who donates an easement or other personal/real property to a public charity or government agency may deduct its full fair market value, while deductions for donations of capital gain property are usually limited to thirty percent of the donor’s adjusted gross income in any given year, with the remaining value carried forward for up to five additional years. *Income Tax Incentives for Land Conservation*, LAND TRUST ALLIANCE, <https://www.landtrustalliance.org/topics/taxes/income-tax-incentives-land-conservation> [<https://perma.cc/LSA3-XJQU>] (last visited Aug. 21, 2022).

55. I.R.C. § 2055(f).

Section 2031(c) of the Internal Revenue Code provides an estate tax exclusion, capped at \$500,000 and reduced if the easement reduced the land's value by less than 30% at the time of the contribution, of up to 40% of the encumbered value of the land.<sup>56</sup> Post-mortem donations and donations by will are eligible, but such donations forego the opportunity for income tax deductions.<sup>57</sup>

States can also provide financial benefits for conservation restrictions on certain land that might otherwise be sought for wind project development. For example, Massachusetts requires that every conservation restriction be approved and certified by the state government and, if the restriction is to be held privately, by the local municipality as well.<sup>58</sup> Massachusetts provides a state tax credit for landowners donating qualifying conservation land to a municipality, the Commonwealth, or certain private nonprofit corporations organized for the purpose of land conservation.<sup>59</sup> In the case of a grant of a conservation restriction, "a portion of the value of the land that is subject to a qualified conservation [restriction] will be excluded from a person's gross estate at death."<sup>60</sup> Further, "these estate tax benefits come with no gift tax consequence since they also qualify for [a] charitable gift tax deduction."<sup>61</sup>

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56. I.R.C. § 2031(c); *see generally* Irby v. Comm'r, 139 T.C. 371 (2012); Belk v. Comm'r, 140 T.C. 1 (2013); Pollard v. Comm'r, 105 T.C.M. (CCH) 1249 (2013); Mohamed v. Comm'r, 103 T.C.M. (CCH) 1814 (2012); Scheidelman v. Comm'r, 105 T.C.M. (CCH) 1117 (2013).

57. I.R.C. § 2031(c).

58. *See* MASS. GEN. LAWS ch. 184, § 32; Jeff Pidot, *Reinventing Conservation Easements*, LINCOLN INST. OF LAND POL'Y (Apr. 2005), <http://www.lincolnst.edu/pubs/PubDetail.aspx?pubid=1010&URL=Reinventing-Conservation-Easements&Page=2> [<https://perma.cc/RT85-T63A>]. There is a requirement that public restriction tract indexes be created and filed with the register of deeds and indexing of these deeds must include a description of the restricted land, the name of the person or entity holding the restriction and the place where the instrument imposing the restriction can be found in the public records. § 33. No other state has as elaborate an approval process as that in Massachusetts, and most states have no such public registry.

59. Jay R. Peabody & Lawrence D. Hunt, *New Tax Incentives for Land Conservation*, PARTRIDGE SNOW & HAHN LLP (Feb. 2009), <https://www.psh.com/new-tax-incentives-for-land-conservation> [<https://perma.cc/GR84-RB7N>]. Under the Land Conservation Incentives Act (the Act), the benefits to qualifying taxpayers include the following:

[1] Gifts of land may be made by deed or conservation restriction as long as they are permanently protected; [2] [The t]ax credit is valued at 50% of the appraised fair market value of the gift; [3] [The t]ax credit is limited to \$50,000 per gift; [4] [The t]ax credit cannot exceed the donor's annual state income tax liability; however may be carried forward for [ten] consecutive years; and [5] The tax credit . . . may be taken irrespective of any charitable deductions claimed on federal income tax returns for the same qualified donations . . .

*Id.*

60. *Id.*

61. *Id.*

*B. THE FEDERAL POWER ACT AND SUPREMACY: INVISIBLE  
LEGAL BARRIERS*

Electricity enjoys a form of government regulation unparalleled elsewhere in the U.S. legal system. First, electric power is more regulated by multiple levels of government than any other industry in the United States and the world.<sup>62</sup> Second, regulatory authority of government over electric infrastructure is bifurcated among multiple levels of government in the U.S. federalist system. The Supreme Court repeatedly held that Congress meant to draw a “bright line,” easily ascertained and not requiring any case-by-case analysis, between state and federal jurisdiction,<sup>63</sup> and where there is federal authority, it preempts state regulation pursuant to the Constitution’s Supremacy Clause.<sup>64</sup>

As to that bifurcated regulation at different levels of government, the federal government, through the Federal Energy Regulatory Commission (FERC), exercises exclusive legal authority over wholesale and interstate financial transactions in electric power, pursuant to Sections 205 and 206 of the Federal Power Act,<sup>65</sup> which regulation was upheld by the Supreme Court.<sup>66</sup> These wholesale transactions in power<sup>67</sup> now are more than 40% of all U.S. power sales unlike prior to the year 2000, when they were only a non-significant small percentage.<sup>68</sup> The FERC also exercises exclusive jurisdiction over the “transmission of electric energy in interstate commerce” and over “all facilities for such transmission or sale of electric energy.”<sup>69</sup>

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62. See *Issues and Policy: Energy Grid*, EDISON ELEC. INST., <https://www.eei.org/issues-and-policy/energy-grid> [<https://perma.cc/SS2A-7R6X>] (discussing the high regulation of investor-owned electric power companies across federal and state levels).

63. *Fed. Power Comm’n v. S. Cal. Edison Co.*, 376 U.S. 205, 215–16 (1964) (“[A] bright line easily ascertained, . . . making unnecessary . . . case-by-case analysis.”).

64. *Nantahala Power & Light Co. v. Thornburg*, 476 U.S. 953, 963 (1986); *Miss. Power & Light Co. v. Miss. ex rel. Moore*, 487 U.S. 354, 371 (1988); *Entergy La., Inc. v. La. Pub. Serv. Comm’n*, 539 U.S. 39, 47 (2003); see also *New England Power Co. v. New Hampshire*, 455 U.S. 331 (1982) (illustrating the preemption of state regulation due to violation of the Federal Power Act and the Commerce Clause of the U.S. Constitution); cf. *Montana-Dakota Utilities Co. v. Nw. Pub. Serv. Co.*, 341 U.S. 246, 251 (1951).

65. 16 U.S.C. §§ 824d–824e.

66. *Pub. Util. Dist. No. 1 of Snohomish Cnty. v. FERC*, 471 F.3d 1053, 1058 (9th Cir. 2006), *vacated*, 547 F.3d 1081 (9th Cir. 2008).

67. See *supra* Section II.B.

68. STEVEN FERREY, *ENVIRONMENTAL LAW: EXAMPLES & EXPLANATION* 632 (9th ed. 2022).

69. 16 U.S.C. § 824(b); see, e.g., *Connecticut Light & Power Co.*, 71 FERC ¶ 61,035, ¶ 61,149 (1995); *Cent. Vt. Pub. Serv. Corp.*, 84 FERC ¶ 61,194, ¶ 61,973–75 (1998); *Niagara Mohawk Power Corp.*, 100 FERC ¶ 61,019, ¶ 61,042 (2002); *Entergy Servs., Inc.*, 120 FERC ¶ 61,020, ¶ 61,061 (2007); *Aquila Merch. Servs., Inc.*, 125 FERC ¶ 61,175, ¶ 61,926–27 (2008).

This federal jurisdiction does not include state regulation of retail transaction in power nor the physical hardware construction of transmission facilities themselves, unless they are on federal lands.<sup>70</sup> Under the Tenth Amendment and two centuries of court precedent applying it, local government exclusively exercises its police power over all electric facility land-use and siting authority.<sup>71</sup> Distribution of power, as opposed to the transmission of power,<sup>72</sup> is regulated by the states exclusively.<sup>73</sup>

State jurisdiction also is evolving. In the past two decades, 25% of U.S. states wholly or partially deregulated the retail sale of power in the state, commencing in 1997 in Massachusetts and Rhode Island, and then spreading to thirteen states, as shown in Figure 3.<sup>74</sup> Several of these deregulated states have moved their regulated utilities out of the business of generating power, in favor of having their utilities purchase power in the wholesale competitive market and then reselling at retail what they acquire to customers.<sup>75</sup> In a significant number of these thirteen deregulated states, the regulated monopoly utilities have divested their electric generation units to independent power companies that thereafter continue the operation of these units in wholesale markets.<sup>76</sup> The majority of new generation facilities are now constructed each year by “merchant” (unregulated) companies, rather than by regulated utilities.<sup>77</sup> And this trend is expected to continue with more

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70. See Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities, 76 Fed. Reg. 49,842 (Aug. 11, 2011) (codified at 18 C.F.R. pt. 35) (requiring nondiscriminatory access by all parties to transmission infrastructure). The federal government controls all permitting for development on federal lands. U.S. CONST. art. IV, § 3, cl. 2. The Property Clause gives Congress authority over federal property generally, and the Supreme Court has described Congress’s power to legislate under this Clause as “without limitations.” *Kleppe v. New Mexico*, 426 U.S. 529, 539 (1976).

71. *What FERC Does*, FERC, <https://www.ferc.gov/what-ferc-does> [<https://perma.cc/Z9LH-Z56A>].

72. FERREY, *supra* note 35, at § 5:10; FERREY, *supra* note 68, at 609; STEVEN FERREY, THE NEW RULES 23–24, 46–47 (Pennwell Publishers 2000) [hereinafter FERREY, THE NEW RULES].

73. *Pub. Util. Dist. No. 1 of Snohomish Cnty. v. FERC*, 471 F.3d 1053, 1058 (9th Cir. 2006), *vacated*, 547 F.3d 1081 (9th Cir. 2008); Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities, 76 Fed. Reg. at 49,842, 136 FERC ¶ 61,051 (2011).

74. FERREY, *supra* note 35, at § 10:12.

75. FERREY, THE NEW RULES, *supra* note 72, at 238–39.

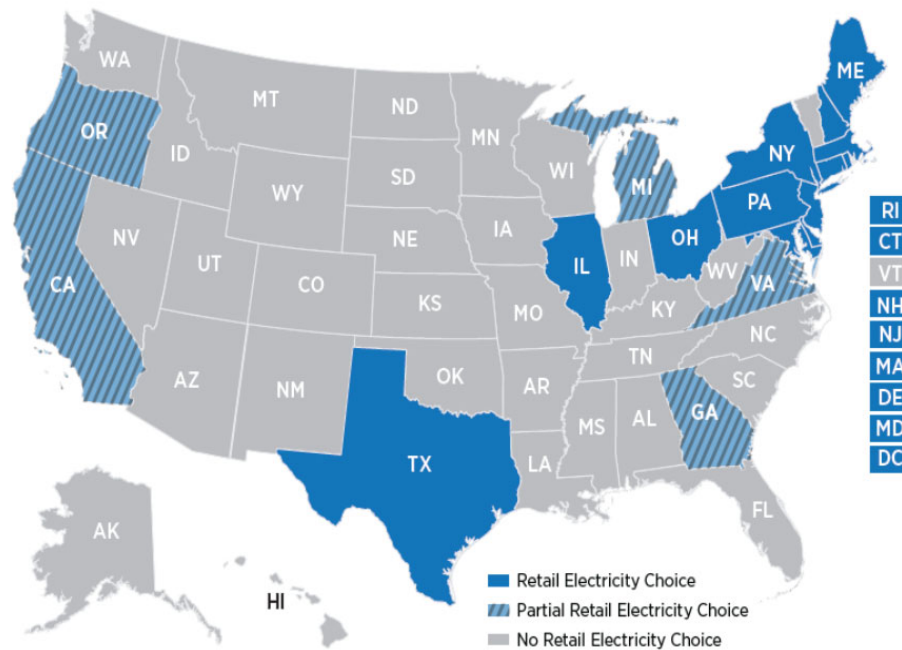
76. ENERGY INFO. ADMIN., THE CHANGING STRUCTURE OF THE ELECTRIC POWER INDUSTRY 2000: AN UPDATE 106 (2000).

77. “In the 1970s, vertically integrated utility companies (investor-owned, municipal, or cooperative) controlled over 95 percent of the electric generation in the United States . . . by 2004 electric utilities owned less than 60 percent of electric generating capacity. Increasingly, decisions affecting retail customers and electricity rates are split among federal, state, and new private, regional entities.” ELECTRIC ENERGY MARKET COMPETITION TASK FORCE, REPORT TO CONGRESS



distributed and independently-owned renewable generation continuing to proliferate.<sup>78</sup>

**Figure 3**<sup>79</sup>



### C. POWER'S RELATIONSHIP TO CLIMATE WARMING AND MITIGATION

Here is the challenge to U.S. law and policy: According to the United Nations Framework Convention on Climate Change (UNFCCC), in order to mitigate the most drastic effects of climate change, global warming must be

ON WHOLESALE AND RETAIL COMPETITION MARKETS FOR ELECTRIC ENERGY 10 (2007), [https://www.energy.gov/sites/default/files/oeprod/DocumentsandMedia/EPAAct\\_sec\\_1815\\_rpt\\_transmittal\\_letter\\_-\\_EPAAct\\_sec\\_1815\\_rpt\\_to\\_Congress.pdf](https://www.energy.gov/sites/default/files/oeprod/DocumentsandMedia/EPAAct_sec_1815_rpt_transmittal_letter_-_EPAAct_sec_1815_rpt_to_Congress.pdf) [https://perma.cc/C86Y-MRNS]; Steven Ferrey, *Sale of Electricity*, in *THE LAW OF CLEAN ENERGY: EFFICIENCY AND RENEWABLES* 217–218 (Michael B. Gerrard ed., 2011); see also *Scheduled 2015 Capacity Additions Mostly Wind and Natural Gas; Retirements Mostly Coal*, U.S. ENERGY INFO. ADMIN. (Mar. 10, 2015), [www.eia.gov/todayinenergy/detail.cfm?id=20292](http://www.eia.gov/todayinenergy/detail.cfm?id=20292) [https://perma.cc/TA22-CSZV].

78. See *U.S. Solar Market Insight*, SOLAR ENERGY INDUS. ASS'N (June 7, 2022), <http://www.seia.org/research-resources/us-solar-market-insight> [https://perma.cc/CSB8-GG9Q].

79. *Power Market Structure*, EPA (Feb. 25, 2022), <https://www.epa.gov/green-power-markets/power-market-structure> [https://perma.cc/G2DK-9X25].

kept under +1.5 degrees Celsius.<sup>80</sup> To accomplish this goal, there must be a rapid 45% reduction in global greenhouse gas emission from 2010 levels, and by 2050, global greenhouse gas emission must be reduced to net-zero additional emissions.<sup>81</sup> The United Nations agreed to and ratified three major international legal instruments addressing climate change: the UNFCCC, the Kyoto Protocol, and the Paris Agreement.<sup>82</sup>

The UNFCCC was enacted in 1992 at the Rio Earth Summit “as a way for countries to work together to limit . . . climate change, and to cope with [its] impact[.]”<sup>83</sup> The Kyoto Protocol was adopted in 1997 by 192 countries to achieve specific reductions in greenhouse gas (GHG) emissions.<sup>84</sup> Of note, the legally-mandated targets were only applied to three-dozen developed countries, omitting any requirement for more than 150 developing countries.<sup>85</sup>

To ratchet-up the effort, the Paris Agreement in 2015 included 186 participating countries that agreed to “mobilize stronger and more ambitious climate action”<sup>86</sup> to keep the “global average temperature to well below two degrees Celsius above pre-industrial levels.”<sup>87</sup> The Paris Agreement is a global legal instrument that compels this lower level of CO<sub>2</sub> emissions by requiring states to set annual Nationally Determined Contributions (NDCs) for greenhouse gas emission standards.<sup>88</sup> The NDCs are gradually progressive, meaning states are supposed to lower their greenhouse gas emissions progressively and continually from each year to the following year.<sup>89</sup>

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80. U.N. Framework Convention on Climate Change, *Report of the Conference of the Parties*, U.N. Doc. FCCC/CP/2015.10/Add.1, at 21–36 (2016); *The Paris Agreement*, UNFCCC, <https://unfccc.int/ndc-information/the-paris-agreement> [<https://perma.cc/BK5K-TELX>].

81. *For a Livable Climate: Net-Zero Commitments Must Be Backed by Credible Action*, UNITED NATIONS, <https://www.un.org/en/climatechange/net-zero-coalition> [<https://perma.cc/HG25-VQUP>].

82. *Climate Change*, UNITED NATIONS (Nov. 30, 2019), <https://perma.cc/HS72-P7CU>.

83. *International Agreements on Climate Action*, COUNCIL OF THE EUR. UNION (July 6, 2018), <https://perma.cc/8D2Q-5YHK>; *see generally Climate Change*, UNITED NATIONS (Nov. 30, 2019), <https://perma.cc/HS72-P7CU> (noting how the UNFCCC was ratified by 197 countries).

84. *Climate Change*, *supra* note 822.

85. Melissa Denchak, *Paris Climate Agreement: Everything You Need to Know*, NAT’L RES. DEF. COUNCIL (Dec. 12, 2018), <https://perma.cc/VAX9-8SMQ>.

86. *Climate Change*, *supra* note 822; U.N. Framework Convention on Climate Change, *supra* note 80, at 3 (Jan. 29, 2016).

87. U.N. Framework Convention on Climate Change, *supra* note 80, at 22.

88. *Id.*

89. *Id.*

Yet, only some of its provisions are legally binding and it does not include any binding emissions targets or financial commitments for any country.<sup>90</sup> As with the Kyoto Protocol, the Paris Agreement contains no enforcement mechanism.

Notwithstanding these three international arrangements and agreements, according to the Climate Action Network as of 2018 “[n]o single EU country [was] performing sufficiently in both ambition and progress in reducing carbon emissions.”<sup>91</sup> A report by the Universal Ecological Fund also found that 75% of the 184 Paris Agreement NDC pledges were “insufficient to slow climate change,” and some of the pledges had yet to be implemented; despite a world consensus three decades ago at the 1992 UNFCCC agreement on climate that GHGs need to be dramatically reduced, the world today emits approximately 60% more GHG emissions than were emitted in 1990.<sup>92</sup> A dramatic increase in rapid decarbonization by most countries is urgently necessary to meet these targets; the United States needs to do more, more rapidly.

The Glasgow COP26 held in November 2021 did not commit to what was required to arrest destabilizing climate change before it is too late, according to the leader of the United Nations.<sup>93</sup> There were warnings more than a decade before:

- In 2008, Dr. John Holdren, Director of the White House Office of Science and Technology Policy during the Obama Administration and an expert on climate warming, warned that unless GHG emissions

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90. *Paris Climate Agreement Q&A*, CTR. FOR CLIMATE AND ENERGY SOLS. (Nov. 30, 2019), <https://www.c2es.org/content/paris-climate-agreement-qa/> [<https://perma.cc/QQ2Z-ZWUY>].

91. *EU Countries off Target in Fighting Climate Change*, CLIMATE ACTION NETWORK EUROPE (May 17, 2018), <https://caneurope.org/eu-countries-off-target-in-fighting-climate-change/> [<https://perma.cc/5D5S-SMDY>] (summarizing the results of a report by the Climate Action Network); see also Dave Keating, *Winners and Losers in the Race To Meet the Paris Climate Goals*, DEUTSCHE WELLE (June 16, 2018), <https://www.dw.com/en/winners-and-losers-in-the-race-to-meet-the-paris-climate-goals/a-44277459> [<https://perma.cc/3UMC-SU55>] (quoting Climate Action Network Director Wendel Trio that “[w]hile all European Union countries signed up to the Paris Agreement, most are failing to work towards delivering on its objectives”).

92. Stuart Braun, *The Failure of the Paris Climate Pledges*, DEUTSCHE WELLE (Nov. 4, 2019), <https://www.dw.com/en/paris-climate-pledges-far-too-little-too-late/a-51110205> [<https://perma.cc/7HSK-J4JN>]; J.G.J. Olivier & J.A.H.W. Peters, *Trends in Global CO<sub>2</sub> and Total Greenhouse Gas Emissions, 2019 Report*, PBL NETH. ENV'T ASSESSMENT AGENCY, (May 2020), [https://www.pbl.nl/sites/default/files/downloads/pbl-2020-trends-in-global-co2-and-total-greenhouse-gas-emissions-2019-report\\_4068.pdf](https://www.pbl.nl/sites/default/files/downloads/pbl-2020-trends-in-global-co2-and-total-greenhouse-gas-emissions-2019-report_4068.pdf) [<https://perma.cc/C9A4-Y9MA>].

93. Laura Quiñones, *COP26 Closes With ‘Compromise’ Deal on Climate, But It’s Not Enough, Says UN Chief*, UN NEWS (Nov. 13, 2021), <https://news.un.org/en/story/2021/11/1105792> [<https://perma.cc/ZQP8-AWLBJ>].

were made to plateau by 2015, we would already have reduced our chances of avoiding climate catastrophes by fifty percent.<sup>94</sup>

- In 2009, the United Nations forecasted coming “tipping points that are irreversible within the time span of our current civilization.”<sup>95</sup>

Instead, the COP26 Glasgow Climate Pact in 2021 did agree on several reportorial agreements:<sup>96</sup>

- A year later at COP27 in 2022, for ninety-seven countries to report their progress towards more climate ambition;
- Backing away from proposed language to “phase-out...unabated coal power and inefficient subsidies for fossil fuels,” an amendment sponsored by China and India replaced this with language about “phasing down” coal use;
- With no set hard date or quantitative amount, more than forty of the world’s 200 countries, including major coal-users Poland, Vietnam, and Chile, agreed to shift away from coal use;
- Not beginning until 2030, 120 countries pledged to halt and reverse deforestation;
- With no set quantitative amount, more than 100 countries agreed to cut emissions of methane by 2030.

A detailed investigation published in 2021 by the Washington Post documents that many nations under-report their climate-damaging emissions and utilize faulty data as the basis for their climate pledges that is equivalent to as much as almost a quarter of the total anthropogenic contribution to climate warming.<sup>97</sup> A significant amount of under-reporting was due to over-

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94. Robin Chase, *Get Real on Global Warming Goals*, BOSTON GLOBE (Apr. 22, 2008), [http://archive.boston.com/bostonglobe/editorial\\_opinion/oped/articles/2008/04/22/get\\_real\\_on\\_global\\_warming\\_goals/](http://archive.boston.com/bostonglobe/editorial_opinion/oped/articles/2008/04/22/get_real_on_global_warming_goals/) [https://perma.cc/X88J-24C8].

95. *New Science and Developments in Our Changing Environment in 2009*, 2009 Y.B. Env’t Programme, U.N. Doc. UNEP/GC.25/INF/2, <https://wedocs.unep.org/20.500.11822/7759> [https://perma.cc/Y3TP-KNYM].

96. Quiñones, *supra* note 93.

97. Zoya Teirstein, *Report Exposes the Shaky Data Undermining the World’s Progress on Climate Change*, GRIST (Nov. 8, 2021), <https://grist.org/cop26/report-exposes-the-shaky-data-undermining-the-worlds-progress-on-climate-change/> [https://perma.cc/8J7Z-EFNB].

reporting CO<sub>2</sub>-absorbing contributions of local forests and systemic under-reporting of methane and fluorinated gas emission, each of which is a more powerful warming emission than CO<sub>2</sub>.<sup>98</sup> In 2021, International Energy Agency analysis showed that *even if* all announced pledges of all world nations were implemented in full and on time, the world would be headed for 2.1°C of warming by the end of the century, missing the goals of the Paris Agreement and hugely increasing climate risks from greater warming.<sup>99</sup>

Most recently, the climate forecast is even less optimistic: unprecedented worldwide efforts to limit GHG emissions could lead to a more moderate increase in temperature of an increases 1.6°C–1.8°C by 2040 and then mitigating to a 1.4°C–1.75°C increase by 2100.<sup>100</sup> See Figure 1 and its lower three lines. This could contain average world temperature increases to less than 2°C or perhaps 1.5°C as pledged in the Paris Agreement. However, without a Herculean effort, it is predicted that there will be an increase in temperatures over historic levels by 2040 of 1.75°C–2°C, growing to an increase of average temperature of 2.8°C–4.8°C by 2100. See the highest three projection lines in Figure 4.<sup>101</sup> These higher, latter levels are predicted to cause havoc with world systems.

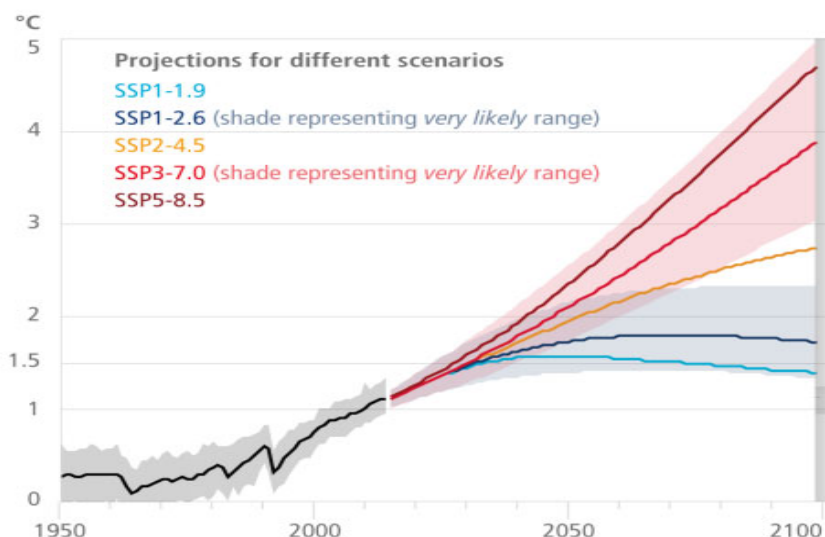
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98. *Id.*; Steven Ferrey, *Unforced Errors, Legal Fulcrum & International Climate*, 20 Minn. J.L. SCI. & TECH. 115 (2019); *see* Steven Ferrey, *The Second Element, First Priority*, 24 B.U. J. SCI. & TECH., 41 (2018) (regarding methane emissions).

99. INT'L ENERGY AGENCY, *WORLD ENERGY OUTLOOK 2021*, at 16 (2021).

100. INT'L PANEL ON CLIMATE CHANGE, *CLIMATE CHANGE 2022 IMPACTS, ADAPTATION AND VULNERABILITY*, at 16 (2022).

101. *Id.*

**Figure 4**<sup>102</sup>**(a) Global surface temperature change  
Increase relative to the period 1850–1900**

All of this climate challenge connects to the electric power sector. For any success addressing climate change, the electric power sector is the most significant contributing source of carbon dioxide emissions in the United States; more than 99% of anthropogenic greenhouse gas emissions result from fossil fuel use.<sup>103</sup> The electric power sector, because of its size, must constitute the foundation of any sustainable technology changes to limit GHG emissions, as set forth in a Michael Bloomberg–Jerry Brown (former New York Mayor and four-time California Governor, respectively) joint plan wherein the U.S. power sector is targeted to make more than half the reductions in global warming emissions,<sup>104</sup> although responsible for slightly more than one-quarter of U.S. GHG emissions.<sup>105</sup> A study by Resources for the Future forecasts that the electric power sector will shoulder 75% of

102. *Id.*

103. U.S. DEP'T OF ENERGY, QUADRENNIAL ENERGY REVIEW TRANSFORMING THE NATION'S ELECTRICITY SYSTEM: THE SECOND INSTALLMENT OF THE QER 3-5 (Jan. 2017), <https://www.energy.gov/sites/prod/files/2017/02/f34/Quadrennial%20Energy%20Review--Second%20Installment%20%28Full%20Report%29.pdf> [<https://perma.cc/99ED-WHRA>].

104. BLOOMBERG PHILANTHROPIES, FULFILLING AMERICA'S PLEDGE 5–6, 19 (2018), <https://www.bbhub.io/dotorg/sites/28/2018/09/Fulfilling-Americas-Pledge-2018.pdf> [<https://perma.cc/CE6L-VAUC>].

105. *Sources of Greenhouse Gas Emissions*, EPA (Aug. 5, 2022), <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions> [<https://perma.cc/9KW5-WE9F>].

national carbon reduction.<sup>106</sup> In order for this transition to a carbon-neutral world to be realized, there has been a recent significant increase over the past decade in U.S. investment in, and production of, renewable energy, including a rapid three-fold increase in wind power.<sup>107</sup>

### III. STATES BLOCK TRANSMISSION WIRES TO DELIVER NEW SUSTAINABLE POWER TO CONSUMERS IN OTHER STATES

#### A. STATES AND CITIES PROHIBIT SUSTAINABLE ENERGY TECHNOLOGY SITING ON LAND

State and local opposition to large wind and solar power generation facilities is increasing across the United States. A recent article in *Forbes* documents more than three-hundred recent decisions in communities across the United States from California to Vermont, where towns blocked large wind projects in the last five years, including:<sup>108</sup>

- Vermont's only recently then-pending wind project, which had proposed only a single wind turbine, was withdrawn after facing fierce local opposition.<sup>109</sup>

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106. Jesse Jenkins et al., *RFF Live | "Inflation Reduction Act of 2022: Modeling Major Climate and Energy Provisions"*, YOUTUBE (Aug. 12, 2022), [https://www.youtube.com/watch?v=9G1kTm\\_1GVI](https://www.youtube.com/watch?v=9G1kTm_1GVI).

107. Tik Root, *Renewable Energy in the U.S. Nearly Quadrupled in the Past Decade, Report Finds*, WASH. POST (Nov. 9, 2021), <https://www.washingtonpost.com/climate-solutions/2021/11/09/renewable-energy-solar-wind-biden/> [<https://perma.cc/GN7Z-6ZXW>] ("Wind, which started at a higher percentage than solar, saw an almost threefold increase. Three states — Iowa, North Dakota and Kansas — now produce at least half the amount of electricity they consume from wind and solar."); *see generally Renewable Energy*, SUSTAINABLE CMTY. DEV. GRP., <http://sustainablecommunitydevelopmentgroup.org/wordpress/issues/natural-resources/renewable-energy/#:~:text=%E2%80%9CRenewable%20energy%20is%20energy%20that,common%20sources%20of%20renewable%20energy> [<https://perma.cc/KER8-WV44>] (defining renewable energy as "energy that is derived from natural processes (e.g. sunlight and wind) that are replenished at a higher rate than they are consumed").

108. Robert Bryce, *Here's The List of 317 Wind Energy Rejections the Sierra Club Doesn't Want You To See*, FORBES (Sept. 26, 2021), <https://www.forbes.com/sites/robertbryce/2021/09/26/heres-the-list-of-317-wind-energy-rejections-the-sierra-club-doesnt-want-you-to-see/?sh=1841189e5bad> [<https://perma.cc/9LV4-JRZ2>] (discussing author's list of 317 local communities or government entities from Maine to Hawaii that have entirely rejected or restricted wind projects in the United States since 2015).

109. *Last Vermont Wind Project Ceases Development*, VERMONTBIZ (Jan. 16, 2020), <https://vermontbiz.com/news/2020/january/16/last-vermont-wind-project-ceases-development> [<https://perma.cc/6FLY-J3MM>].

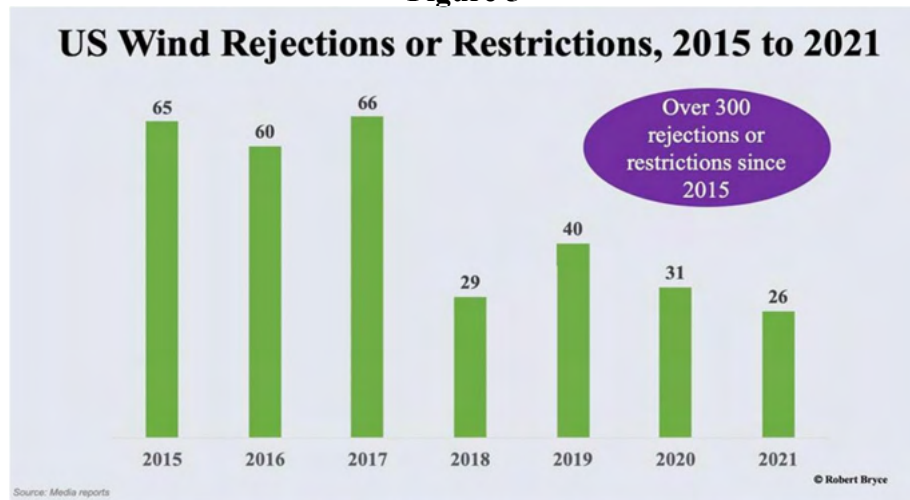
- A 2015 vote in Irasburg, Vermont, where citizens rejected by 274-9, a proposed five-megawatt wind project that was proposed to be built near their town.
- In 2016, residents in the town of Swanton, Vermont, rejected by a vote of 731-160 a seven-turbine wind project proposed to be built on a ridge line.
- In June 2021, the Shasta County, California, Planning Commission unanimously rejected the proposed 216-megawatt Fountain Wind project with up to seventy-one turbines standing 679 feet high near the town of Burney, California.
- In March 2021, the Select Board in Scituate, Massachusetts, ordered an already-built wind turbine to be shut down at night from mid-May to mid-October because its operation was disturbing residents' sleep.
- In April 2021, the Planning Board in Foster, Rhode Island, voted five to one to ban wind turbines in the town.
- In April 2021, Worth County, Iowa, enacted a temporary moratorium on new wind projects.

Figure 5 illustrates the number of blockages of wind power in the United States identified by one author in each of the last seven years.<sup>110</sup>

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110. *Id.*



Figure 5<sup>111</sup>

Since 2015, about 317 government entities from Maine to Hawaii have rejected or restricted wind ...

[+] ROBERT BRYCE

These state and local concerns regarding siting new renewable energy projects extends beyond wind projects to other renewable energy projects, including solar energy projects, which do not exhibit the noise, flicker, or vibration issues attributed to certain large wind turbine projects. Government agency rejections or withdrawals of permit applications for proposed large solar projects in 2021 occurred in Pennsylvania,<sup>112</sup> Montana,<sup>113</sup> Nevada,<sup>114</sup> Wisconsin,<sup>115</sup> and Virginia.<sup>116</sup> Rather than a ‘niche’ phenomenon, a separate 2022 systematic study of every state identified 121 local policies restricting new wind and solar projects in thirty-one different states, as well as 204 renewable energy projects that were contested in forty-nine of the fifty states,

111. Bryce, *supra* note 108.

112. *Id.* (“Mount Joy Township supervisors rejected a plan for a 1,000-acre solar project proposed by Florida-based NextEra Energy Resources that would have been Pennsylvania’s largest solar project.”)

113. *Id.* (“[A] permit for a 1,600-acre solar project was denied by the Butte-Silver Bow Zoning Board by a vote of 5-0.”)

114. *Id.* (“A proposed 850-megawatt project that aimed to cover 14 square miles north of Las Vegas with solar panels was pulled.”)

115. *Id.* (“Residents in Dane County are fighting the proposed 300-megawatt Koshkonong Solar Center.”); see also Editorial, *Massive Solar Farm Plan Angers Southern Wisconsin Residents*, U.S. NEWS (Aug. 29, 2021), <https://www.usnews.com/news/best-states/wisconsin/articles/2021-08-28/massive-solar-farm-plan-angers-southern-wisconsin-residents> [https://perma.cc/95WV-FWDY].

116. Bryce, *supra* note 108. The proposed projects would have affected thousands of acres near the town of Culpeper, Virginia.

demonstrating that state and local opposition to renewable energy facilities is widespread.<sup>117</sup>

These [local policies] include moratoria on wind or solar energy development; outright bans on wind or solar energy development; regulations that are so restrictive that they can act as de facto bans on wind or solar energy development; and zoning amendments that are designed to block a specific proposed project. While local governments at times enact legislation in response to a specific project proposal, . . . some municipalities have banned, placed moratoria on, or significantly restricted wind and solar energy development even absent a proposed project.<sup>118</sup>

#### B. EXPANSIVE LAND REQUIREMENTS FOR SUSTAINABLE ENERGY

Land requirements matter. State and local governments control land. Wind turbines require on average five to ten times more land area than a typical fossil-fuel-fired power plant to achieve similar power output:<sup>119</sup> “For the energy they produce, wind turbines have a disproportionately large footprint on land. At 72.1 square kilometers per terawatt, wind’s footprint is bigger than natural gas, coal, or petroleum (at 18.6, 9.7 and 44.7 [kilometers per terawatt,] respectively).”<sup>120</sup> One study determined that the comparative footprint for production of electricity by generation source required the most land for biomass and wind technology, and a smaller fraction of this land area for fossil, nuclear, or geothermal electricity production.<sup>121</sup>

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117. See AIDUN, *supra* note 5.

118. AIDUN, *supra* note 5, at 1.

119. See SAMANTHA GROSS, RENEWABLES, LAND USE, AND LOCAL OPPOSITION IN THE UNITED STATES 3–4 (2020), [https://www.brookings.edu/wp-content/uploads/2020/01/FP\\_20200113\\_renewables\\_land\\_use\\_local\\_opposition\\_gross.pdf](https://www.brookings.edu/wp-content/uploads/2020/01/FP_20200113_renewables_land_use_local_opposition_gross.pdf) [<https://perma.cc/9XFH-GXUW>].

120. Dustin Solberg, *Wind’s Big Footprint: Clean Energy Still Needs Safeguards for Nature*, NATURE CONSERVANCY: COOL GREEN SCI. (Nov. 29, 2017), <https://blog.nature.org/science/2017/11/29/winds-big-footprint-clean-energy-still-needs-safeguards-for-nature/> [<https://perma.cc/2ELQ-JEBA>].

121. Uma Outka, *The Renewable Energy Footprint*, 30 STAN. ENV’T L.J. 241, 249, 243 n.7 (2011) (citing Robert I. McDonald et al., *Energy Sprawl or Energy Efficiency: Climate Policy Impacts on Natural Habitat for the United States of America*, PLOS ONE 4(8): e6802, 2 figs.1, 4, & 3 (2009)). Land required was biomass (134,270 acres), wind (17,810 acres), hydropower (13,334 acres), petroleum (11,048 acres), solar thermal (3,787 acres), coal (2,565 acres), geothermal (1,847 acres), and nuclear power (585 acres).

A reason why wind power occupies more land area relative to its effective power output is that a wind turbine does not realize its full rated capacity because it only operates less than half the hours of the year and sporadically when wind speed is sufficient.<sup>122</sup> On land in the United States, wind capacity factors range from 0.26 to 0.52 of full generation capacity; the average 2019 capacity factor for projects built between 2014 and 2017 was 41.9% and the fleetwide average capacity factor was 35%.<sup>123</sup> In the United Kingdom, the wind capacity factor ranged from a low of 21.5% in 2010 to a high of 27.9% in 2013.<sup>124</sup> Intermittent power generation that already requires significant space over areas of land, with an intermittent lower average capacity factor of its operation, needs to occupy additional land to match the power output of hydroelectric, nuclear, or fossil-fired power generation. Solar power, with even lower capacity factors, requires more land than wind power.

### C. SUPREME COURT DECISION: NO PREEMPTIVE FEDERAL JURISDICTION

It is well-settled that zoning for land use is among the “police powers” that states and municipalities retain under constitutional Tenth Amendment authority.<sup>125</sup> There is no federal authority over land and land use unless that land is federally owned or the land’s use is instrumental in activities in interstate commerce.<sup>126</sup> Moreover, there is no area of energy that is more thoroughly regulated than civilian use of nuclear energy.<sup>127</sup> The Supreme Court recently revisited and reiterated the law deferring to state authority on certain land-use matters related to energy.

The Supreme Court considered whether the federal Atomic Energy Act (AEA) preempts the Commonwealth of Virginia’s outright ban on the mining of uranium on land and its land use within the borders of the Commonwealth

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122. See *id.* at 249 (describing wind energy as inherently intermittent). See, e.g., *Connecticut DPUC v. FERC*, 569 F.3d 477, 479 (D.C. Cir. 2009) (defining capacity not as “electricity itself” but as the “ability to produce it when necessary”).

123. CTR FOR SUSTAINABLE SYS., UNIV. OF MICH., WIND ENERGY FACTSHEET 1 (2021), <http://css.umich.edu/factsheets/wind-energy-factsheet> [<https://perma.cc/9RDF-RSFS>]; see also Bowers & Comstock, *supra* note 26.

124. *Id.*

125. See generally *Euclid v. Ambler Realty Co.*, 272 U.S. 365 (1922).

126. *Hodel v. Va. Surface Mining and Reclamation Ass’n*, 452 U.S. 264, 268 (1981) (holding that the Commerce Clause, local police power, and Tenth Amendment are not violated by federal restrictions on coal mining near agricultural lands that produce food that could be in interstate commerce). Cf. *New York v. United States* 505 U.S. 144, 149 (1992) (finding that the federal government cannot compel state legislatures to enact legislation).

127. See *FERREY*, *supra* note 68, at 611–16.

in *Virginia Uranium, Inc. v. Warren*.<sup>128</sup> The Court noted in its plurality decision that while it might be appropriate to examine state legislative intent in enacting a law that prohibited something already regulated by the federal government, such examination was not undertaken by the Court if the regulated matter did not fall under state authority.<sup>129</sup> The plurality opinion was written by Justice Gorsuch and chose not to examine or discern true state legislative purpose for the regulation, instead deferring to state discretion given all the difficulties of examining a state legislature's intent in a statute.<sup>130</sup> The Court's plurality opinion tracks the lack of federal preemption found by the Court in *Pacific Gas and Electric Co. v. State Energy Resources Conservation & Development Commission*, finding no federal preemption of California's economic and police power prohibition of proposed nuclear power generation facilities.<sup>131</sup>

The Supreme Court in *Virginia Uranium* held there was no federal preemption, explaining that while the AEA "gives the Nuclear Regulatory Commission significant authority over the milling, transfer, use, and disposal of uranium, as well as the construction and operation of nuclear power plants," the federal statute "leave[s] untouched the States' historic authority over the regulation of mining activities on private lands within their borders."<sup>132</sup> The dissent, written by Chief Justice Roberts and joined by Justices Breyer and Alito, points out the statutory requirement of the Atomic Energy Act, which recognizes that states continue to have authority "to regulate activities for *purposes* other than protection against radiation hazards."<sup>133</sup> The majority opinion, the concurring opinion, and the dissent in this most recent Supreme Court opinion regarding federal preemption of state energy-related land use all agreed that federal implied preemption of power plant siting is limited and constrained.

#### D. WIND POWER AND CONSUMERS DO NOT OVERLAP GEOGRAPHICALLY

Power is only usable when delivered to users over a copper wire network; transmission facilities for movement of power are a necessary and essential

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128. *Va. Uranium, Inc. v. Warren*, 139 S. Ct. 1894, 1900 (2019).

129. *Id.* at 1904–05.

130. *Id.* at 1904–07.

131. *Pac. Gas & Elec. Co. v. State Energy Res. Conservation & Dev. Comm'n*, 461 U.S. 190, 222–23 (1983).

132. *Va. Uranium, Inc.*, 139 S. Ct. at 1900.

133. *Id.* at 1920 (Roberts, C.J., dissenting) (emphasis in original) (quoting 42 U.S.C. § 2021(k)).

element of electric power.<sup>134</sup> The high-voltage transmission network is recognized as the most important engineering feat of the twentieth century.<sup>135</sup> Congress enacted the Federal Power Act in 1935, which granted the Federal Power Commission—now FERC—authority over wholesale electric power transactions as well as interstate transmission and sale of power.<sup>136</sup> The Federal Power Act provides federal jurisdiction “to the transmission of electric energy in interstate commerce and to the sale of electric energy at wholesale in interstate commerce” with the exception of “facilities used for the generation of electric energy or over facilities used in local distribution or only for the transmission of electric energy in intrastate commerce.”<sup>137</sup> The Federal Power Act clarified that if the electric energy is “transmitted from a state and consumed at any point outside” that state, then the electric energy is transmitted in interstate commerce.<sup>138</sup> Alaska and Hawaii are geographically isolated and not proximate to the other forty-eight states; they do not engage in interstate transactions and, therefore, are not subject to FERC’s interstate Commerce Clause authority.

The transmission grid is comprised of the approximately 4,800 interconnected power generation resources in the United States; the high-voltage transmission network at 230 kV and higher kV comprises 167,000 miles of transmission lines in America.<sup>139</sup> In the United States, there is an eastern interconnection, a western interconnection, and a separate largely disconnected interconnection that encompasses most but not all of Texas, as displayed in Figure 6; there is minimal interconnection between these three U.S. continental grids.<sup>140</sup>

The U.S. electric transmission and distribution system interconnects service instantaneously throughout the entire continental United States with the exception of most of Texas which has chosen to remain independent of

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134. For more on distributed generation options, see Steven Ferrey, *Exit Strategy: State Legal Discretion to Environmentally Sculpt the Deregulating Electric Environment*, 26 HARV. ENV’T L. REV. 109 (2002).

135. Mason Willrich, *Electricity Transmission Policy for America: Enabling a Smart Grid, End to End*, 22 ELEC. J. 77, 77 (2009).

136. *Id.*

137. 16 U.S.C. §§ 824(b)(1)–(2).

138. 16 U.S.C. § 824(c).

139. STAN MARK KAPLAN, CONG. RSCH. SERV., R40511, ELECTRIC POWER: TRANSMISSION BACKGROUND AND POLICY ISSUES (2009), [https://digital.library.unt.edu/ark:/67531/metadc700834/m1/1/high\\_res\\_d/R40511\\_2009Apr14.pdf](https://digital.library.unt.edu/ark:/67531/metadc700834/m1/1/high_res_d/R40511_2009Apr14.pdf) [<https://perma.cc/R4DD-EYXS>].

140. See U.S. Energy Info. Admin., *U.S. Electric System is Made Up of Interconnections and Balancing Authorities*, TODAY IN ENERGY (July 20, 2016), <https://www.eia.gov/todayinenergy/detail.php?id=27152> [<https://perma.cc/D6ZS-JKPU>].

the interconnected federal transmission system.<sup>141</sup> In 1935, with the intent to avoid Federal Power Act regulation, Texas opted to isolate its electricity from interstate commerce and has been able to do so ever since, even with minor interconnections to the Eastern Interconnection, thus avoiding FERC jurisdiction.<sup>142</sup> In Texas, its wholesale electric power and transmission sector is not regulated by FERC. It is regulated by the Electric Reliability Council of Texas (ERCOT) and has repeatedly fought against its deemed interconnection to the national grid.<sup>143</sup>

Traditionally, a fossil fuel energy source, such as natural gas, oil, or coal, is transported to where society chooses to site a fossil-fuel-fired power plant in order to take advantage of access to cooling water for steam turbines combusting that fuel and for close access to where consumers demand power.<sup>144</sup> “Natural gas can be transported by pipelines, coal by railroads and barges, and oil by pipelines, barges, and tankers.”<sup>145</sup> In noted legal contrast, the Natural Gas Act grants FERC unilateral sole legal jurisdiction to issue state certificates of public convenience and necessity (CPCNs) for interstate pipelines and issue rights to exercise eminent domain.<sup>146</sup> Traditionally, the fossil fuel comes to the place of the prime mover power generation technology for its combustion to produce power in close proximity to where customers live and consume.

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141. *Id.*

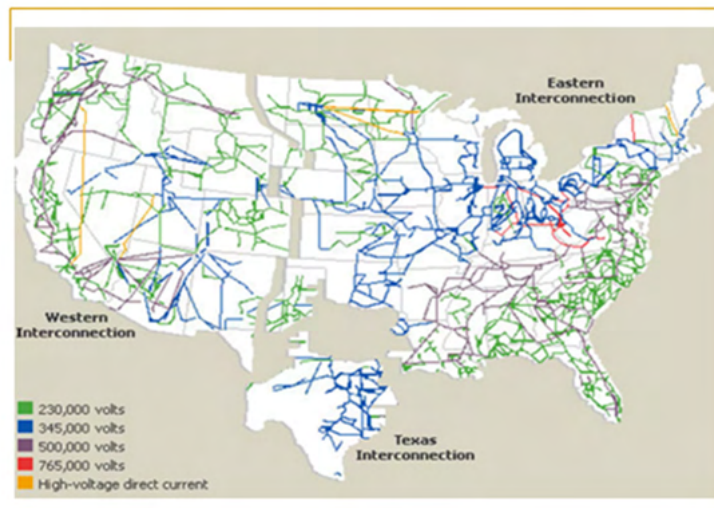
142. Jared M. Fleisher, *ERCOT'S Jurisdictional Status: A Legal History and Contemporary Appraisal*, 3 TEX. J. OIL GAS & ENERGY L. 5, 8 (2007). The ERCOT transmission system operates at 15 different voltage levels with limited power transactions between these three major interconnections. Craig Cano, *Efficiency Should Be Viewed as Key Part of Entire Delivery System*, *Wellinghoff Says*, ELEC. UTIL. WEEK, Dec. 13, 2010, at 18–19. For more detail on ERCOT, see FERREY, *supra* note 35, § 5:11, at p. 5–46.

143. Fleisher, *supra* note 142, at 8.

144. Paul L. Joskow, *Facilitating Transmission Expansion To Support Efficient Decarbonization of the Electricity Sector 2* (Mass. Inst. Tech. Ctr. for Energy & Env't Pol'y Rsch., Working Paper No. CEEPR WP 2021-009, 2021), <https://ceepr.mit.edu/wp-content/uploads/2021/09/2021-009.pdf> [<https://perma.cc/367R-SRC8>].

145. *Id.*

146. *Minisink Residents for Env't Pres. Safety v. Fed. Energy Regul. Comm'n*, 762 F.3d 97, 106 (D.C. Cir. 2014) (discussing FERC siting and eminent domain authority in relation to interstate natural gas pipelines); *Schneidewind v. ANR Pipeline Co.*, 485 U.S. 293, 306–08 (1988) (noting that the Natural Gas Act preempts law requiring authorization from the state Public Service Commission regarding issuance of securities).

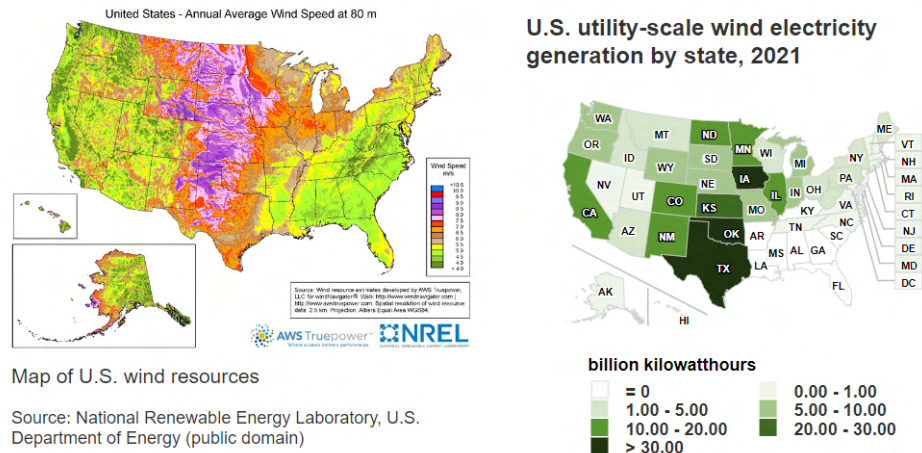
**Figure 6: U.S. Transmission Interconnections<sup>147</sup>**

Wind power generation raises fundamentally different land-use and locational considerations. Since wind follows its own course naturally and cannot be moved much by human intervention,<sup>148</sup> wind turbines must come to the wind and be sited at the best natural wind sites with the most powerful wind speeds to capture wind efficiently as shown in Figure 7. This also characterizes several other renewable power generations resources such as solar, geothermal, and hydro power, which can only be utilized where on the Earth they occur abundantly.<sup>149</sup>

147. *Map of United States Transmission Grid*, GLOB. ENERGY NETWORK INST., [http://www.geni.org/globalenergy/library/national\\_energy\\_grid/united-states-of-america/americanationalelectricitygrid.shtml](http://www.geni.org/globalenergy/library/national_energy_grid/united-states-of-america/americanationalelectricitygrid.shtml) [https://perma.cc/78GE-LVBC].

148. See generally *Straight-Line Winds vs. Tornado: What's the Difference?*, NAT'L WEATHER SERV. (July 13, 2013), [https://www.weather.gov/iwx/2013\\_straight-line\\_winds\\_vs\\_tornado](https://www.weather.gov/iwx/2013_straight-line_winds_vs_tornado) [https://perma.cc/A5LG-WS2U] ("The source for damaging winds is well understood and it begins with the downdraft. As air rises, it will cool to the point of condensation where water vapor forms tiny water droplets, comprising the cumulus cloud we see. As the air continues to rise further condensation occurs and the cloud grows. Near the center of the updraft, the particles begin to collide and coalesce forming larger droplets. This continues until the rising air can no longer support the ever-increasing size of water drops. Cold air begins to descend from the middle and upper levels of a thunderstorm (falling at speeds of less than 20 miles an hour).").

149. Joskow, *supra* note 144, at 2 ("[T]he earliest developments in high voltage transmission technology were associated with gaining access to 'remote' hydroelectric locations.").

**Figure 7: Wind Power Location and Population Location<sup>150</sup>**

The power generation technology must come to and locate at the location of that natural renewable resource to exploit the sustainable power there that cannot be otherwise relocated. For example, the best wind resources located in the center of the United States in the plains states are not near urban electric load centers further to the east.<sup>151</sup> Therefore, new electric transmission infrastructure must move that power from its point of existence and capture to where U.S. consumers and businesses are located in cities that were established long before modern wind turbines and renewable solar photovoltaic panels were in wide use to produce electric power.<sup>152</sup> Federal renewable energy policy was upheld by the Supreme Court forty years ago.<sup>153</sup>

Wind power capture requires expansive new power transmission lines to reach and transmit power from remote sites where wind is strong to places where consumers need and demand power. Wind power in the high-wind areas of the United States great plains needs to be transported to major cities of the Midwest; wind in the Rocky Mountain states needs to be transported as electric power to California.<sup>154</sup> These best wind locations generally are not near major U.S. population centers where power is demanded and are shown

150. *Wind Explained; Where Wind Power is Harnessed*, U.S. ENERGY INFO. ADMIN. (Mar. 30, 2022) <https://www.eia.gov/energyexplained/wind/where-wind-power-is-harnessed.php> [https://perma.cc/4KEN-B3L7].

151. Joskow, *supra* note 144, at 6–7.

152. The first federal policy directing such renewable generation use was the Public Utilities Regulatory Policies Act of 1978. 16 U.S.C. § 824a.

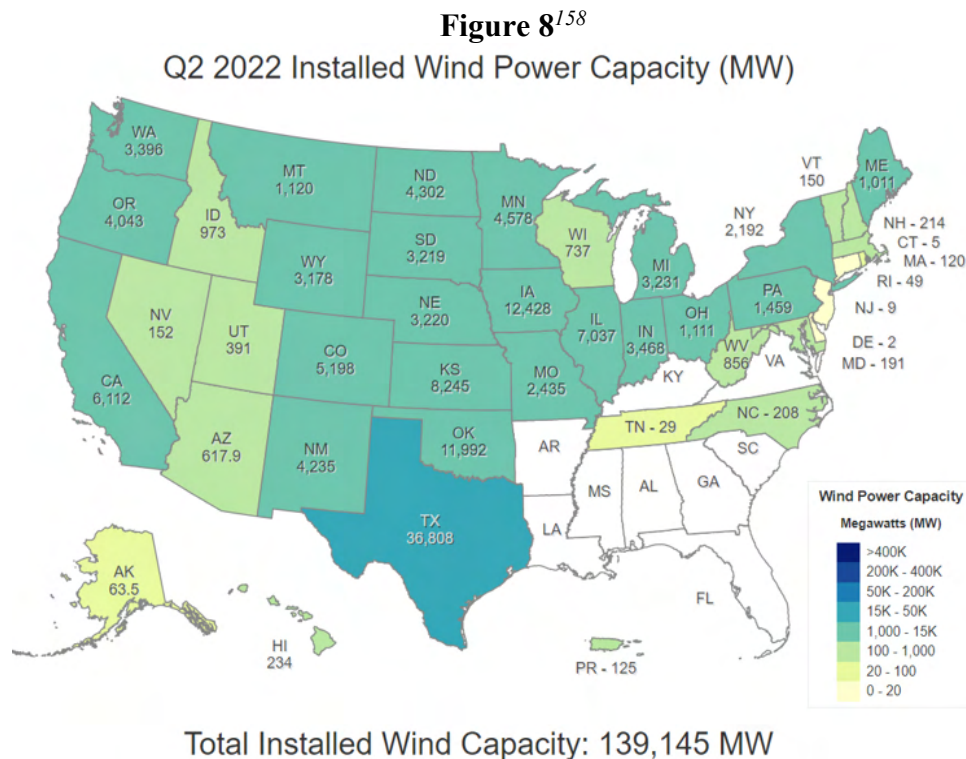
153. See, e.g., *Fed. Energy Regul. Comm'n v. Mississippi*, 456 U.S. 742 (1982); *Am. Paper Inst. v. Am. Elec. Power Serv. Corp.*, 461 U.S. 402 (1983).

154. See *Wind Explained*, *supra* note 150.



in Figure 7 (right figure) in darker colors; the location of higher speed wind power resources are shown in Figure 7 (left figure).<sup>155</sup>

Figure 8 displays the actual location of wind power turbines currently in the United States, which significantly utilizes rural areas in the central United States not proximate to populations centers.<sup>156</sup> The Edison Electric Institute keeps track that since 2010, electric companies have invested more than \$1 trillion in critical energy infrastructure to support moving current renewable energy power generation to market.<sup>157</sup>



155. See *id.*; *Wind Resource Maps and Data*, NAT'L RENEWABLE ENERGY LAB'Y, <https://www.nrel.gov/gis/wind-resource-maps.html> [<https://perma.cc/8TBA-DYTS>] (last visited Nov. 6, 2022).

156. *Iowa 80-Meter Wind Resource Map*, WINDEXCHANGE, <https://windexchange.energy.gov/maps-data/32> [<https://perma.cc/HL9G-DJC2>] (last visited Nov. 6, 2022).

157. *Issues and Policy Energy Grid*, EDISON ELEC. INST., <https://www.eei.org/en/issues-and-policy/energy-grid> [<https://perma.cc/ZZ7Z-ESJX>] (last visited Nov. 6, 2022).

158. *U.S. Installed and Potential Wind Power Capacity and Generation*, OFFICE OF ENERGY EFFICIENCY & RENEWABLE ENERGY, <https://windexchange.energy.gov/maps-data/321> [<https://perma.cc/Z35A-8ZNA>] (last visited Nov. 6, 2022).

*E. EXCLUSIVE STATE AUTHORITY TO PERMIT NEW  
INTERSTATE TRANSMISSION LINES*

Given that FERC exercises exclusive jurisdiction regarding transactions involving interstate electric power transactions and regarding transmission facilities,<sup>159</sup> FERC does not also exercise jurisdiction over the siting and construction of those same interstate transmission facilities. The Federal Power Act provides FERC exclusive federal authority only over transactions and contractual terms and prices of sales of power over the physical electric transmission system lines.<sup>160</sup> The lines, poles, transformers, and protective equipment – the physical hardware assets – are not included within the grant of federal jurisdiction under the Federal Power Act.<sup>161</sup> This hardware and its siting on U.S. land remains within exclusive state and/or local authority pursuant to the federalist state/federal split of jurisdiction embodied in the Federal Power Act.

1. No Effective Federal Preemption

What confronts interstate transmission lines to be permitted can be more than first meets the eye. Approval must be obtained from each siting state and in some states, county and/or local approval can be included.<sup>162</sup> For those states with state siting authority, this includes a state energy facility siting board and/or a state public utility commission pre-construction approval which also includes obtaining a CPCN, which may or may not include eminent domain authority for rights-of-way, which can include state environmental impact review.<sup>163</sup> Legislatures (or measures on the ballot) can amend statutes and governors can change regulations that affect the ability to obtain state approvals.<sup>164</sup>

This reserved authority permits a state to block siting or upgrading a transmission line in or through its state needed to transmit renewable or other power to adjacent states. There have been legal challenges to efforts to create new or upgraded transmission lines to move needed power to densely

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159. *See supra* Section II.B

160. 16 U.S.C. §§ 824–25.

161. *Id.*

162. *See infra* note 193.

163. *See generally* EDISON ELEC. INST., STATE GENERATION & TRANSMISSION SITING DIRECTORY: AGENCIES, CONTACTS AND REGULATIONS (2013).

164. *See infra* Part IV.

populated transmission-congested areas on the coasts.<sup>165</sup> To attempt to preempt state resistance, Congress enacted a statute to extend the federal authority over certain electric energy interstate transmission facility siting needs.<sup>166</sup> The Energy Policy Act of 2005 (EPAct 2005) sought to extend federal intervention into siting power transmission line projects by authorizing the U.S. Department of Energy to designate congested National Interest Electric Transmission Corridors (NIETCs)<sup>167</sup> and providing FERC “backstop authority” to issue transmission construction permits in NIETCs if states withhold approval for more than a year. Additionally, the EPAct 2005 established federal eminent domain rights for these NIETC projects.<sup>168</sup>

In FERC Order No. 689, FERC declared that “withheld approval” included the express denial of a transmission permit by any state.<sup>169</sup> Only two NIETCs were designated by the U.S. Department of Energy since enactment of the Act more than a decade ago; both of those federal actions to site high priority electric power transmission infrastructure to benefit transmission-congested areas were overturned and vacated by separate federal courts.<sup>170</sup>

First, a federal appellate court in 2009 blocked FERC from acting to “backstop” and grant a federal permit for electric power infrastructure under Section 216 of the Federal Power Act for a new power transmission line that would carry additional power to New York and other congested eastern cities, when the state had failed for the prior twelve months to approve the permit pursuant to conventional state authority over such facilities.<sup>171</sup> The court expressed concern that to uphold FERC’s interpretation would cause state energy regulatory authorities to “lose jurisdiction unless they approve a permit.”<sup>172</sup>

The court noted that had Congress intended for FERC to blanket-preempt state jurisdiction under the Federal Power Act over transmission siting, it

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165. See Jonathan D. Brightbill, *Will the Infrastructure Investment and Jobs Act Accelerate Transmission Development?*, WINSTON & STRAWN LLP (Jan. 4, 2022), <https://www.winston.com/en/winston-and-the-legal-environment/will-the-infrastructure-investment-and-jobs-act-accelerate-transmission-development.html> [<https://perma.cc/GLN6-53F3>].

166. See, e.g., *infra* note 193.

167. Energy Policy Act of 2005 § 1221, 16 U.S.C. § 824p.

168. FERC issued Order No. 689 in 2006, creating a multi-year process for obtaining a federal permit to construct transmission within an NIETC. See 18 C.F.R. §§ 50, 380.

169. Regulations for Filing Applications for Permits to Site Interstate Electric Transmission Facilities, 71 Fed. Reg. 69,440, at 69,444 (Dec. 1, 2006).

170. *Piedmont Env’tl Council v. FERC*, 558 F.3d 304, 309 (4th Cir. 2009); *Cal. Wilderness Coal. v. U.S. Dep’t of Energy*, 631 F.3d 1072, 1079 (9th Cir. 2011).

171. *Piedmont*, 558 F.3d at 309–10.

172. *Id.* at 314.

would have said so explicitly.<sup>173</sup> The court determined that under the plain language of EPAct 2005, as long as the state took some action on the application, FERC did not have the authority to intercede in the siting process for electric infrastructure pursuant to section 216 of the Federal Power Act.<sup>174</sup> The court found that a state retains its “legitimate use of its traditional powers” whenever it exercises final authority to expressly deny a transmission application.<sup>175</sup> Here, the affected state had taken action in one year by denying the permit for that proposed new transmission infrastructure; there had been no delay in making a final decision on the application.<sup>176</sup> The court found no reason to infringe traditional state authority under the Federal Power Act because there was:

no logical inconsistency between authorizing FERC to assume jurisdiction in the case of permit approvals with overburdensome conditions but not in the case of outright denials . . . In providing for this measured transfer of jurisdiction, Congress simply makes sure that there is a utility commission available—if not a state commission, then FERC—to make a timely and straightforward decision on every permit application in a national interest corridor.<sup>177</sup>

Two years later in 2011, on a second attempt to exercise intercession of federal siting authority, the Ninth Circuit ruled that the U.S. Department of Energy failed to properly consult with affected states in preparing a congestion study regarding transmission corridors in Mid-Atlantic and Southwestern states required by Section 216 of EPAct 2005, and further ruled that it failed to consider the environmental effects of designating NIETCs pursuant to requirements of the National Environmental Policy Act.<sup>178</sup> This process only allows FERC to exercise federal siting for projects in areas designated as transmission corridors, and the court in *California Wilderness Coalition* vacated the two corridors designated by the Department of Energy in 2007.<sup>179</sup> The *Piedmont* and *California Wilderness Coalition* decisions eliminated the exercise of federal authority to site electric power infrastructure in the United States, despite the statutory authority granted to FERC in EPAct 2005.<sup>180</sup> Siting for wind and other renewable power

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173. *Id.*

174. *Id.* at 314–15.

175. *Id.*

176. *Id.*

177. *Id.* at 315.

178. *Cal. Wilderness Coal. v. U.S. Dep’t of Energy*, 631 F.3d 1072, 1079 (9th Cir. 2011).

179. 16 U.S.C. § 824p(b); *Cal. Wilderness Coal.*, 631 F.3d at 1079.

180. Congress enacted § 1221 of EPAct 2005, which added a new § 216 to the Federal Power Act. *See* 16 U.S.C. § 824p.

infrastructure remains within state and local, rather than federal, legal jurisdiction.

Thus, federal statutory enactments have been unsuccessful in expanding federal preemptive power over electric energy transmission facilities. As a plethora of smaller-than-fossil fuel renewable energy projects have been proliferating,<sup>181</sup> Congress has not altered the “bright line” of bifurcated authority between FERC and the states regarding transmission or generation facility siting.<sup>182</sup> In addition, recent holdings of the Supreme Court have deferred to state and local zoning determinations, as well as to local authority over a multitude of economic and land-use matters involving energy.<sup>183</sup> What does this portend for wind turbine project siting on land in the United States and the significant added necessary transmission infrastructure to move that power to congested population areas?<sup>184</sup>

Wind power is much less dense an energy source than traditional fossil-fuel or nuclear sources of electric power production.<sup>185</sup> Wind power requires land—lots of land.<sup>186</sup> Despite numerous federal and state incentives for developing wind energy projects,<sup>187</sup> the critical authority of state and local governments to regulate use of land can present a formidable barrier to wind project siting in the United States.<sup>188</sup> State and local exclusive legal authority over land use allows cities to enact and enforce “aesthetic zoning” to restrict or ban wind power development.<sup>189</sup>

## 2. National and International Implications

Electric transmission on the North American continent transcends being only a national U.S. issue. Transmission capacity is also necessary to move

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181. *See supra* Section II.A.

182. JEFFREY S. DENNIS ET AL., *FEDERAL/STATE JURISDICTIONAL SPLIT: IMPLICATIONS FOR EMERGING ELECTRICITY TECHNOLOGIES* 21 (2016), <https://www.energy.gov/sites/prod/files/2017/01/f34/Federal%20State%20Jurisdictional%20Split--Implications%20for%20Emerging%20Electricity%20Technologies.pdf> [<https://perma.cc/2B3A-XX28>].

183. *See* *Murr v. Wisconsin*, 137 S. Ct. 1933, 1947 (2017); *Va. Uranium, Inc. v. Warren*, 139 S. Ct. 1894, 1902 (2019).

184. *See supra* Section III.D.

185. *See* Outka, *supra* note 121, at 243.

186. *See supra* Section III.B.

187. *See* FERREY, *supra* note 35, at §§ 3:59.10, 3:59.40, 10:114–10:115.30.

188. *See* JIM GREEN & MICK SAGRILLO, *ZONING FOR DISTRIBUTED WIND POWER—BREAKING DOWN BARRIERS 3* (Nat’l Renewable Energy Lab’y, Conference Paper No. NREL/CP-500-38167, 2005) (prepared for WindPower 2005, Denver, CO), <http://www.nrel.gov/docs/fy05osti/38167.pdf> [<https://perma.cc/VS5V-99GF>].

189. *See id.* at 4.

Canadian renewable hydropower to New England.<sup>190</sup> In 2018, from among four dozen applicants in a competitive procurement, Massachusetts chose the Northern Pass project, which would move 1,090 MW of hydroelectric power produced by Hydro Quebec to Massachusetts distribution utilities from Canada through New Hampshire.<sup>191</sup>

The high-voltage direct current portion of the transmission project was planned to be located entirely in New Hampshire, but a spokesperson for the Northern Pass Project stated that New Hampshire customers would not pay for costs associated with constructing the transmission facilities.<sup>192</sup> A permit for the high-voltage direct current portion of the Northern Pass project was subsequently rejected by the energy regulatory agency in New Hampshire and that rejection was upheld by the New Hampshire Supreme Court in 2019 when challenged.<sup>193</sup> Despite all of New England's interstate transmission facilities being managed by ISO-NE—a FERC-regulated entity—it was entirely within New Hampshire's discretion to refuse to permit the project. Without the state permit to site interstate transmission infrastructure in New Hampshire, the project had to be abandoned.<sup>194</sup> The tripling of U.S. transmission capacity necessary to capture and utilize significant amounts of available wind capacity is displayed graphically in Figure 9.

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190. Tim Faulkner, *Massachusetts Set To Import Hydropower from Canada*, ECORI NEWS (Jan. 30, 2018), <https://www.ecori.org/renewable-energy/2018/1/29/7xk446y6yai0d979hr8m8seoyui2ok> [<https://perma.cc/BU7H-ESQ6>].

191. Bob Salsberg, *Mass. Taps Eversource's Northern Pass for Hydropower Project*, WBUR (Jan. 25, 2018), <https://www.wbur.org/bostonmix/2018/01/25/hydropower-massachusetts-eversource> [<https://perma.cc/2ADU-FZ96>]; Nancy West, *Northern Pass Competes for Mass. Energy Deal*, CONCORD MONITOR (July 29, 2017, 12:00 AM), <https://www.concordmonitor.com/Northern-Pass-faced-increased-competition-from-its-New-England-neighbors-11545176> [<https://perma.cc/9QYU-YK89>].

192. Annie Ropeik, *Site Evaluation Committee Casts Unanimous Vote Against Northern Pass Project*, NEW HAMPSHIRE PUBLIC RADIO (Feb. 1, 2018, 2:57 PM), <https://www.nhpr.org/nh-news/2018-02-01/site-evaluation-committee-casts-unanimous-vote-against-northern-pass-project> [<https://perma.cc/6XS7-QNMT>]; Sam Evans-Brown, *Northern Pass Submits Bid To Sell Energy to Southern New England*, N.H. PUB. RADIO (Jan. 29, 2016 6:42 AM), <https://www.nhpr.org/nh-news/2016-01-29/northern-pass-submits-bid-to-sell-energy-to-southern-new-england> [<https://perma.cc/B7HU-F55T>].

193. *See* Appeal of N. Pass Transmission, LLC, 214 A.3d 590, 592 (N.H. 2019).

194. *See Eversource Appeals Northern Pass Case to State Supreme Court*, ASSOCIATED PRESS (Aug. 10, 2018), <https://apnews.com/article/38045791fc134fb1ab191df63c9c3159> [<https://perma.cc/6D8T-66ZJ>]; Andy Hershberger, *Eversource Abandons Northern Pass Project After Defeat in NH Supreme Court*, WMUR (July 26, 2019, 6:55 PM), <https://www.wmur.com/article/eversource-northern-pass-project-update/28519439> [<https://perma.cc/JGJ4-5EW3>]; *Transmission*, ISO NEW ENGLAND, <https://www.iso-ne.com/about/key-stats/transmission/> [<https://perma.cc/9V52-PV42>].

Figure 9<sup>195</sup>

To support wind and solar generation in E+ scenario with Base siting availability, total transmission capacity more than **triples**.

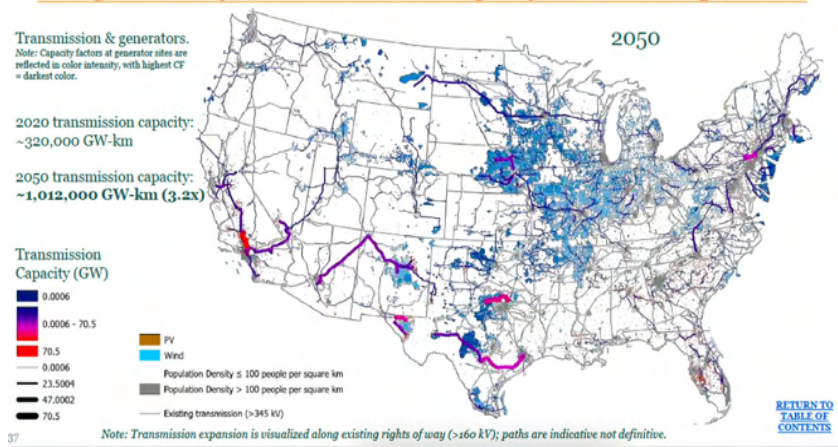


Figure 10 illustrates that, during most of those years in the most recent decade, additions of renewable wind and solar power constitute the majority of total additions to power generation in the United States.<sup>196</sup> This national wind power still needs to be moved from its siting locations, as depicted in Figure 8, to the U.S. population centers shown in Figure 7. Wind power in high-wind areas of the U.S. Great Plains is transmitted as electricity over wires to major cities of the Midwest; wind in the Rocky Mountain states is transmitted as electricity over wires to California:<sup>197</sup> “In practice, these lines would primarily carry energy from the center of the country—between Texas and North Dakota, where the wind really blows—to the East.”<sup>198</sup>

195. Eric Larson et al., *Net-Zero America: Potential Pathways, Infrastructure, and Impacts*, PRINCETON UNIV. 137 (Dec. 15, 2020), <https://netzeroamerica.princeton.edu/?explorer=year&state=national&table=2020&limit=200> [<https://perma.cc/T77K-SYS7>].

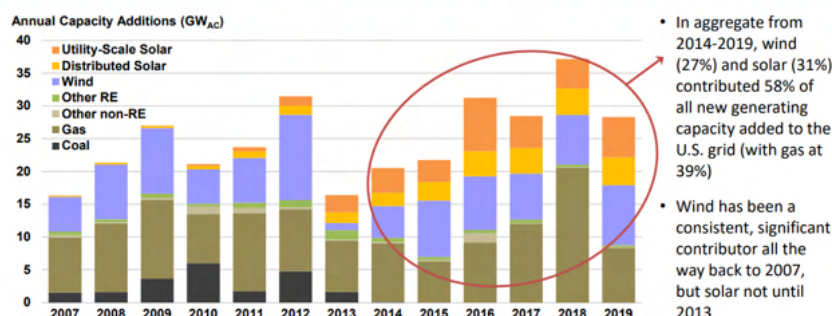
196. See also *supra* Section II.A.1 (discussing the increasing prominence of wind and solar development).

197. *Wind Explained: Where Wind Power Is Harnessed*, U.S. ENERGY INFO. ADMIN. (Mar. 30, 2022), <https://www.eia.gov/energyexplained/wind/where-wind-power-is-harnessed.php> [<https://perma.cc/2BE5-NSFF>].

198. Jack Holmes, *The Sexiest Part of the Clean Energy Transition Is Big-Ass Power Lines*, ESQUIRE (Oct. 6, 2022), <https://www.esquire.com/news-politics/a41536123/clean-energy-transition-transmission-power-lines-wind-solar/> [<https://perma.cc/6RHB-F92H>].

Figure 10<sup>199</sup>

Over the past six years, natural gas, wind, and solar  
have accounted for 97% of all new capacity added to the U.S. grid



The lines actually built to transmit new wind power at high voltage from the mountain states to southern California, from the Midwest rural plains to Chicago and Detroit. Despite numerous federal and state incentives for developing wind energy projects,<sup>200</sup> the authority of local governments to restrict land use presents a formidable barrier to certain locations for wind projects across the United States.<sup>201</sup> Siting of wind turbines and electric transmission lines is vested in state and local governments rather than in the federal government, which administers national and international climate policy.<sup>202</sup>

#### F. BIDEN'S 2021 INFRASTRUCTURE LAW AND 2022 INFLATION REDUCTION ACT

Moving forward, President Biden called his major initiative—the recently enacted 2021 Infrastructure Law—the “most significant long-term investment in our infrastructure and competitiveness in nearly a century.”<sup>203</sup> The infrastructure need is significant: “Transmission line capacity would have to be tripled through 2050 to connect the needed amount of wind and

199. MARK BOLINGER, LAWRENCE BERKELEY NAT'L LAB'Y, UTILITY-SCALE WIND AND SOLAR IN THE U.S.: COMPARATIVE TRENDS IN DEPLOYMENT, COST, PERFORMANCE, PRICING, AND MARKET VALUE 5 (2020), [https://emp.lbl.gov/sites/default/files/webinars/bolinger\\_webinar\\_december\\_8\\_2020\\_16x9.pdf](https://emp.lbl.gov/sites/default/files/webinars/bolinger_webinar_december_8_2020_16x9.pdf) [<https://perma.cc/QRU2-NAMV>].

200. See FERREY, *supra* note 35, §§ 3:59.10, 3:59.40, 10:114–10:115.30. For a listing of various incentives for renewable energy, see *Database of State Incentives for Renewables and Efficiency*, DSIRE, <https://www.dsireusa.org/> [<https://perma.cc/TRZ7-K3VA>].

201. See GREEN & SAGRILLO, *supra* note 188, at 3.

202. See *supra* Sections II.B, III.E.

203. Clark et al., *supra* note 19.



solar power to the grid.”<sup>204</sup> The 2022 Inflation Reduction Act (IRA) and the Bipartisan Infrastructure Act together represent historic investments in the nation’s energy system, totaling more than \$430 billion.<sup>205</sup> The IRA incentives and impacts subsidizing the electric power sector include:

- **Renewable Electricity:** Extension of existing technology-specific Production Tax Credits (PTC) and Investment Tax Credits (ITC) through 2024 with bonus credits for domestic products incorporated, apprenticeship training, payment of prevailing wages, and siting in ‘justice’ or low-income communities<sup>206</sup>; replaced with technology-neutral Clean Electricity PTCs and ITCs commencing in 2025 with similar bonus credits.<sup>207</sup>
  - A PTC credit equal to either \$0.005/Kwh as a base amount or a credit for certain technologies of half that amount (\$0.003/Kwh), each applicable for power sold to a third party during the first ten years of operation.<sup>208</sup>
  - An ITC (at 26% of eligible capital costs).<sup>209</sup>
  - Meeting prevailing wage amounts<sup>210</sup> and apprenticeship<sup>211</sup> provisions increase each of the PTC credits by up to five-fold.<sup>212</sup>
  - A five-fold potential increase in credit amount for operation of new eligible renewable energy facilities with a net output capacity of less than 1 megawatt (Mw).<sup>213</sup>
- **Offshore Wind Generation:** \$100 million for development of interregional transmission conduits and optimized integration of electricity generated from offshore wind.<sup>214</sup>

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204. *Id.*

205. U.S. DEP’T OF ENERGY, THE INFLATION REDUCTION ACT DRIVES SIGNIFICANT EMISSIONS REDUCTIONS AND POSITIONS AMERICA TO REACH OUR CLIMATE GOALS 1 (2022), [https://www.energy.gov/sites/default/files/2022-08/8.18%20InflationReductionAct\\_Factsheet\\_Final.pdf](https://www.energy.gov/sites/default/files/2022-08/8.18%20InflationReductionAct_Factsheet_Final.pdf) [<https://perma.cc/E5EP-Z7N9>].

206. Inflation Reduction Act of 2022, Pub. L. No. 117-169, § 13101(d), 136 Stat 1818, 1906 (to be codified at 26 U.S.C. § 48(a)(5)(C)(ii)).

207. *Id.* at §§ 13701, 13702 (to be codified at 26 U.S.C. §§ 45Y, 48E).

208. *Id.* at § 13701 (to be codified at 26 U.S.C. § 45Y(a)).

209. *Id.* at § 13702 (to be codified at 26 U.S.C. § 48E(a)).

210. *Id.* at § 13101(f) (to be codified at 26 U.S.C. § 45(b)(7)).

211. *Id.* (to be codified at 26 U.S.C. § 45(b)(8)). On apprenticeship, see BENJAMIN COLLINS, CONG. RSCH. SERV., R45171, REGISTERED APPRENTICESHIP: FEDERAL ROLE AND RECENT FEDERAL EFFORTS (2021).

212. Inflation Reduction Act § 13101(f) (to be codified at 26 U.S.C. § 45(b)(7),(8)).

213. *Id.* (to be codified at 26 U.S.C. § 45(b)(6)(B)).

214. *Id.* at § 50153.

- **Manufacturing Power Sector components:** A new manufacturing tax credit for the production of clean energy technology components, including solar components, wind turbine and offshore wind components, inverters, many battery components, as well as the critical minerals needed to produce these components.<sup>215</sup>

While the 2021 Infrastructure Law authorizes \$10 billion over the next five years for energy projects that could include certain transmission projects, funding has not been the missing piece of the puzzle; transmission costs are passed on to electric ratepayers.<sup>216</sup>

The Bipartisan Infrastructure Bill got a lot of press for money it sent towards supporting “the grid,” but Gramlich says only about \$2.5 billion of that was for transmission lines. “That’s really nice, it’s a great policy, but \$2.5 billion is a drop in the bucket. We spend that in a month and a half in the electric industry on transmission.”<sup>217</sup>

Princeton University researchers found that providing sufficient transmission line capacity would require a 60% expansion of the U.S. high-voltage transmission network by 2030, with capacity tripled by 2050 to connect the needed wind and solar power to the grid.<sup>218</sup> The capital cost of these new power lines is estimated at \$360 billion within the next eight years and \$2.4 trillion by 2050.<sup>219</sup> Even \$2.5 to 10 billion is a small portion of the estimated costs to move the country to all renewable energy as President Biden pledged.

The Infrastructure Law also attempts to reinvigorate provisions similar to those in the previously stricken EPAct 2005, which granted federal authority to compel high-priority transmission facility siting despite the lack of approval from and through states that resist it.<sup>220</sup> It would do so by interceding if state agencies reject high-priority transmission proposals or fail to act on them within a year, notwithstanding traditional Tenth Amendment powers reserved to the state over local land use.<sup>221</sup> To do so, the 2021 Infrastructure

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215. *Id.* at § 13501 (to be codified at 26 U.S.C. § 48C).

216. Clark et al., *supra* note 19.; Steven Ferrey, *Ring-Fencing the Power Envelope of History's Second Most Important Invention of All Time*, 40 WM. & MARY ENV'T L. & POL'Y REV. 1, 6 (2015).

217. Holmes, *supra* note 198.

218. Clark et al., *supra* note 19.

219. *Id.*

220. *Id.*

221. *Id.*

Law attempts to legislatively supersede the Fourth Circuit's decision in *Piedmont Environmental Council v. FERC*<sup>222</sup> by providing additional statutory support for FERC exercise of "backstop" siting authority for transmission lines in NIETCs, while providing a slice of what is estimated to be less than 5% of the necessary funding for new transmission facilities for sustainable power.<sup>223</sup> Environmental activists are opposing major transmission projects because of their negative environmental impacts, and there likely will be legal challenges to such new federal actions.<sup>224</sup>

However, before interceding, FERC would need to consider whether the applicant for a transmission project had "engaged states and non-federal entities in good faith consultations and in a timely manner."<sup>225</sup> According to Tony Clark, a former Chair of FERC, "I think members of Congress are overestimating the federal government's ability to approve transmission lines in a speedy manner while underestimating the controversy this will foment amongst constituents" and place FERC "in a difficult position."<sup>226</sup> Others noted that "[t]he US infrastructure bill doesn't go far enough to climate-proof the electric grid."<sup>227</sup> More court challenges by resistant states can be anticipated if new federal preemptive law is exercised fundamentally to overturn the last 80 years of the constitutional separation of state and federal powers over land use and power.

#### *G. 2022 SUPREME COURT SIGNIFICANT RESTRICTION ON FEDERAL INTRUSION*

The much-anticipated Supreme Court decision at the end of the 2022 term in *West Virginia v. EPA* restricted federal regulatory power and dramatically increased the power of the twenty plaintiff states vis-à-vis the federal government's regulation of the electric energy sector and climate change.<sup>228</sup> This decision changed the fundamental separation of powers in American

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222. See *Piedmont Env'tl Council v. FERC*, 558 F.3d 304 (4th Cir. 2009).

223. Infrastructure Investment and Jobs Act, Pub. L. No. 117-58, 135 Stat. 429 (2021) (codified at various non-contiguous sections of the U.S. Code); see also Brightbill et al., *supra* note 165.

224. Clark et al., *supra* note 19.

225. *Id.* (quoting Infrastructure Investment and Jobs Act, Pub. L. No. 117-58, 135 Stat. 429).

226. Molly Christian, *Infrastructure Bill Aims To Solve Piece of US Transmission Puzzle*, S&P GLOBAL (Oct. 7, 2021), <https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/infrastructure-bill-aims-to-solve-piece-of-us-transmission-puzzle-66748368> [<https://perma.cc/6JJY-CNZW>].

227. Tim McDonnell, *The US Infrastructure Bill Doesn't Go Far Enough To Climate-Proof the Electric Grid*, QUARTZ (July 20, 2022), <https://qz.com/2066074/how-the-us-infrastructure-bill-climate-proofs-the-electric-grid/> [<https://perma.cc/JVE7-Y88S>].

228. *West Virginia v. EPA*, 142 S. Ct. 2587, 2616 (2022).

law. The challenge was to the Obama Administration's Clean Power Plan, which sought to close or diminish the operation of existing coal-fired power plants in favor of renewable energy generation or less polluting natural gas-fired plants.<sup>229</sup> The Court held that existing federal law does not permit the Environmental Protection Agency (EPA) to attempt to regulate what or how facilities in the states generate electric power.<sup>230</sup>

The concurring opinion by Justice Gorsuch and joined by Justice Alito reinforces state "sovereign immunity" to make these electric power operating decisions that cannot be abrogated by the federal EPA through "unintentional, oblique, or otherwise unlikely" intrusions on state interests" without clear statements by the Congress for the EPA to do so, which to date were found to not exist in the text or legislative history of the acts that the EPA has at its disposal.<sup>231</sup> This 2022 far-reaching Supreme Court *West Virginia* decision upheld the position of the U.S. states that challenged the EPA's Clean Power Plan as an encroachment on reserved state authority: "The importance of the issue,' along with the fact that the same basic scheme the EPA adopted, 'has been the subject of an earnest and profound debate across the country, . . . makes the oblique form of the claimed delegation all the more suspect.'"<sup>232</sup>

The dissenting opinion written by Justice Kagan calls the majority's exercise of judicial control to restrain the executive branch "frightening."<sup>233</sup> Her dissent states that the country needs changed methods and practical methods to address climate impacts from electric power plants, and "[t]his Court has historically known enough not to get in the way."<sup>234</sup>

The majority opinion highlights that Congress did not grant the EPA any authority to change the U.S. energy delivery system, and the EPA admitted that it had no expertise in this area.<sup>235</sup> The majority relies heavily on its prior application of the recently articulated major questions doctrine.<sup>236</sup> The

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229. *Id.* at 2606.

230. *Id.* at 2616.

231. *Id.* at 2619–20 (Gorsuch, J., concurring) (quoting *NFIB v. OSHA*, 142 S. Ct. 661, 669 (2022)).

232. *Id.* at 2614 (majority opinion) (quoting *Gonzales v. Oregon*, 546 U.S. 243, 267–68 (2006)).

233. *Id.* at 2644 (Kagan, J., dissenting).

234. *Id.* at 2643.

235. *Id.* at 2612 (majority opinion).

236. *Id.*; see *Ala. Ass'n of Realtors v. Dep't of Health and Hum. Servs.*, 141 S. Ct. 2485, 2489 (2021) (holding the CDC's action was of major national significance because it covered 80% or more of the nation and interfered with the landlord-tenant relationship, which the Court upheld as "the particular domain of state law;" "[w]e expect Congress to speak clearly when authorizing an agency to exercise powers of 'vast economic and political significance.'"); *NFIB*

concurring opinion invokes the major questions doctrine to restrict federal discretion and deference when the EPA acts without clear Congressional instructions on matters such as this, because “[t]he electric power sector is among the largest in the U. S. Economy, with links to every other sector.”<sup>237</sup> The concurrence finds that the EPA “seeks to ‘intrud[e] into an area that is the particular domain of state law.’”<sup>238</sup>

The EPA unsuccessfully attempted to avoid the merits of the state challenge, claiming lack of plaintiffs’ standing or true injury and that plaintiff states’ claims were not redressable by a court.<sup>239</sup> Of particular note, the Court found standing and injury to state plaintiffs to challenge the exercise of federal EPA authority that affects state regulation of electric power plants.<sup>240</sup> The Court also found the plaintiffs’ claims not mooted by the then-current absence of any federal climate change regulation not already enjoined by the courts because the allegedly wrongful conduct could still reasonably recur due to the voluntary nature of respondent’s cessation of wrongful conduct.<sup>241</sup>

A few weeks after this decision, a group of nine Democratic U.S. Senators, including former presidential candidates Bernie Sanders and Elizabeth Warren, demanded of President Biden that he double-down utilizing unilateral executive action on climate change to declare a national climate emergency in response to the Supreme Court decision:

We ask that you start by declaring a climate emergency to unlock the broad powers of the National Emergency Act (NEA) and immediately pursue an array of regulatory and administrative actions to slash emissions, protect public health, support national and energy security, and improve our air and water quality . . . Under the NEA, you could redirect spending to build out renewable energy systems on military bases, implement large-scale clean

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v. OSHA, 142 S. Ct. 661, 665 (2022) (halting enforcement of the Occupational Safety and Health Administration’s (OSHA) COVID-19 vaccination and testing temporary emergency standard applying to all employers with 100 or more employees in their work force, as “[t]here can be little doubt that OSHA’s mandate qualifies as an exercise” of “powers of vast economic and political significance” (quoting *Ala. Ass’n of Realtors*, 141 S. Ct. at 2489)).

237. *West Virginia*, 142 S. Ct. at 2622 (Gorsuch, J., concurring) (quoting Nathan Richardson, *Keeping Big Cases from Making Bad Law: The Resurgent “Major Questions” Doctrine*, 49 CONN. L. REV. 355, 386 (2016)).

238. *Id.* at 2621 (quoting *Ala. Ass’n of Realtors*, 141 S. Ct. at 2489).

239. *Id.* at 2606 (majority opinion).

240. *Id.* (solidifying the special sovereignty of states to have standing to get into court on climate change issues that was established in *Massachusetts v. EPA*, 549 U.S. 497, 518–20 (2007)).

241. *Id.* at 2607 (relying on *Friends of the Earth, Inc. v. Laidlaw Env’t Servs., Inc.*, 528 U.S. 167, 189–92 (2000)).

transportation solutions and finance distributed energy projects to boost climate resiliency.<sup>242</sup>

The National Emergencies Act does not give the president any additional substantive emergency powers to spend money not otherwise already elsewhere appropriated by Congress or issue regulations not already provided in other statutes.<sup>243</sup> Congress had not appropriated any such amounts or created any such climate authority to utilize as leverage. However, the Inflation Reduction Act subsequently was enacted in August 2022.<sup>244</sup>

#### IV. STATES AND CITIES PROHIBIT SUSTAINABLE ENERGY TECHNOLOGY SITING ON LAND

##### A. STATE/LOCAL COMPARED TO FEDERAL AUTHORITY OVER LAND

Despite the several federal and state financial incentives and subsidies for construction and operation of wind energy projects,<sup>245</sup> local governments retain authority to regulate land use in the United States, which can present a formidable barrier to location of wind turbine projects in the United States.<sup>246</sup> The primary renewable energy technology deployed in the past decade is land-intensive wind power technology, and it is expected to continue as the dominant renewable technology added to the U.S. electric system for the foreseeable future.<sup>247</sup> Each one of the approximately 35,000 local town and city municipal governments in the country retains constitutional Tenth Amendment authority to regulate how people and projects use their land.<sup>248</sup>

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242. Letter from Jeffrey A. Merkley, Bernard Sanders, Edward J. Markey, Elizabeth Warren, Cory A. Booker, Sheldon Whitehouse, Brian Schatz, Martin Heinrich, and Alex Padilla, United States Senators, to Joseph R. Biden, President of the United States (July 20, 2022), [https://www.merkley.senate.gov/imo/media/doc/Climate%20Emergency%20Letter\\_FINAL.pdf](https://www.merkley.senate.gov/imo/media/doc/Climate%20Emergency%20Letter_FINAL.pdf) [<https://perma.cc/KYY4-R5BS>].

243. National Emergencies Act, 50 U.S.C. §§ 1601, 1621–22; *Youngstown Sheet & Tube Co. v. Sawyer*, 343 U.S. 579, 585 (1962).

244. *See supra* Section III.F.

245. FERREY, *supra* note 35, at §§ 3:59.10, 3:59.40, 10:11410:115.30.

246. *See* GREEN & SAGRILLO, *supra* note 188; *see also* sources cited *supra* note 200.

247. *U.S. Renewable Energy Consumption Surpasses Coal for the First Time in Over 130 Years*, U.S. ENERGY INFO. ADMIN. (May 28, 2020), <https://www.eia.gov/todayinenergy/detail.php?id=43895> [<https://perma.cc/H29B-L4EC>].

248. *Cities 101 — Number of Local Governments*, NAT'L LEAGUE OF CITIES, <https://www.nlc.org/resource/cities-101-number-of-local-governments/>

The local power over land use is embedded in 230 years of precedent issued in the United States legal system.<sup>249</sup> A fundamental division of governmental separation of powers is expressly pronounced for electric power: The Federal Power Act expressly separates and enforces legally distinguished state and federal authority regarding power sales, transmission, and distribution.<sup>250</sup> To a degree unlike all other things in the American economy, electric power legally is subject to a court-enforced bifurcation of government power over power:

- Climate change policy and law are deemed predominately a matter of federal treaty and Commerce Clause power, and the federal government controls jurisdiction over all interstate power sales<sup>251</sup>
- Siting of all electric power lines to transmit power, including interstate power, is a matter of exclusive state power, which federal regulators have been unable to supersede<sup>252</sup>
- The siting of the new renewable energy technologies attached to land—wind and solar—is a matter within local and state land-use police power regulation<sup>253</sup>

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[<https://perma.cc/WBC2-NLNE>]. The U.S. Census Bureau “counted 35,879 general purpose local governments, which includes 19,519 municipal governments, 16,360 town and township governments, and 3,031 county governments.” *Id.*

249. See 7 Cal. Real Est. § 21:1 (4th ed.) (“The source of all land use regulations, whether state or local, is derived from the police power reserved to the states by the United States Constitution. Specifically, the 10th Amendment provides that any powers not specifically granted to the federal government in the Constitution are reserved for the states.”).

250. For discussion of the particular legal contours of the Filed Rate Doctrine, preemption, and the dichotomy between federal and state regulation of electricity, see Steven Ferrey, *Threading the Constitutional Needle with Care: The Commerce Clause Threat to the New Infrastructure of Renewable Power*, 7 TEX. J. OIL, GAS & ENERGY L. 59 (2012). This article has been cited as authority by a unanimous Seventh Circuit Court of Appeals upholding Supremacy Clause power under the Federal Power Act, *Ill. Com. Comm’n v. FERC*, 721 F.3d 764, 776 (7th Cir. 2013), and the Massachusetts Supreme Judicial Court as authority regarding qualifications for sustainable energy and when such energy contributes to system reliability to justify a \$1 billion renewable energy program in Massachusetts, *Next Era Energy Res., LLC v. Dep’t of Pub. Utils.*, 152 N.E.3d 48, 63–64 (Mass. 2020).

251. See *City of New York v. BP P.L.C.*, 325 F. Supp. 3d 466, 471, 475 (S.D.N.Y. 2018); see also *Juliana v. United States*, 947 F.3d 1159, 1172 (9th Cir. 2020); *supra* Section II.B.

252. See *supra* Section III.A.

253. See *supra* Section III.A.

The Supreme Court has held that states retain “traditional and primary power over land and water use.”<sup>254</sup> Land-use control in the American legal system is predominately a local, rather than federal or state, exercise of legal jurisdiction.<sup>255</sup> Local land-use regulation enjoys broad court deference and is overturned by the judiciary only if there is no rational purpose supporting enactment of the local ordinance.<sup>256</sup> Local boards’ land-use determinations and judgments are respected because case law holds that “[a] local board of appeals brings to the matter an intimate understanding of the immediate circumstances, of local conditions, and of the background and purposes of the entire by-law.”<sup>257</sup> The Supreme Court in *Murr v. Wisconsin*, the Court’s most recent decision regarding the interpretation of local zoning laws, deferred to local judgment on the enforcement and interpretation of local zoning laws regulating new construction on land.<sup>258</sup>

### B. TRADITIONAL ZONING TECHNIQUES

A town, city, or county may enact and enforce a wide variety of physical lot and structure requirements to control development in each physical or geographic zone of its geographic jurisdiction.<sup>259</sup> Physical requirements include lot line setbacks, maximum limits on percent of area built per lot, maximum number of buildings or structures per lot, maximum height restrictions, and other physical structure standards.<sup>260</sup> With increasingly tall wind turbines, zoning height restrictions are significant.

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254. *Solid Waste Agency v. U.S. Army Corps of Eng’rs*, 531 U.S. 159, 174 (2001) (noting that “the States’ traditional and primary power over land and water use” raises “federalism questions”).

255. *See Ecogen, LLC v. Town of Italy*, 438 F. Supp. 2d 149, 157 (W.D.N.Y. 2006) (quoting *Greene v. Town of Blooming Grove*, 879 F.2d 1061, 1063 (2d Cir. 1989)); *see also* John R. Nolan, *Historical Overview of the American Land Use System: A Diagnostic Approach to Evaluating Governmental Land Use Control*, 23 PACE ENV’T L. REV. 821, 821–22 (2006).

256. *See, e.g., Ecogen*, 438 F. Supp. 2d at 156 (“In order to prevail on its substantive due process claim, Ecogen must establish that the Moratorium, at least insofar as it prohibits Ecogen’s construction of a substation, bears no rational relationship to any legitimate governmental purpose.” (citing *Richardson v. Twp. of Brady*, 218 F.3d 508, 513 (6th Cir. 2000))).

257. *Fitzsimonds v. Bd. of Appeals of Chatham*, 484 N.E.2d 113, 116 (Mass. App. Ct. 1985); *see also Manning v. Bos. Redevelopment Auth.*, 509 N.E.2d 1173, 1179 (Mass. 1987) (granting “substantial deference” to local administrative agency’s interpretation of local zoning law); *Euclid v. Ambler Realty Co.*, 272 U.S. 365, 397 (1922).

258. *Murr v. Wisconsin*, 137 S. Ct. 1933, 1945–47 (2017).

259. *See FERREY, supra* note 68, at 526–27.

260. *See id.* at 530–31.



### 1. “Structure” Height Restrictions

A significant distinguishing aesthetic factor of wind turbines is their height, which can be a limiting factor for permissible uses in a zone.<sup>261</sup> Zoning height restrictions apply to freestanding uninhabited structures such as telecommunications towers, and could include wind turbines by analogy.<sup>262</sup> There are well-established precedents allowing local zoning ordinances to block tall structures and trees.<sup>263</sup> These restrictions on structure height could also prohibit large wind turbine towers often ranging from 150 to 350 feet in height.<sup>264</sup> However, some such restrictions are limited to habitable spaces, where the height of an ornamental feature appurtenant to the underlying habitable structure is not added to the underlying structure’s height to calculate total height for purposes of this limitation.<sup>265</sup>

Some zoning by-laws exempt from height limitation certain types of “structures” and thereby could make an exception for wind turbine support towers or masts to promote renewable energy, or not.<sup>266</sup> Local boards must first determine whether a proposed building project with a mast is considered a “structure” subject to an existing by-law height restriction. Most by-laws traditionally make no mention of wind towers and do not specifically regulate wind energy. Thus, local zoning officials start with broad initial discretion to determine whether by-laws regulating “structures” apply to wind towers or not.

Courts may affirm or reverse local boards’ individual decisions, making it difficult for developers to determine initially if projects will be permitted as

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261. See FERREY, *supra* note 35, at § 2:12.20; Tamara Race, *Plymouth Town Meeting OKs Wind Turbine Bylaw*, PATRIOT LEDGER (October 24, 2006), [<https://perma.cc/N82K-2K5N>].

262. See *Bldg. Comm’r of Franklin v. Dispatch Commc’ns of New England, Inc.*, 725 N.E.2d 1059, 1066–67 (Mass. App. Ct. 2000).

263. *Dowdell v. Bloomquist*, 847 A.2d 827, 830–33 (R.I. 2004) (holding that a row of trees was a “fence” and privacy concern was insufficient justification for presence of trees); *MJD Properties, LLC v. Haley*, 358 P.3d 476, 480–82 (2015) (a single tree artificially located and planted may constitute a structure within meaning of spite structure statute); *Tranfield v. Arcuni-Eng.*, 215 A.3d 222, 225–26 (2019) (enjoining neighbor planted trees 10–12 feet in height, along the boundary line between the properties with a dominantly malicious motive).

264. See *Wind Turbine Heights and Capacities Have Increased Over the Past Decade*, U.S. ENERGY INFO. ADMIN., <https://www.eia.gov/todayinenergy/detail.php?id=33912#:~:text=Turbines%20are%20taller%20now%20than,280%20feet%2C%20or%2080%20meters> [<https://perma.cc/96T2-GNAH>]; *Size Specifications of Common Industrial Wind Turbines*, AWEO.ORG, <http://www.aweo.org/windmodels.html> [<https://perma.cc/8A6P-SKQ2>].

265. See *Bldg. Comm’r of Franklin*, 725 N.E.2d at 1067. Ornamental features often include chimneys, towers, flagpoles, and steeples. See, e.g., *id.* at 1066–67.

266. See, e.g., MAUI, HAW., CODE OF ORDINANCES § 19.39.090(B) (2021).

a permanent use.<sup>267</sup> If the legislature's intent was to enhance public safety, then the court will determine whether applying the by-law to the tower fulfills the legislative purpose.<sup>268</sup> A court may defer to the local zoning board where the board is more familiar with the purposes behind local by-laws and surrounding circumstances.<sup>269</sup>

## 2. Historic By-Law Restrictions on Wind Turbines

A second distinguishing aesthetic factor of a modern wind turbine is that it does not blend in with historic structures and buildings. Regional and

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267. See *Carnie v. Town of Richmond*, 648 A.2d 205, 206 (N.H. 1994) (holding that a tower was not an antenna exempted under structural provision). The court was faced with a zoning ordinance that contained a thirty-five-foot height restriction on structures, but which exempted antennas. *Id.* at 205. The town granted a permit for the erection of a 100-foot tower to support antennas for a cable television receiving facility by construing the entire structure as an antenna. *Id.* The New Hampshire Supreme Court reversed the decision, reasoning that in the absence of any definition of "antenna" in the ordinance, it would be understood to refer to "the ordinary, pre-cable television receiving antenna," not the 100-foot tower in the case-at-bar. *Id.* at 206. But see *Wilson ex rel. White Street Auto Body Realty Trust v. Soucy*, No. CA 00-825-C, 2001 WL 810154, at \*5-6 (Mass. Super. Ct. July 3, 2001) (proposed cell tower not prohibited under an ordinance with a 35-foot height restriction on structures which expressly excluded radio towers).

268. See *Skinner v. Zoning Bd. of Adjustment of Cherry Hill Twp.*, 193 A.2d 861, 866 (N.J. Super. Ct. App. Div. 1963) (legislators intended to regulate radio tower to enhance public safety). The court in *Skinner* considered whether a radio tower, including its guy wires and support columns, was a "building" subject to a local ordinance that regulated setbacks and heights of structures for public safety purposes. *Id.* The ordinance defined a "building" as "any structure having a roof supported by columns, piers, or walls . . . and any unroofed platform, terrace or porch having a vertical face higher than three (3) feet above the level of the ground from which the height of the building is measured." *Id.* The court held that a radio tower was a "building," reasoning that, despite the lack of clarity of the definition of "structures," the legislative intent was to include radio towers, since they were "unroofed platforms" rising more than three feet above the ground and because the setback requirements would be an essential safety factor in the erection of the tower. *Id.* at 866-67.

269. See *Bldg. Comm'r of Franklin*, 725 N.E.2d at 1064 (local zoning board's decision valuable and necessary). In *Franklin*, the Court considered whether Dispatch Communications of New England's (DCNE) proposed freestanding 120-foot tower was a "structure" prohibited by Franklin's 35-foot height limitation zoning by-law. *Id.* at 1066. Franklin's 1960 by-laws contained a 35-foot height limitation for "buildings" and a 20-foot limitation for "structures." The by-laws also stated that the "limitation on height of buildings and structures . . . shall not apply . . . to chimneys, ventilators, towers, spires or other ornamental features of buildings, which features are in no way used for living purposes." *Id.* DCNE argued that the proposed tower was both a structure and a tower and therefore exempt from the height limitation. *Id.* at 1067. The Franklin board rejected this interpretation, instead finding that it seemed likely that the 1960 by-law "contemplated towers on top of buildings, not freestanding towers." *Id.* The Court found that the board's decision that the 120-foot tower was subject to the height restriction but did not fall within the intended meaning of the by-law's exemptions for ornamental towers was a "reasonable interpretation" of the by-law. *Id.* In reaching this decision, the Court noted that there is a presumption favoring the interpretation of a by-law reached by the local board. *Id.* at 1064.

historic state and local commissions are created to regulate land use affecting environmental, historical, architectural, and cultural features of multiple communities.<sup>270</sup> These agencies have broad, discretionary powers to review projects for regulatory compliance, and can impose further conditions and requirements on a project.<sup>271</sup>

Most towns have designated historic districts that require historic commissions to issue an approval or letter of conformance prior to development to ensure the project complies with historic district regulations.<sup>272</sup> Any proponent who seeks to develop a new project in a historic district must first file an application for a determination of appropriateness of the new use with the state or local historic commission.<sup>273</sup> The subject property could also contain properties with archaeological significance or be subject to preservation restrictions.<sup>274</sup> A state agency granting a permit may be required to notify the historical commission at an early point in project development to determine whether the project will have any adverse effect on a listed historical or archaeologically significant property or place.<sup>275</sup> It is of note that historical impact is not limited to what happens only on the land occupied by the project to be developed; it also extends to its visual and aesthetic impact on neighboring parcels in the immediate area.<sup>276</sup> One regional evaluation concluded that wind towers “would probably not pass muster due to the sleek, modern designs required for optimal efficiency.”<sup>277</sup>

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270. *See, e.g.*, MASS. GEN. LAWS ch. 9, § 26 (2022) (creating the Massachusetts historical commission and defining duties); MASS. GEN. LAWS ch. 40, § 8D (2022) (authorizing cities or town to create local historical commissions and defining powers and duties); *see also* MASS. GEN. LAWS ch. 40A § 5 (2022) (giving cities and towns authority to adopt ordinances and bylaws to regulate the use of land, buildings, and structures).

271. *See* ch. 40A § 5. A town can enact sweeping land use restrictions to meet environmental goals it deems necessary to maintain the character of the town, control population density, reduce and manage traffic patterns, and mitigate threats to public safety from industrial waste and pollution. *See id.* § 9.

272. In Massachusetts, historic districts are established pursuant to chapter 40C of the General Laws of Massachusetts. *See generally* MASS. GEN. LAWS ch. 40C (2022).

273. *See id.* § 6. The commission schedules a public hearing and makes a ruling on whether the proposed construction complies with the historic character of the area. During the process, the commission can closely scrutinize every aspect of development, including lot placement, screening, noise levels, design, scale, color, and materials. *Id.* §§ 7, 11.

274. *See, e.g.*, MASS. GEN. LAWS ch. 9, §§ 26–27D (2022); 950 MASS. CODE REGS. §§ 70.01–70.91.

275. Ch. 9, § 27C.

276. Ch. 40C, § 7.

277. PIONEER VALLEY PLAN. COMM’N, REGULATORY ASSESSMENT: A REVIEW OF REGULATORY ISSUES CONCERNING DEVELOPMENT OF SMALL SCALE RENEWABLE ENERGY AND DISTRIBUTED GENERATION IN THE PIONEER VALLEY REGION OF WESTERN MASSACHUSETTS 16–

Wind power facilities commonly are sited on undeveloped lands that serve as natural view sheds, such as mountain ridgelines and hilltops, because these areas experience the strongest winds.<sup>278</sup> “Wind resources are generally more favorable for electricity generation at higher elevations above the earth’s surface. Large wind turbines are placed on towers that range from about 500 feet to as much as 900 feet tall.”<sup>279</sup> Figure 7 shows areas of the United States with the greatest wind velocities.<sup>280</sup> To compensate for the loss of public access to the land,<sup>281</sup> a locality may require an exaction from the developer to facilitate continued public access or to maintain the “natural” state of the area or *similar* areas as much as possible.<sup>282</sup> Exactions could take the physical form of a public easement across the area.<sup>283</sup>

Courts will hold that exactions related to public safety and welfare are a valid exercise of local police power as long as the exactions do not go beyond the scope and purpose of existing administrative regulations.<sup>284</sup> On private

17 (2004),

[https://www.pvpc.org/sites/default/files/PVPC%20Regulatory%20Assessment%20for%20Renewable%20Energy%202004\\_0.pdf](https://www.pvpc.org/sites/default/files/PVPC%20Regulatory%20Assessment%20for%20Renewable%20Energy%202004_0.pdf) [<https://perma.cc/NSA6-2UGZ>].

278. *Wind Explained: Where Wind Power Is Harnessed*, *supra* note 197 (“Good places for wind turbines are where the annual average wind speed is at least 9 miles per hour (mph)—or 4 meters per second (m/s)—for small wind turbines and 13 mph (5.8 m/s) for utility-scale turbines. Favorable sites include the tops of smooth, rounded hills . . . and mountain gaps that funnel and intensify wind. Wind resources are generally more favorable for electricity generation at higher elevations above the earth’s surface.”).

279. U.S. Dept. of Energy, EIA, *Wind Explained; Where Wind Power is Harnessed*, <https://www.eia.gov/energyexplained/wind/where-wind-power-is-harnessed.php> [<https://perma.cc/5BKW-SB7B>].

280. *See supra* Figure 7.

281. Such “access” may include the public’s ability to view the ridgetops or more direct access through hiking trails and campsites. *See* Danaya C. Wright, *Eminent Domain, Exactions, and Railbanking: Can Recreational Trails Survive the Court’s Fifth Amendment Takings Jurisprudence?*, 26 COLUM. J. ENV’T L. 399, 432 (discussing developer exactions used to create trails); *see also* *Nollan v. California Coastal Comm’n*, 483 U.S. 825, 836 (1987) (suggesting that protecting the public’s view of the beach through proper state use of police power is constitutional).

282. *See* Jim Rossi & Christopher Serkin, *Energy Exactions*, 104 CORNELL L. REV. 643, 705 (2019) (discussing the use of exactions to mitigate adverse impacts of development projects).

283. *See* Marlin Smith, *From Subdivision Improvement Requirements to Community Benefit Assessments and Linkage Payments: A Brief History of Land Development Exaction*, 50 L. & CONTEMP. PROBS. 5, 7 (1987) (describing a variety of examples of land use exactions dedicated to the public, such as sidewalks); *see also* Rossi & Serkin, *supra* note 282, at 658.

284. *Cf. Nollan*, 483 U.S. at 841–42 (striking down an exaction requiring an easement across beachfront property in exchange for building permit). In *Nollan*, the exaction was made pursuant to an administrative regulation that protected the public’s view of the beachfront. *Id.* at 828–29. The Court invalidated the exaction, reasoning that the grant of “physical” access to the beachfront went beyond the purpose and scope of the regulation, which protected only the public’s right to “see” the beachfront. *Id.* at 840–41.

land to which the public does not have access, the case for exactions is less straightforward. Approximately half of the states—twenty-six states—have state level exaction-enabling legislation, most of which provide that exactions can only be used to address pre-specified public service purposes, facilities, or capital improvements that are related to the specific development burdens.<sup>285</sup> A series of Supreme Court decisions—*Nollan v. California Coastal Commission*,<sup>286</sup> *Dolan v. City of Tigard*,<sup>287</sup> and *Koontz v. St. Johns River Water Management District*<sup>288</sup>—require that exactions must be structured to be proportional to and related to the purpose of the exaction.

### C. AESTHETIC OVERLAY ZONES THWARTING SUSTAINABLE WIND POWER

Overlay zones impose a second municipal over-arching zoning limitation on a land area notwithstanding its basic physical zoning district.<sup>289</sup> Authorities have used overlay zone districts to attempt to prohibit wind power.<sup>290</sup> A town may define overlay districts to preserve the aesthetic character or scenic vistas of hilltops and the ridgeline open-space views of those who do not own those ridgelines.<sup>291</sup> That overlay zone may consequently restrict or prohibit siting visible wind power turbines either by expressly prohibiting wind towers in the overlay districts or by limiting

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285. Rossi & Serkin, *supra* note 282, at 691 (noting that Arizona provides for “the imposition of fees to offset costs . . . associated with providing necessary public services to a development . . . limited to roads, water systems, sewer systems, storm water systems, parks, fire and police facilities, and libraries”); *see also id.* at 692 (comparing Arizona legislation to Arkansas legislation, which defines eligible public facilities “to include only water systems, wastewater systems, storm water facilities, roads, libraries, parks, and police, fire, and emergency medical facilities”).

286. 483 U.S. at 836–37.

287. 512 U.S. 374, 390–91 (1994) (holding that imposed exactions costs must bear some rough proportionality to the burdens being offset).

288. 570 U.S. 595, 619 (2013) (holding that the *Nollan/Dolan* exaction protocol applies to both monetary exactions as well as to demands imposed on the land developed).

289. John R. Nolon, *Successful Community Strategies To Protect Open Space*, 33 ENV’T L. REP. 10537, 10542 (2003).

290. *See id.* at 10542, 10546.

291. *See* Jason James, *Developing Municipal Wind Energy Ordinances in New York State* 3 (Oct. 2009) (unpublished manuscript) (on file with the Sabin Center for Climate Change Law) (“A handful of municipalities ban all wind energy projects.”); Nolon, *supra* note 289, at 10542–43 (“Unique natural or aesthetic resource areas, such as a pine barren, wetland resource area, watershed, or tidal basin can be identified and protected [by overlay zones].”).

structural height of any structure in the overlay district.<sup>292</sup> Aesthetic overlay zones that prohibit wind turbines typically elevate and protect the interests of distant parties' aesthetic views over more distant land owned by other unrelated persons. The first offshore wind project proposal in the United States, the Cape Wind project, was successfully opposed because of its supposed interference of the aesthetic visual *status quo*.<sup>293</sup> State and local zoning ordinances regulating or preserving aesthetic characteristics are constitutionally permissible provided they "have any reasonable tendency to promote the public morals, health, or safety, or the public comfort, welfare, or prosperity."<sup>294</sup>

Until seventy years ago, courts did not consider aesthetic concerns to be sufficient on their own to restrict otherwise permissible land uses.<sup>295</sup> However, in 1954 the Supreme Court held that "[t]he concept of the public welfare is broad and inclusive. The values it represents are spiritual as well as physical, *aesthetic* as well as monetary."<sup>296</sup> Thereafter, municipalities passed aesthetic zoning ordinances designed to protect neighborhood character and scenic visual viewsheds, which were upheld.<sup>297</sup> The Massachusetts Supreme Judicial Court held that "aesthetics alone may justify the exercise of the police power; that within the broad concept of 'general welfare,' cities and towns may enact reasonable bill-board regulations designed to preserve and improve their physical environment."<sup>298</sup> Courts today often hold that aesthetic considerations are a rational basis for a zoning regulations.<sup>299</sup>

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292. See F. OTERI, U.S. DEP'T OF ENERGY, AN OVERVIEW OF EXISTING WIND ENERGY ORDINANCES 5–64 (2008), <https://www.nrel.gov/docs/fy09osti/44439.pdf> [<https://perma.cc/Z3B9-7Z9W>] (describing wind energy ordinances governing the appearance and height that exist in various states).

293. Katharine Q. Seelye, *After 16 Years, Hopes for Cape Cod Wind Farm Float Away*, N.Y. TIMES (Dec. 20, 2017), <https://www.nytimes.com/2017/12/19/us/offshore-cape-wind-farm.html> [<https://perma.cc/75VN-QRU8>].

294. *State ex rel. Carter v. Harper*, 196 N.W. 451, 454 (Wis. 1923) (holding that aesthetic zoning must be reasonably related to public health and safety).

295. See *Berman v. Parker*, 348 U.S. 26, 33 (1954).

296. *Id.* (emphasis added) (citation omitted).

297. New Hampshire specified that aesthetics alone *are* sufficient for zoning regulations. See *Asselin v. Town of Conway*, 628 A.2d 247, 250 (N.H. 1993) ("[M]unicipalities may validly exercise zoning power *solely* to advance aesthetic values, because the preservation or enhancement of the visual environment may promote the general welfare."); see also *Stewart v. Town of Durham*, 451 A.2d 308, 311 (Me. 1982) ("[A]esthetic considerations . . . are legitimate reasons for enacting a[n] . . . ordinance.").

298. *John Donnelly & Sons, Inc. v. Outdoor Advert. Bd.*, 339 N.E.2d 709, 717 (Mass. 1975).

299. *Sprint Spectrum L.P. v. Willoth*, 176 F.3d 630, 645 (2d Cir. 1999) ("Aesthetics is generally a valid subject of municipal regulation."); see also *Martin v. Corp. of Presiding Bishop*

A court could uphold a local zoning board's ruling that a wind power project proposal violated regulations protecting aesthetic viewsheds, as long as such regulation was reasonably related to the protection of public safety.<sup>300</sup> Such ordinances would be interpreted in light of the particular state's promotion of wind power, which is now promoted by renewable portfolio standards adopted in twenty-nine states,<sup>301</sup> state net metering programs enacted in thirty-nine states,<sup>302</sup> and ten states with the goal of attaining 100% carbon-free electric energy by the year 2050.<sup>303</sup>

Many states, towns, or counties have enacted special Ridgeline and Hilltop Overlay Districts to further protect upland areas from the environmental and aesthetic impacts of wind turbine projects.<sup>304</sup> Experience is demonstrating that wind projects proposed for ridgelines and mountaintops can face strong county and municipal opposition from those who do not own the land siting the wind turbine(s),<sup>305</sup> wind projects proposed in the vast expanses of flat farmland and ranchland in the West, especially in West Texas, enjoy a high likelihood of success in siting.<sup>306</sup> In addition to the myriad cities and towns across the country that zoned-out wind projects,<sup>307</sup> there can be restrictions at the state and county levels of government as well:

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of Church of Jesus Christ of Latter-Day Saints, 747 N.E.2d 131, 136 (Mass. 2001). In *Martin*, the court noted that the town of Belmont's zoning bylaw itself provided that the board should take into consideration the "[v]isual [c]onsequences" of any proposed structure, and that "[v]iews from public ways and developed properties should be considerately treated in the site arrangement and building design." *Martin*, 747 N.E.2d at 146 n.14.

300. See, e.g., *Martin*, 747 N.E.2d at 136; cf. *Berman*, 348 U.S. at 32 (noting that the scope of state police power includes public safety).

301. Steven Ferrey, *Legal History Repeats Itself on Climate Change*, 33 GEO. ENV'T L. REV. 489, 491 (2022); Ferrey, *supra* note 32, at 660; Ferrey, *supra* note 250, at 62.

302. Steven Ferrey, *Tightening the Legal 'Net': The Constitution's Supremacy Clause Straddle of the Power Divide*, 10 MICH. J. ENV'T & ADMIN. L. 415, 421 (2021).

303. "Six states, plus Washington, D.C., and Puerto Rico, are now committed by law to 100 percent carbon-free electricity by 2050 or earlier (and another 10 states have 100 percent goals). Twenty large utilities, nearly 210 cities, and more than 150 businesses have pledged to—or already have achieved—100 percent clean electricity or 'net-zero' emissions." Sophia Ptacek, *Race to 100% Clean*, NRDC (Apr. 14, 2022), <https://www.nrdc.org/resources/race-100-clean> [<https://perma.cc/9ZL3-4AD6>].

304. For example, Hampden and Wilbraham, Massachusetts, which are located along ridgelines of central Massachusetts, have enacted Ridgeline and Hilltops Overlay Districts. HAMPDEN, MASS., ZONING BYLAW § 6.10 (2019); WILBRAHAM, MASS., ZONING BY-LAW § 9.3.3 (2022).

305. See Bryce, *supra* note 108.

306. See, e.g., Darell Proctor, *Winds of Change Revitalize West Texas*, POWER (Sept. 1, 2021), <https://www.powermag.com/winds-of-change-revitalize-west-texas/> [<https://perma.cc/XW9S-AQ9S>].

307. See Bryce, *supra* note 108.

- North Carolina's Mountain Ridge Protection Act of 1983 prohibits ridge-top construction of wind turbines that are greater than 40 feet in height, which is shorter than the height of modern wind turbines<sup>308</sup> Watauga County, North Carolina became the first county in North Carolina to adopt a wind energy system ordinance.<sup>309</sup>
- The Kansas Supreme Court upheld an ordinance allowing a county Board of Commissioners to ban the development of large wind facilities based on aesthetic impacts.<sup>310</sup>
- The Western District of New York upheld a New York town moratorium on wind generation facilities, finding that the aesthetic impacts of wind facilities are a rational, permissible basis for zoning regulation.<sup>311</sup>
- In Vermont, the aesthetics are a primary factor in issuing a state Certificate of Public Good in order to site small land-based wind projects and are also considered by courts in resolving related disputes.<sup>312</sup>
  - A court determined that erecting a single wind turbine on one's own land approximately 450 feet from neighboring property would have an undue adverse effect on the aesthetics and scenic, natural beauty of the area and would be "offensive or shocking."<sup>313</sup>

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308. N.C. GEN. STAT. §§ 113A-205 to -214 (2021). The Mountain Ridge Protection Act would ban the construction of structures greater than 40 feet on ridges above 3,000 feet that are 500 feet above an adjacent valley floor. *See* § 113A-209(b); N.C. GEN. STAT. § 143-215.120(a)(8) (2021) (prohibiting wind energy facility permits if the facility or expansion would be prohibited under the Mountain Ridge Protection Act of 1983).

309. Diane Cherry & Shubhayu Saha, *Renewable Energy in North Carolina*, 73 POPULAR GOV'T 12, 16 (2008), [https://www.sog.unc.edu/sites/default/files/articles/article2\\_16.pdf](https://www.sog.unc.edu/sites/default/files/articles/article2_16.pdf) [<https://perma.cc/RXZ7-F5TS>].

310. *Zimmerman v. Bd. of Cnty. Comm'rs*, 218 P.3d 400, 431 (Kan. 2009); Housley Carr, *Kansas Supreme Court Backs County Ban on Wind Farms Based on Esthetic Reasons*, ELEC. UTIL. WEEK, Nov. 9, 2009, at 23. Challenges to the ordinance were based on a taking argument as well as a commerce clause challenge. *Zimmerman*, 218 P.3d at 431.

311. *Ecogen, LLC v. Town of Italy*, 438 F. Supp. 2d 149, 157–58 (W.D.N.Y. 2006) (citing *Greene v. Town of Blooming Grove*, 879 F.2d 1061, 1063 (2d Cir. 1989)). In applying those principles here, defendants' subjective motivation in enacting the moratorium is irrelevant. *Id.* at 157 (citing *United States v. Carlton*, 512 U.S. 26, 36–37 (1994) (O'Connor, J., concurring)).

312. *See* VT. STAT. ANN. tit. 30, § 248 (2021).

313. *In re Halnon*, 811 A.2d 161, 166 (Vt. 2002).



- A Vermont State Public Service Board hearing officer denied a Certificate of Public Good to site a six-MW wind project on an abandoned Air Force radar base because it would obstruct aesthetic considerations and distant views.<sup>314</sup>
- Other wind developers reduced almost half the total number of proposed wind turbines in northeast Vermont in order to receive the necessary state permit.<sup>315</sup>

New “aesthetic” zoning has been allowed as a viable local legal tool even where it restricts and frustrates renewable energy deployment to achieve national and international climate change mitigation policy goals.<sup>316</sup>

## V. IN THE WIND

The Supremacy Clause of the Constitution creates a hierarchy among multiple federalist layers of the United States government, ultimately leaving unresolved the ability of supreme levels of government to preempt barriers to sustainable infrastructure that inferior-level states and municipalities enact pursuant to the Constitution’s Tenth Amendment reservation of states’ rights.<sup>317</sup> This is particularly so regarding electric power infrastructure, where the Federal Power Act further bifurcates federal and state authority.<sup>318</sup> Renewable power technology is the key to effectively address climate change emissions.<sup>319</sup> Climate change national and international legal mitigation imperatives can be trapped by the absolute legal jurisdiction of state and local land-use powers recently reaffirmed by Supreme Court opinions.<sup>320</sup>

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314. *Mountaintop Wind Farm Rejected*, CAPE COD TIMES (Jan. 6, 2011, 8:05 PM), <https://www.capecodtimes.com/story/news/2006/07/18/mountaintop-wind-farm-rejected/50893562007/> [<https://perma.cc/P6VK-4BL5>].

315. Louis Porter, *Kingdom Wind Project Downsized; Sheffield Wind Developers Cut 10 Turbines in Effort To Address Various Concerns*, BARRE-MONTPELIER TIMES ARGUS (2006), <https://www.windaction.org/posts/4845> [<https://perma.cc/5YS4-4PAN>].

316. See, e.g., AIDUN ET AL., *supra* note 5, at 61–62, 84–85.

317. See *supra* Section III.F; see generally *Euclid v. Ambler Realty Co.*, 272 U.S. 365 (1922).

318. See *supra* Sections III.D–E.

319. See INTERNATIONAL RENEWABLE ENERGY AGENCY, *UNTAPPED POTENTIAL FOR CLIMATE ACTION: RENEWABLE ENERGY IN NATIONALLY DETERMINED CONTRIBUTIONS 7* (2017); see also *supra* notes 81–85.

320. See *West Virginia v. EPA*, 142 S. Ct. 2587, 2600 (2022); *Va. Uranium, Inc. v. Warren*, 139 S. Ct. 1894, 1908–09 (2019).

State and municipal government control over land-use regulation pursuant to the Tenth Amendment is supported by two centuries of court precedent.<sup>321</sup> Renewable energy generation by wind requires a lot of land—as much as 1,000% more land than traditional fossil fuel power generation.<sup>322</sup> However, the ultimate bottleneck is not scarcity of land in the United States.

Many local governments have enacted “aesthetic” zoning restrictions to prohibit land uses deemed undesired or unsightly to distant persons who do not own the particular siting land for wind turbines.<sup>323</sup> Thirty-five-thousand local governments in the United States can exercise this power to frustrate national and international climate warming mitigation policy.<sup>324</sup> State governments exercise exclusive legal authority over siting the electric utility infrastructure technology that is required to transmit power from sustainable wind generation units to consumers.<sup>325</sup> This is true even once that electric power enters interstate commerce, which the federal government otherwise regulates.<sup>326</sup>

Several states have chosen not to permit construction of new interstate transmission lines through their states to reach other states (even when it would be at no cost to them).<sup>327</sup> New Hampshire recently unilaterally blocked needed new transmission infrastructure to carry additional renewable power from Canada to Massachusetts and Connecticut.<sup>328</sup> Under EPAct 2005, even in certain high-priority transmission corridors, the federal government was prohibited by two federal courts of appeals from exercising its preemptive authority to site power transmission lines.<sup>329</sup> Even though forty-seven of the continental United States participate in and benefit from the federal interstate transmission grid, any single state may unilaterally block any additional power transmission technology or line traversing its state.<sup>330</sup>

With location of renewable power generation and with power transmission infrastructure exclusively subject to state and local land-use authority, the superior federal level of government now has little superior force. While the federal government can approve the terms of the transactions from existing

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321. *See supra* note 249.

322. *See supra* note 123.

323. *See supra* Sections IV.B–C; GREEN & SAGRILLO, *supra* note 188.

324. *Cities 101—Number of Local Governments*, *supra* note 248.

325. *See supra* Section III.E.1.

326. *See supra* notes 139–140.

327. *See supra* Section III.E.1.

328. William Pentland, *New Hampshire Blocks Major Transmission Project*, FORBES (Feb. 4, 2018, 12:43 PM), <https://www.forbes.com/sites/williampentland/2018/02/04/new-hampshire-blocks-major-power-transmission-project/?sh=3e432ea07fdb> [<https://perma.cc/XDX7-XRUF>].

329. *See supra* Section I.EIII.E.1.

330. *See supra* Section III.A.

power generation technologies over the existing transmission network, it cannot mandate additional siting for renewable power generation technologies and, depending on future challenges to the new 2021 Infrastructure Law, may or may not be able to preempt state decisions blocking additional transmission technologies or power lines. The White House stated its intention through the recent massive 2021 Infrastructure Law to create an action to facilitate sustainable development:

The Bipartisan Infrastructure Law is making a once-in-a-generation investment in America’s infrastructure and competitiveness that will create good-paying union jobs, grow our economy, invest in communities, combat climate change, and help lower costs for families.

To make the most of these historic investments and ensure infrastructure projects are delivered on time and on budget, the Biden-Harris Administration is releasing a new Permitting Action Plan to strengthen and accelerate Federal permitting and environmental reviews by fully leveraging existing permitting authorities, as well as new provisions in the Bipartisan Infrastructure Law.<sup>331</sup>

The White House highlighted that the 2021 Infrastructure Law will focus on “Accelerating Smart Permitting through Early Cross-Agency Coordination” through “[e]nsuring early coordination and effective communication across Federal agencies” to “[c]onvene sector-specific teams of experts to facilitate interagency coordination on siting, permitting, supply chain, and related issues, and promote efficient and timely reviews.”<sup>332</sup> This is a constructive element, but while beneficial, it alone is not sufficient. The critical decisions are not federal NEPA review decisions—NEPA provisions are merely procedural, rather than substantive “go” or “no go” decisions.<sup>333</sup> There is much more than federal permitting involved to deliver sustainable infrastructure. There are key state permits to obtain; state Environmental Impact Reports—distinct from federal Environmental Impact Statements—to draft in many states, and key local permits to obtain. Coordinating federal

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331. *Fact Sheet: Biden-Harris Administration Releases Permitting Action Plan To Accelerate and Deliver Infrastructure Projects on Time, on Task, and on Budget*, WHITE HOUSE (May 11, 2022), <https://www.whitehouse.gov/briefing-room/statements-releases/2022/05/11/fact-sheet-biden-harris-administration-releases-permitting-action-plan-to-accelerate-and-deliver-infrastructure-projects-on-time-on-task-and-on-budget/> [<https://perma.cc/XT72-C4QU>] [hereinafter *Fact Sheet*].

332. *Id.*

333. The federal NEPA process and nuances are detailed in FERREY, *supra* note 68, at 101–08.

review is important, although it does not address the fact that state-level and local-level decisions become the fulcrum for siting new power infrastructure.

The 2021 Infrastructure Law attempts to intercede federally in certain limited situations, but if past is prologue, intrusion into traditional state and local land-use jurisdiction will be challenged by states.<sup>334</sup> One additional controversial way that the executive branch might try to constrain the application of these holdings to a small geographic footprint would be to assert inter-circuit non-acquiescence and have FERC aggressively refuse to abide by it outside of the five states within the Fourth Circuit, which issued the *Piedmont* decision.<sup>335</sup> The *Piedmont* case consolidated challenges in the Second Circuit, Fourth Circuit, and D.C. Circuit Courts of Appeals.<sup>336</sup> While it remains unclear whether this precedent applies only in the Fourth Circuit, in three circuits, or nationally in all courts, FERC and the Department of Energy did not initiate any subsequent attempts to exercise such authority.

The 2021 Infrastructure Law and Inflation Reduction Act both also contain unprecedented renewable energy financing.<sup>337</sup> The Inflation Reduction Act, which contains approximately \$369 billion of the energy and climate remnants of the unpassed Biden Build Back Better bill, includes extensions over ten years of the two federal renewable energy credits at their current 2022 levels—for the PTC (at 0.3 cents per kWh) and the ITC (at 26% of eligible capital costs), as well as extension of other renewable energy tax credits.<sup>338</sup> The Inflation Reduction Act provides an extensive bonus structure for renewable energy projects meeting wage and apprenticeship requirements that could increase the PTC by 500% to a credit value of 2.5 cents per kWh and to a 30% credit value for the ITC.<sup>339</sup> This legislation provides, through

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334. See *supra* Section III.E; see also cases cited *supra* note 320.

335. For a discussion of inter-circuit non-acquiescence, see Steven Ferrey, *Disordered Law: Obama to Trump Executive Branch Orders Mandating Non-Enforcement*, 85 ALBANY L.R. (forthcoming 2022) (manuscript at Section V.C) (on file with author).

336. *Piedmont Env't Council v. FERC*, 558 F.3d 304, 312 (4th Cir. 2009).

337. See Elena Shao, *Seven Key Provisions in the Climate Deal*, N.Y. TIMES (July 28, 2022), <https://www.nytimes.com/2022/07/28/climate/biden-climate-deal-key-provisions.html> [<https://perma.cc/8E9H-ACHT>].

338. H.R. 5376, 117th Cong. (1st Sess. 2022). The PTC for wind expired before 2022 and the ITC for new solar facilities was phasing down. See *Schumer-Manchin Deal*, *supra* note 4. The Build Back Better bill, as passed by the House of Representatives but not the Senate, would have increased the available ITC and PTC tax credit percentage to their original full value of 30% for the ITC and 2.5 cents per kWh for the PTC, respectively, for projects beginning construction in 2022 through 2026 (rather than their current 2023 and 2021 deadlines, respectively). *Id.*

339. H.R. 5376, 117th Cong. (1st Sess. 2022). The Inflation Reduction Act bonus structure for eligible renewable energy projects meeting wage and apprenticeship requirements to increase the PTC by up to 500% (adjusted for inflation) and the ITC to a 30% credit value. *Id.* Separate bonuses can be earned for clean energy projects located in targeted energy communities and for

2024, a renewable energy developer's elective direct payment of certain clean and renewable energy tax incentives that will no longer require that the developer have project tax revenue to offset the credit or alternatively to structure tax-equity financing to immediately realize the credits.<sup>340</sup>

However, additional federal subsidy or money may not be the missing link for more renewable energy; renewable energy is now economic and cost-effective without additional subsidy.<sup>341</sup> What is needed is the ability to site wind power turbines at high-wind velocity sites and to move power from there over additional new power transmission lines to consumers. States and municipalities traditionally have controlled all siting of power infrastructure technology and, to date, even with the new 2021 Infrastructure Law, there is no precedent yet adjudicating such federal preemption.<sup>342</sup>

The Supreme Court most recently deferred to local zoning by-laws to interpret what can and cannot be developed on local property regarding energy.<sup>343</sup> Even assuming that the 2021 Infrastructure Law's grant of federal authority to assist in some high-priority electric transmission projects addressing congested areas will have more legal resilience than a somewhat similar court-stricken statute enacted in 2005,<sup>344</sup> it would assist with only a limited number of new transmission facilities.

More money may be necessary, but it is not sufficient. As noted by one observer about the Inflation Reduction Act, "They looked at making it cheaper to build stuff, but sometimes, it doesn't matter how cheap something is. If you can't build it, the price might as well be infinity."<sup>345</sup> While the Inflation Reduction Act provides hundreds of billions of additional dollars of incentives to subsidize and make wind and solar power less expensive, it does not otherwise fundamentally address the dominant state and local power to block these necessary infrastructure improvements.<sup>346</sup> And these separation of powers structural issues—not in lack of cost-effective financing and dollars—is where there is a significant state barrier to plenary renewable energy infrastructure.

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those using incorporating domestic content to increase even more the PTC to a value of 3.0 cents per kWh or an ITC credit value of 50%. *Id.*

340. *Id.* In terms of additional structural financing provisions, there is a provision for the ITC not to reduce low-income housing tax credit basis, a 20% bonus ITC for renewable energy serving covered federal affordable housing programs, and a 10% bonus ITC for facilities in low-income communities for three years. *Id.*

341. See Williams et al., *supra* note 30.

342. See *supra* Sections III.C, III.E, IV.C.

343. Murr v. Wisconsin, 137 S. Ct. 1933 (2017).

344. See *supra* Section III.C.

345. Holmes, *supra* note 198.

346. *Id.*; see also *Fact Sheet*, *supra* note 331.

Notwithstanding a pressing climate imperative, it is still to be determined if enough is contained in the 2021 Infrastructure Law and the Inflation Reduction Act to comprehensively circumvent traditional, long-upheld exclusive state and local authority to control land use to site sustainable generating technologies or infrastructure. Decarbonizing the electric power sector remains key as soon as possible to prevent the world from approaching “critical thresholds that will alter regional and global environmental balances and threaten stability at multiple scales.”<sup>347</sup>

Without changing U.S. law, there are two paths to utilize “location” to implement national climate change policy with renewable power generation. For reference, GHG molecules emitted by traditional power generation technologies do not respect location—GHG molecules emitted anywhere warm not just that location, but instead warm the entire planet. First, 30% of U.S. land, predominately in the western states, is federally-owned land subject to federal control rather than local control.<sup>348</sup> On this significant portion of U.S. land, the federal government rather than municipalities exercises power generation technology siting authority. When siting transmission lines on federal land, federal power-marketing authorities are delegated authority to “design, develop, construct, operate, maintain, or own . . . an electric power transmission facility and related facilities . . . needed to upgrade existing transmission facilities . . . .”<sup>349</sup> Such siting on federal land would not require any state permits while traversing federal land. Although once a line and poles leave federal land, states exclusively control rights-of-way and permits for these lines to traverse the land used for federal and state highways, bottom land under all rivers and streams, and land in state parks and protected areas, which lines will need to occupy or traverse to reach consumers and for which federal law provides no preemption.

On federal land, the Federal Lands Policy and Management Act vests the Department of the Interior Bureau of Land Management and Forest Service with the power to issue permits for rights-of-way on federal lands, including colocation of different projects, that otherwise are compatible uses.<sup>350</sup> A

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347. UNITED NATIONS ENV’T PROGRAMME, UNEP YEAR BOOK 2009: NEW SCIENCE AND DEVELOPMENTS IN OUR CHANGING ENVIRONMENT 21 (Catherine McMullen & Thomas Hayden eds., 2009).

348. U.S. CONST. art. IV, § 3, cl. 2 (stating that Congress has broad authority over lands owned by the federal government); *Federal Lands*, DEP’T OF JUST. (May 12, 2015), <https://www.justice.gov/enrd/federal-lands#:~:text=The%20United%20States%20owns%20over,sheep%3B%20timber%3B%20and%20wilderness> [https://perma.cc/P349-T2V8].

349. 42 U.S.C. § 16421(a).

350. 43 U.S.C. §§ 1701, 1763.

provision directs different federal executive agencies to designate corridors on federal land for energy projects which can include environmental reviews.<sup>351</sup> However, this addresses only part of the challenge in the U.S. federalist legal system: Concentrated U.S. population centers generally are located a distance beyond federal land. Once transmission lines exit federal land, the federal government has no traditional authority over the power transmission infrastructure upgrades that will be needed to transmit power to distant population centers.

Second, regarding alternative locations, the federal government controls siting on large areas under water.<sup>352</sup> Commencing three miles from shore in the oceans, the federal government exercises exclusive authority over wind power technology siting underwater on the continental shelf.<sup>353</sup> More wind power could and will be placed in U.S. ocean waters. The Department of Interior Bureau of Ocean Energy Management leases areas to and regulates private developers locating wind generation in offshore waters.<sup>354</sup>

Again, as with the above location option, this is a substantial but not wholly sufficient condition to circumvent local authority over transmission siting. Off-shore wind turbine interconnections to transmission lines need to emerge from the ocean or from the U.S. Great Lakes onto land to connect to the existing land-based electric transmission grid system to deliver power and capacity. States still remain in control of such in-state, on-land transmission technology siting. So both of these are partial solutions. But partial solutions are a start that is superior to litigation.

Ultimately, addressing climate change by implementing unprecedented amounts of renewable power does not present a land “quantity” issue. The issue is jurisdictional—the legal control of land use by states and 35,000 independent municipalities in a time of national policy working rapidly to deploy new sustainable power generation technology to address climate change.<sup>355</sup> That state and local control is anchored by and embedded in the Tenth Amendment of the Constitution interpreted by more than 200 years of separation of power precedent upholding state and local government controlling local land use. Amending the Constitution in time to address climate change is not an option. However, offshore wind and federally-sited

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351. 42 U.S.C. § 15926.

352. 30 C.F.R. § 585.100 (2022).

353. *Id.*

354. BUREAU OF OCEAN ENERGY MGMT., U.S. DEP’T OF THE INTERIOR, OUTER CONTINENTAL SHELF ENERGY LEASES MAP BOOK 2 (2019), [https://www.boem.gov/sites/default/files/renewable-energy-program/Mapping-and-Data/Renewable\\_Energy\\_Leases\\_Map\\_Book\\_March\\_2019.pdf](https://www.boem.gov/sites/default/files/renewable-energy-program/Mapping-and-Data/Renewable_Energy_Leases_Map_Book_March_2019.pdf) [<https://perma.cc/2EGR-EH6G>].

355. See GROSS, *supra* note 119, at 3–4; Nolan, *supra* note 255, at 824.

wind projects offer a substantial foothold now to begin mitigating climate change.