THE "GREEN NEW DEAL": CONSTITUTIONAL LIMITATIONS; REROUTING GREEN TECHNOLOGY

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I. "TRIP-WIRES" IN THE GREEN NEW DEAL

Can the "Green New Deal" avoid violating U.S. law? Redistributing income and wealth through electric rates and terms is an element of some of the proposed Green New Deal—the high-profile congressional resolution addressing climate change.[1] This Article steps through the pro-con policy debate surrounding the Green New Deal to address the fundamental legal issue of how the Green New Deal fares under U.S. law. The Green New Deal combines "green" elements with its redistributive provisions.[2] Will two sweeping legal policies achieve the sum of their parts, given an unbreachable jurisdictional "bright line" created by the Constitution's Supremacy Clause?[3]

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1. *See* Earl J. Ritchie, *What You Should Know About the Green New Deal(s)*, FORBES (Feb. 8, 2019), https://www.forbes.com/sites/uhenergy/2019/02/08/what-you-should-know-about-the-green-new-deals/#1dafd2332389 (noting that some versions of the Green New Deal incorporate "broad societal and governmental changes, such as income redistribution and reduction of the U.S. military").

2. *Id.*

3. *See infra* Part VII.

The Green New Deal, sponsored by Representative Alexandria Ocasio-Cortez and Senator Edward Markey, and co-sponsored or backed by a majority of the Democratic candidates for the 2020 presidency, is at the center of a national dialogue on U.S. environmental policy.[4] Former Vice President Biden suggested a "middle ground" approach; Representative Ocasio-Cortez replied, "There is no 'middle ground' w[ith] climate denial & delay. . . . We're not going to solve the climate crisis w[ith] this lack of leadership."[5] President Trump tweeted his opinion that the Green New Deal eliminates "all Planes, Cars, Cows, Oil, Gas & the Military."[6] President Trump subsequently concluded: "[It will] kill millions of jobs, it will crush the dreams of the poorest Americans and disproportionately harm minority communities . . . . I will not stand for it."[7] The Obama Administration Secretary of Energy Ernest Moniz voiced skepticism that this legislation could not achieve its goals and would set back climate control objectives:

> I'm afraid I just cannot see how we could possibly go to zero carbon in the 10-year time frame . . . . It's just impractical. And if we start putting out impractical targets, we may lose a lot of key constituencies who we need to bring along to have a real low-carbon solution on the most rapid time frame that we can achieve . . . .[8]

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4. Rashaan Ayesh & Orion Rummler, *Where Top 2020 Candidates Stand on Climate Policy and the Green New Deal*, AXIOS (Sep. 12, 2019), https://www.axios.com/2020-presidential-candidates-green-new-deal-22faff60-3fee-45f3-8636-09e437c82431.html (arguing that the Green New Deal "has helped cement climate change as a real topic in the 2020 presidential race"). This included Senators Cory Booker (N.J.), Kirsten Gillibrand (N.Y.), Kamala D. Harris (Calif.), Amy Klobuchar (Minn.), Elizabeth Warren (Mass.), and Bernie Sanders (Vt.); Julián Castro (Tex.); Beto O'Rourke (Tex.); Marianne Williamson; Andrew Yang; Pete Buttigieg (In.), among others. Representative Tulsi Gabbard (Ha.) voiced reservations about its vagueness, John Delaney (Pa.) had his own plan. *Id.*; Jason Lemon, *Nearly Every Declared Democratic 2020 Candidate Supports Ocasio-Cortez's "Green New Deal" While Trump Mocks The Proposal*, NEWSWEEK (Feb. 10, 2019), https://www.newsweek.com/democratic-2020-candidates-support-ocasio-cortez-green-new-deal-1325775.

5. John Bowden, *Ocasio-Cortez Calls Biden's Reported "Middle Ground" Climate Policy a "Dealbreaker"*, THE HILL (May 10, 2019), https://thehill.com/policy/energy-environment/443220-ocasio-cortez-says-bidens-reported-middle-ground-climate-policy-is; Umair Irfan, *A Guide to How 2020 Democrats Plan to Fight Climate Change*, VOX, https://www.vox.com/2019/9/10/20851109/2020-democrats-climate-change-plan-president (last updated Dec. 19, 2019).

6. Salvador Rizzo, *What's Actually in the "Green New Deal" from Democrats?*, WASH. POST (Feb. 11, 2019), https://www.washingtonpost.com/politics/2019/02/11/whats-actually-green-new-deal-democrats/.

7. Joseph Zeballos-Roig, *President Trump Used a Speech Aimed at Touting His Environmental Record to Declare War on Alexandria Ocasio-Cortez's "Unthinkable" Green New Deal*, BUS. INSIDER (Jul. 8, 2019) (alteration in original), https://www.businessinsider.com/president-trump-declares-war-on-aoc-green-new-deal-2019-7.

8. Rizzo, *supra* note 6 (internal quotation marks omitted).

This Article analyzes both federal and state legal "trip wires" that confront implementation of a Green New Deal—

At the federal level:

- Federal tax incentives for renewable energy phased-out or -down at the end of 2019;[9]
- Binding Federal Energy Regulatory Commission (FERC) orders that mandate all power generation be dispatched or operated based on lowest daily competitive cost, notwithstanding any other federal or state "Green New Deal" policy preferences for "green" technologies;[10] and
- Three recent decisions of the Supreme Court limit traditional *Chevron* deference for any Environmental Protection Agency (EPA) regulations that address electric sector emissions affecting climate change.[11]

At the state level:

- Renewable energy resources are not commensurately distributed among the states, with as much as a 2:1 state-by-state differential on available solar and other "green" power; [12]
- Some states have not favored policy supporting renewable power;[13]
- A recent Supreme Court decision outlaws state regulations that attempt to attract certain types of power generation to their states when they participate in interstate power markets, which the majority of state utilities do;[14] and
- State energy regulatory precedent in many of the states prohibits Green New Deal elements should they attempt to redistribute wealth through electric rates.[15]

The positive news about some of the Green New Deal goals is that, even with none of it enacted, business-as-usual market forces are implementing several of the "green" elements of the Green New Deal:

- The cost of renewable wind and solar power has dramatically decreased, making them the least-cost economic choice of the

9. *See infra* Part IV.A.2.
10. *See infra* Part V.
11. *See infra* Part III.
12. *See infra* Part IV.B.1.
13. *See infra* Part IV.B.1.
14. *See infra* Part IV.A.1.
15. *See infra* Part VI.

majority of new power generation, and substantially reducing U.S. climate emissions from the power sector;[16]

- Even with the current presidential administration withdrawing from the international 2015 Paris Agreement and the Supreme Court indefinitely enjoining major power sector climate regulations, the U.S. power sector, without any regulation, is meeting the U.S. Paris Agreement pledges a decade before required;[17] and
- State-level incentives for renewable power, if thoughtfully enacted, have survived legal constitutional challenges as to the authority of states to enact such legal measures.[18]

This Article asks the fundamental legal question: "Can the Green New Deal not confront limitations under U.S. law?" Part II examines and categorizes the "green" versus the redistributive aspects of the Green New Deal, many of which may be implemented through requirements and tariffs imposed on the electric sector of the U.S. economy. Part II investigates the electro-physics of power, the intermittency of renewable solar and wind power, and how these distinctions determine why electricity must be and is regulated differently than other forms of energy. This regulatory difference affects whether and how the Green New Deal might not comply with American law.

The federal government would be the designated regulator-implementer of the Green New Deal.[19] Part III analyzes three recent Supreme Court decisions that limit traditional *Chevron* deference to the EPA to address issues of environmental climate change through regulation of the electric sector of the U.S. economy.[20] In sequence, these Supreme Court decisions bar the EPA regulatory discretion to fine-tune statutes,[21] strike climate-oriented regulations that do not consider costs,[22] and, for the first time, extend

16. *See infra* Part IV.C.

17. *See* Steven Ferrey, *Counter-Intuitive Climate Forcing: Post Paris Agreement Corporate Incentives*, 43 VT. L. REV. 629, 669–70 (2019) [hereinafter Ferrey, *Counter-Intuitive*] (footnote omitted) ("The Rhodium analysis projects that the U.S. could achieve the 2032 CPP-required levels of CO_2 reduction from power plants a full decade in advance, without the CPP or any other regulations in place and continuing under business-as-usual.").

18. *See infra* Part IV.B.2–3.

19. Lisa Friedman, *What Is the Green New Deal? A Climate Proposal, Explained*, N.Y. TIMES (Feb. 21, 2019), https://www.nytimes.com/2019/02/21/climate/green-new-deal-questions-answers.html.

20. Chevron, U.S.A., Inc. v. Nat. Res. Def. Council, Inc., 467 U.S. 837, 842–43 (1984).

21. *See* Util. Air Regulatory Grp. v. EPA, 134 S. Ct. 2427, 2449 (2014) ("Our narrow holding is that nothing in the statute categorically prohibits [the] EPA from interpreting the BACT provision to apply to greenhouse gases emitted by 'anyway' sources.").

22. *See* Michigan v. EPA, 135 S. Ct. 2699, 2711–12 (2015) (holding that the EPA was "unreasonable" when interpreting "§ 7412(n)(1)(A) [of the Clean Air Act] to mean that cost is irrelevant to the initial decision to regulate power plants").

the power of the Supreme Court to indefinitely stay entire regulations long before a substantive challenge even reaches the Court.[23]

Part IV analyzes additional Supreme Court decisions drawing an uncrossable "bright line" between state and federal authority and jurisdiction over power.[24] Part IV examines the regulatory gap created by the unanimous recent 9-0 Supreme Court decision that construed the Supremacy Clause of the Constitution applied to energy regulation, contrasted with several FERC orders.[25] Part IV also examines the retreat and phase-out of federal tax credits for "green" power, amid support of "green" power through state net metering and state renewable portfolio standard programs.

The final retail price that consumers see is exclusively set by state energy regulatory authorities, not federal agencies.[26] Part V contrasts the conflict between controlling federal law and contrary initiatives of some states attempting to promote their preferences for more "green" technologies. Part V charts and analyzes U.S. law that mandates technology-neutral least-cost power operation metrics, which may or may not favor "green" power technologies. Part VI pivots to analyze state common law under which some elements of the Green New Deal implemented through utility rates could constitute intentionally discriminatory impermissible ratemaking under several states' legal rules and precedents.

Under U.S. federal and state law, the Green New Deal confronts some legal impediments to its full implementation. If the United States desires to enact this policy, how do we get there from here legally? Part VII identifies, through dueling federal and state authority, that there is a "back door" legal opening for "green" power. New "green" technology could utilize different FERC orders and advance pivoting off a different, new Internal Revenue Code provision.[27] The "Opportunity Zones" provision in the federal tax code is not itself originally designed for "green" energy.[28] However, utilizing new battery storage technology interconnected to the power grid to transcend the intermittency limitation of renewable energy, there is an opening for "green" elements of the Green New Deal to advance substantially, notwithstanding any future legal challenges contesting whether other elements of the Green New Deal violate U.S. law.

Before analyzing various aspects of state and federal law and key recent decisions of the Supreme Court, the next Part examines of what the Green New Deal is comprised, as to both its "green" and other elements.

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23. West Virginia v. EPA, 136 S. Ct. 1000, 1000 (2016).
24. Fed. Power Comm'n v. S. Cal. Edison Co., 376 U.S. 205, 215–16 (1964).
25. *See generally* Hughes v. Talen Energy Mktg., LLC, 136 S. Ct. 1288 (2016).
26. *See infra* note 148.
27. *See infra* Part VII.
28. *See infra* note 498.

II. LEGALLY DISTINGUISHING "GREEN" FROM "NEW DEAL" IN THE GREEN NEW DEAL

A. What It Would Implement

Given considerations of space, this Article will not catalogue in detail the Green New Deal. The Green New Deal features key goals, which include:

Green:

- "[C]utting greenhouse-gas emissions to net zero over [the next] 10 years . . . ."[29]
- "Meeting 100 percent of the power demand in the United States through clean, renewable, and zero-emission energy sources."[30]
- "Building or upgrading to energy-efficient, distributed, and 'smart' power grids, and working to ensure affordable access to electricity."[31]
- "Upgrading all existing buildings in the United States and building new buildings to achieve maximal energy efficiency, water efficiency, safety, affordability, comfort, and durability, including through electrification."[32]

New Deal:

- "Guaranteeing a job with a family-sustaining wage, adequate family and medical leave, paid vacations, and retirement security to all people of the United States."[33] Representative Ocasio-Cortez's office later augmented this in an FAQ, stating that "the Green New Deal sought 'economic security for all who are unable or unwilling to work.'"[34] Others added: "We need to treat clean energy as a human

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29. Rizzo, *supra* note 6 (quoting Recognizing the Duty of the Federal Government to Create a Green New Deal, H.R. Res. 109, 116th Cong. (2019), https://www.congress.gov/116/bills/hres109/BILLS-116hres109ih.pdf.). The FAQ added:

> We set a goal to get to net-zero, rather than zero emissions, in 10 years because we aren't sure that we'll be able to fully get rid of farting cows and airplanes that fast, but we think we can ramp up renewable manufacturing and power production, retrofit every building in America, build the smart grid, overhaul transportation and agriculture, plant lots of trees and restore our ecosystem to get to net-zero.

Id. (emphasis omitted) (citation omitted). Representative Ocasio-Cortez denied that the FAQ she released was "doctored;" the Washington Post subsequently confirmed: "The statements and FAQs at issue were not doctored. They were all produced by her staff." *Id.*

30. *Id.* (quoting H.R. Res. 109).
31. *Id.* (quoting H.R. Res. 109).
32. *Id.* (quoting H.R. Res. 109).
33. *Id.* (quoting H.R. Res. 109).
34. *Id.* (citation omitted).

right and a common good. We also need a just transition to provide resources to the low-income communities and communities of color most impacted by climate change."[35]

- "Providing all people of the United States with—(i) high-quality health care; (ii) affordable, safe, and adequate housing; (iii) economic security; and (iv) access to clean water, clean air, healthy and affordable food, and nature."[36]
- "Providing resources, training, and high-quality education, including higher education, to all people of the United States."[37]
- Representative Ocasio-Cortez's office supplemented an FAQ that added it would build "high-speed rail at a scale where air travel stops becoming necessary."[38]

The first four elements bulleted above are "green" elements;[39] while the second four elements above are more accurately categorized as other redistributive elements.[40] This distinction is important in assessing legally, if and how, the government could implement the Green New Deal in the face of inevitable legal challenges.[41] The "green" elements predominately involve the power sector, and this is not by chance.[42] The consensus climate change mitigation plan, put together by former California Governor Jerry Brown and former New York City Mayor Michael Bloomberg in Fall 2018, designates the electric sector of the economy—even though it contributes only approximately 28% of total greenhouse gas emissions (GHGs) annually—to eliminate 620 million metric tons of CO_2e of the total 1,020 million metric

35. *Green New Deal*, GREEN PARTY U.S., https://www.gp.org/green_new_deal (last visited May 3, 2020).

> We need to treat clean energy as a human right and a common good. We also need a just transition to provide resources to the low-income communities and communities of color most impacted by climate change.
>
> The Green New Deal will provide assistance to workers and local communities that now have workers employed in the fossil fuel industry and to the developing world as it responds to climate-change damage caused by the industrial world.

Id.

36. Rizzo, *supra* note 6 (quoting H.R. Res. 109).

37. *Id.* (quoting H.R. Res. 109).

38. *Id.* (citation omitted).

39. *See id.* (categorizing these elements as "green" elements because they are steps to prevent climate change).

40. *See id.* (categorizing these elements as redistributive because they are aimed towards redistributing wealth and opportunity).

41. *See* Daniel Oberhaus, *The Real Challenge for the Green New Deal Isn't Politics*, WIRED (July 9, 2019), https://www.wired.com/story/real-challenge-green-new-deal-isnt-politics/ (asserting there will be legal challenges to placing new transmission lines for green energy, affecting both green and redistributive elements).

42. Rizzo, *supra* note 6.

tons of CO_2e achieved, shouldering more than 60% of the total effort by 2025.[43]

B. Staying "Green": Power Grid Changes to Accommodate Renewable Power

1. What Exactly Is Power; What Makes It "Green"?

Figure 1 illustrates that the electric sector dominates emissions of the primary GHG, CO_2, compared to all other sectors of the economy.[44] Power plants emit approximately 40% of all anthropogenic CO_2 emissions in the United States.[45]

Power requires hard wiring to be delivered in a form usable by consumers.[46] It is the movement of the copper electrons inside the copper atoms already in transmission and distribution wires that creates and delivers electric power.[47] The electric power grid provides an essential service to constantly balance demand of power with equal supply necessary to keep the grid operational.[48]

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43. FULFILLING AMERICA'S PLEDGE, BLOOMBERG PHILANTHROPIES 5–6, 19 (2018), https://www.bbhub.io/dotorg/sites/28/2018/09/Fulfilling-Americas-Pledge-2018.pdf; *Sources of Greenhouse Gas Emissions*, EPA, https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions (last visited May 2, 2020).

44. U.S. ENERGY INFO. ADMIN., EMISSIONS OF GREENHOUSE GASES IN THE U.S. 2 (Mar. 31, 2011), https://www.eia.gov/environment/emissions/ghg_report/pdf/0573%282009%29.pdf (depicting electric power as the largest source of "all energy-related CO_2 emissions" in the U.S. at just under 40%).

45. Standards for Performance of Greenhouse Gas Emissions for New Stationary Source: Electric Utility Generating Units, 77 Fed. Reg. 22,392, 22,395 (Apr. 13, 2012) (to be codified at 40 C.F.R. pt. 60) (claiming control over "fossil fuel-fired power plants because they are responsible for approximately 40 percent of all U.S. anthropogenic CO_2 emissions"); *Overview of Greenhouse Gases: Carbon Dioxide Emissions*, EPA, http://www3.epa.gov/climatechange/ghgemissions/gases/co2.html (last updated Apr. 10, 2020) ("In 2018, the combustion of fossil fuels to generate electricity was the second largest source of CO_2 emissions in the nation . . . [at] 32.3 percent . . . .").

46. *See* Steven Ferrey, *Exit Strategy: State Legal Discretion to Environmentally Sculpt the Deregulating Electric Environment*, 26 HARV. ENVTL. L. REV. 109, 116 (2002) (analogizing the hard wiring of power to an assembly line). Self-generated distributed power does not require connection to the integrated network. *Id.* at 175 (discussing distributed generation options).

47. Steven Ferrey, *Inverting Choice of Law in the Wired Universe*, 45 WM. & MARY L. REV. 1839, 1911 (2004).

48. STEVEN FERREY, ENVIRONMENTAL LAW: EXAMPLES & EXPLANATIONS 604 (8th ed., Wolters Kluwer 2019).

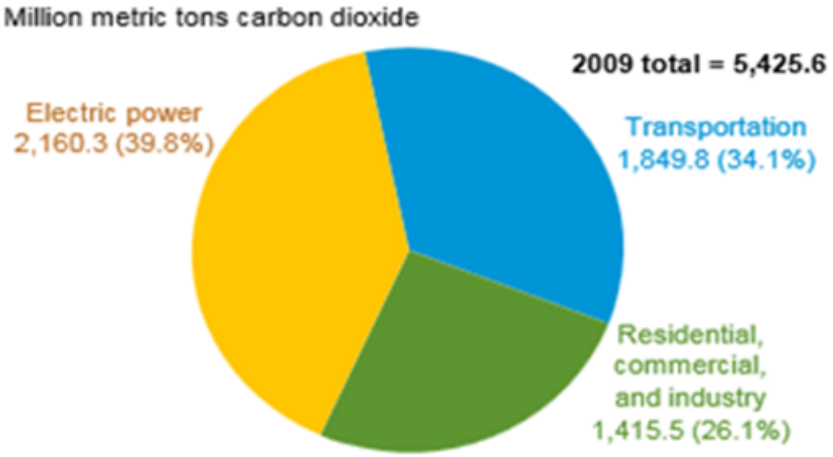

Figure 1. U.S. CO_2 Emissions by Sector, 2009[49]

Moving electrons cannot be efficiently stored as electricity for more than a fraction of a second before the energy is lost as waste heat.[50] Supply of electricity must match the volatile demand for electricity over the centralized utility grid at all times to maintain electric system operation.[51] Either too much or too little power during any second can cause system instability.[52] A constant balance of demand and supply on the grid is required.[53]

Wind and solar power differ in that their outputs are intermittent, unlike many other forms of electricity generation, and thus distinct from traditional forms of power deployed in the United States.[54] Non-tracking solar photovoltaics (PV) and wind power demonstrate a relatively low capacity factor in the 10 to 40% range of hours during a week when they operate.[55] The capacity factor calculates what percentage of maximum "nameplate"

49. *Id.*

50. *Id.* at 605.

51. *See id.* at 604 (demonstrating the volatile demand of electricity, by comparing projections with actual demand).

52. POWER BLACKOUT RISKS, CRO FORUM 6 (2011), https://www.thecroforum.org/wp-content/uploads/2012/09/CRO-Position-Paper-Power-Blackout-Risks-1-1.pdf.

53. *See Electricity Explained: How Electricity Is Delivered to Consumers*, U.S. ENERGY INFO. ADMIN, https://www.eia.gov/energyexplained/electricity/delivery-to-consumers.php (last updated Oct. 11, 2019) (discussing challenges of balancing supply and demand within the energy grid).

54. *The Intermittency of Wind and Solar: Is It Only Intermittently a Problem?*, CLEANTECHNICA (Aug. 12, 2013), https://cleantechnica.com/2013/08/12/intermittency-of-wind-and-solar-is-it-only-intermittently-a-problem/.

55. *See* 2 STEVEN FERREY, LAW OF INDEPENDENT POWER § 2:12.10 (2020) [hereinafter FERREY, LAW OF INDEPENDENT POWER] (noting the inability of intermittent sources to serve as base-load resources).

power generation potential of the equipment is realized in operation.[56] The highest recorded U.S. annual wind capacity factor was 33.9% in 2014; the U.S. Energy Information Administration calculated the median wind capacity over a recent decade as 31%.[57] In the United Kingdom, the calculated wind capacity factor "ranged from a low of 21.5% in 2010 to a record high of 27.9% in 2013."[58]

Intermittent renewable power can trigger a management issue for grid operation.[59] In a three-month period in 2014, the California Integrated System Operator (CAISO) was required to curtail wind and solar generation in four instances for six hours to balance supply and demand on the system.[60] The over-supply of intermittent renewables curtailed 485 megawatts (MW) of wind and 657 MW of solar.[61] Hawaii solar produced more surplus power than used.[62] Consequently, "[t]he energy [could] flow back to the substation . . . which [could] lead to reliability problems and possibly surges. And if crews are working in the area, there's a potential danger."[63] In response, Hawaii eliminated its net metering program entirely in 2015, replacing it with two options: "self-supply" and "grid supply."[64]

Traditionally, as intermittent solar and wind as a percentage of total generation increase, there must be operation of more quick-start spinning

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56. *See What Is Generation Capacity?*, U.S. DEP'T OF ENERGY, OFFICE OF NUCLEAR ENERGY (May 1, 2020), https://www.energy.gov/ne/articles/what-generation-capacity (describing capacity factor as a measure of "how often a plant is running at maximum power.").

57. Planning Engineer & Rud Istvan, *True Costs of Wind Electricity*, CLIMATE ETC., (May 12, 2015), http://judithcurry.com/2015/05/12/true-costs-of-wind-electricity/.

58. *Id.*

59. *See infra* notes 61–68 and accompanying text.

60. David Howarth & Bill Monsen, *Renewables Face: Daytime Curtailments in California*, PROJECT FIN. NEWSWIRE, Nov. 2014, at 12–13, https://www.projectfinance.law/media/1584/pfn_1114.pdf.

61. *Id.*

62. *See* Sara Matasci, *Net Metering Battles: Hawaii*, ENERGYSAGE, http://news.energysage.com/net-metering-battles-hawaii/ (last updated Dec. 18, 2015) (noting that Hawaiian Electric Company had a backlog of net metering applications because solar panels produced more power than the area was consuming).

63. Anne C. Mulkern, *A Solar Boom So Successful, It's Been Halted*, SCI. AM. (Dec. 20, 2013), https://www.scientificamerican.com/article/a-solar-boom-so-successfull-its-been-halted/.

64. *See* Megan Cleveland & Jocelyn Durkay, *State Net Metering Policies*, NAT'L CONF. OF STATE LEGISLATURES (Nov. 20, 2017), http://www.ncsl.org/research/energy/net-metering-policy-overview-and-state-legislative-updates.aspx (discussing net-metering programs across the country); Phil Cross, *Net Metering Skirmishes in Hawaii, California, Mississippi, Nevada*, PUB. UTIL. FORT., Feb. 2016, at 56. "'[S]elf-supply' . . . does not allow customers to export any rooftop PV energy back to the grid, except very limited amounts for a short duration." Mark Dyson & Jesse Morris, *Hawaii Just Ended Net Metering for Solar. Now What*, RMI OUTLET (Oct. 16, 2015), https://rmi.org/hawaii-just-ended-net-metering-solar-now/. "Grid supply" allows customer export of energy to the grid, for which they receive a lower-value credit than under net metering. *Id.* Phil Cross, *supra*. *See* Krysti Shallenberger, *Hawaii Regulators Nix Bid to Raise Caps on Grid-Supply Rooftop Solar Incentive*, UTILITY DIVE (Dec. 15, 2016), http://www.utilitydive.com/news/hawaii-regulators-nix-bid-to-raise-caps-on-grid-supply-rooftop-solar-incent/432464/ (examining the "self-supply" option). Compensation is based on the "12-month average on-peak avoided cost ending in June 2015," lower than the retail rate. HEATHER PAYNE & JONAS MONAST, UNC CTR. FOR CLIMATE, ENERGY, ENV'T, & ECON., VALUING DISTRIBUTED ENERGY RESOURCES: A COMPARATIVE ANALYSIS, 16 (2018), https://law.unc.edu/wp-content/uploads/2019/09/derpaperfinal.pdf.

reserve supplies of energy to respond to provide load-following generation.[65] Spinning reserve typically has had fossil fuel-fired and other base-load units "spin" at partial output when not needed to be capable of "ramping" up quickly to fill power gaps from intermittent power output changes.[66] There are both financial and environmental costs to spinning backup fossil power resources.[67]

2. "Green" Reliability

It is controversial whether intermittent renewable energy will destabilize the grid. Mark Jacobson argued in 2015 that between 2050 and 2055 the United States could be entirely powered by zero-carbon resources, renewable power, and storage with zero use of fossil fuels or nuclear power.[68] His group also argued that this all-renewable grid supply would be an equally resilient electric grid.[69] Jacobson's work drew criticism.[70] A group of prominent climate scientists countered that the Jacobson study used inadequately supported projections and contained modeling errors.[71] They noted that, with large amounts of intermittent renewable energy, there can be grid destabilization.[72]

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65. *See* W. Edward Platt & Richard B. Jones, *The Impact of Carbon Trading on Performance: What Europe's Experience Can Teach North American Generators*, POWER (Jan. 1, 2010), https://www.powermag.com/the-impact-of-carbon-trading-on-performance-what-europes-experience-can-teach-north-american-generators/ (arguing that North American coal-fired generators should shift, under cap-and-trade, from operating as baseload generators to intermittent-load generators).

66. Steven Ferrey, *The Poles of Power: Magnetic Bi-Directional Turn of the Meter*, 8 GEO. WASH. J. ENVTL. L. 39, 44–45 (2017).

67. *Id.* at 39, 42.

68. Richard Martin, *Fifty States Plan Charts a Path Away from Fossil Fuels,* MIT TECH. REV. (June 12, 2015), https://www.technologyreview.com/s/538451/fifty-states-plan-charts-a-path-away-from-fossil-fuels/.

69. *See* Mark Schwartz, *Stanford Scientist Unveils 50-State Plan to Transform U.S. to Renewable Energy*, STANFORD NEWS (Feb. 26, 2014), https://news.stanford.edu/news/2014/february/fifty-states-renewables-022414.html (highlighting the diverse forms of renewable energy that will bolster the grid's resilience).

70. James Temple, *Scientists Sharply Rebut Influential Renewable-Energy Plan*, MIT TECH. REV. (June 19, 2017), https://www.technologyreview.com/s/608126/in-sharp-rebuttal-scientists-squash-hopes-for-100-percent-renewables/.

71. Christopher T. M. Clack et al., *Evaluation of a Proposal for Reliable Low-Cost Grid Power with 100% Wind, Water, and Solar*, 114 PROC. NAT'L ACAD. SCI. 6641, 6723 (2017); *see also* Temple, *supra* note 70 (recounting the rebuttal to and review of the Jacobson study as littered with miscalculations, underestimations, and unrealistic expectations).

72. *See* Clack et al., *supra* note 71, at 6726–27 (positing that 100% renewable energy creates a myriad of problems for grid stability including: new grid architecture, load flow and transmission issues, and variability of loads from renewable energy sources).

In response, Jacobson countered these criticisms[73] and sued his critics for defamation, later dropping his defamation suit in early 2018.[74] Jacobson's work posits a much more robust U.S. transmission and distribution system and massive amounts of storage capacity for electricity that does not exist now, proposing to move massive amounts of solar and wind power across the United States to compensate for regional intermittency.[75] A federal court in 2016, regarding electricity, declared:

> The discovery of fire was a significant event, creating for mankind warmth against the cold and light in the darkness . . . . The concept of electricity was first deduced by William Gilbert, a physician in the service of Elizabeth I of England (1533–1603). In 1752, Benjamin Franklin demonstrated the practical application of electricity by flying a kite carrying a key into a lightning storm. Today, electricity is a principal source of light and heat for the world and its people.
>
> As the importance of electricity has increased exponentially in human affairs, politicians and governments inevitably stepped up regulation of the generation and marketing of electrical energy.[76]

Local government exclusively exercises police power over all electric facility land-use and siting authority.[77] FERC lacks jurisdiction over the siting, construction, or ownership of transmission facilities, which are exclusively within state jurisdiction.[78] The rates, terms, and provisions of any wholesale sale or transmission of electricity in interstate commerce are solely

73. Temple, *supra* note 70. Jacobson replied: "They don't like the fact that we're getting a lot of attention, so they're trying to diminish our work." *Id.* Jacobson stated: "There is not a single error in our paper." *Id.*

74. Ellen M. Gilmer, *Professor Drops Defamation Suit Over Dueling Energy Research*, E&E NEWS (Feb. 23, 2018), https://www.eenews.net/energywire/2018/02/23/stories/1060074571.

75. *See generally* Mark Z. Jacobson et al., *Low-Cost Solution to the Grid Reliability Problem with 100% Penetration of Intermittent Wind, Water, and Solar for All Purposes*, 112 PROC. NAT'L ACAD. SCI. 15,060 (2015).

76. Allco Fin., Ltd. v. Klee, Nos. 3:15-cv-608, 3:16-cv-508, 2016 WL 4414774, at *2 (D. Conn. Aug. 18, 2016).

77. *About FERC: What FERC Does Not Do*, https://www.ferc.gov/about/ferc-does.asp (last updated Aug. 14, 2018) (outlining the limit of FERC's jurisdictional authority).

78. Piedmont Envtl. Council v. FERC, 558 F.3d 304, 309–10, 313 (4th Cir. 2009).

within federal jurisdiction and control, not under state authority[79]: "FERC has exclusive authority to determine the reasonableness of wholesale rates."[80]

The Energy Policy Act of 2005 expanded the powers of the Department of Energy and FERC for interstate transmission projects to designate congested transmission corridors, National Interest Electric Transmission Corridors (NIETCs), in "any geographic area experiencing electric energy transmission capacity constraints or congestion that adversely affects consumers."[81] It also established an expedited mechanism for FERC to approve new electric transmission projects to obtain all federal siting permits within one year, providing FERC "backstop authority" to issue construction permits for projects in NIETCs if states withhold approval for more than a year, and established eminent domain rights, otherwise within state authority, for these NIETC projects.[82]

However, a federal appellate court in 2009 blocked FERC from acting to "backstop" and grant a federal superseding permit for a new transmission line, when the state had failed for 12 months to act on the permit.[83] Two years later, in 2011, the Ninth Circuit ruled that the U.S. Department of Energy (DOE) failed to properly consult with affected states in preparing the Congestion Study required by this provision, and further ruled that the DOE failed to consider the environmental effects of designating NIETCs under the National Environmental Policy Act for corridors in mid-Atlantic and Southwestern states.[84] Only two NIETCs have been designated by the DOE since enactment of the 2005 Energy Policy Act 15 years ago, and both of those federal actions were overturned and vacated by a federal court.[85] Thus,

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79. New England Power Co. v. New Hampshire, 455 U.S. 331, 340 (1982). The Supreme Court concluded that "§ 201(b) simply saves from pre-emption under Part II of the Federal Power Act such state authority as was otherwise 'lawful'" and that "[n]othing in the legislative history or language of the statute evinces a congressional intent 'to alter the limits of state power otherwise imposed by the Commerce Clause.'" *Id.* at 341 (citations omitted).

80. Miss. Power & Light Co. v. Mississippi *ex rel.* Moore, 487 U.S. 354, 371 (1987); *accord* Pub. Util. Dist. No. 1 of Snohomish C., Wash. v. FERC, 471 F.3d 1053, 1066 (9th Cir. 2006) ("FERC's jurisdiction to determine the reasonableness of wholesale rate is exclusive."), *aff'd in part, remanded in part sub nom.* Morgan Stanley Capital Grp., Inc. v. Pub. Util. Dist. No. 1, 554 U.S. 527 (2008).

81. Energy Policy Act of 2005, 16 U.S.C. § 824p(a)(2) (2011).

82. *See generally* Regulations for Filing Applications for Permits to Site Interstate Electric Transmission Facilities, 71 Fed. Reg. 69,440 (Dec. 1, 2006) (to be codified at 18 C.F.R. pts. 50, 380). FERC issued Order No. 689 in 2006, creating a multi-year process for obtaining a federal permit to construct transmission within a NIETC. *See generally id.*

83. *Piedmont Envtl. Council*, 558 F.3d at 309–10.

84. Cal. Wilderness Coalition v. U.S. Dep't of Energy, 631 F.3d 1072, 1083 (9th Cir. 2011).

85. *See id.* (indicating that the Energy Policy Act is 15 years old and the 2 NIETCs, the Mid-Atlantic Area National Corridor and the Southwest Area National Corridor, were not valid).

any state can frustrate a transmission line coming through its state to carry power elsewhere, and many have.[86]

III. SUPREME COURT DELEVERAGING FEDERAL REGULATORY POWER REGARDING CLIMATE

Any federal congressional action to approve the Green New Deal would act pursuant to the federal power over interstate commerce and the federal taxing power.[87] Most, or even all of it, would be implemented by executive branch regulations.[88] Focusing on the "green" aspects of it, these regulations would be promulgated primarily by FERC and the EPA.[89] In a series of three sequential decisions in the last four years, the Supreme Court restricted the ability of federal environmental agencies to provide implementation of law aimed at climate change affecting the energy sector of the U.S. economy.[90]

A. UARG 2014: Limiting Executive Agency Discretion on Electric Power

In 2014, the EPA, under President Obama's Climate Action Plan, promulgated regulations to supplement provisions of the Clean Air Act to address the emission of GHGs from power plants.[91] The EPA estimated that this would cost private power generators up to $8.8 billion annually for compliance.[92] The U.S. Supreme Court in *Utility Air Regulatory Group v. EPA* overruled such exercise of EPA authority on energy and climate change, stating:

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86. *See Piedmont Envtl. Council*, 558 F.3d at 310, 313 (detailing how a state can block or prolong interstate transmission lines within its state lines by withholding a permit because FERC does not have authority in permitting when it has been denied by the state).

87. *See Green New Deal—Full Language*, GREEN PARTY U.S., https://www.gp.org/gnd_full (last visited May 2, 2020) (showing that the Green New Deal will be based on Congress's interstate commerce and taxing power by the goals of interstate electricity transmission and the taxes that will be implemented to pay for it); *infra* Part IV.A.1 (outlining the power and jurisdiction of the federal government in electricity transmission in interstate commerce); *infra* Part IV.A.2 (explaining the federal taxing power the government has to create and promote green energy and that the different tax credits add options available generally and from the CPP).

88. *See generally* GREEN PARTY U.S., *supra* note 87 (outlining the Green New Deal and its goals for implementation, which includes mostly federal agency action to carry out the goals in power and energy regulation, environmental regulation, taxation, and other federal powers).

89. *See infra* Part III.A–C (explaining the federal regulatory powers in energy and climate of FERC and the EPA primarily under the Clean Power Plan and other general energy and environmental regulations).

90. *See supra* Part III.A–C; *see also infra* note 139 and accompanying text.

91. *See EPA Fact Sheet: Clean Power Plan*, EPA, https://archive.epa.gov/epa/cleanpowerplan/fact-sheet-clean-power-plan.html#print (last updated May 9, 2017) (detailing President Obama's 2014 climate action plan to cut carbon pollution from power plants).

92. *FACT SHEET: Clean Power Plan Benefits of a Cleaner, More Efficient Power Sector*, EPA, https://archive.epa.gov/epa/cleanpowerplan/fact-sheet-clean-power-plan-benefits-cleaner-more-efficient-power-sector.html (last updated May 9, 2017).

> Were we to recognize the authority claimed by EPA in the Tailoring Rule, we would deal a severe blow to the Constitution's separation of powers. Under our system of government, Congress makes laws and the President, acting at times through agencies like EPA, "faithfully execute[s]" them. . . . The power of executing the laws necessarily includes both authority and responsibility to resolve some questions left open by Congress that arise during the law's administration. But it does not include a power to revise clear statutory terms that turn out to not work in practice.[93]

The U.S. Supreme Court held that the EPA, as the executive branch of government, cannot refashion parts of congressional environmental statutes addressing climate change: "EPA's interpretation is . . . unreasonable because it would bring about an enormous and transformative expansion in EPA's regulatory authority without clear congressional authorization."[94] The Court struck the EPA's interpretation of a statute applying to GHG emissions and climate change:

> We conclude that EPA's rewriting of the statutory thresholds was impermissible and therefore could not validate the Agency's interpretation of the triggering provisions. An agency has no power to "tailor" legislation to bureaucratic policy goals by rewriting unambiguous statutory terms. Agencies exercise discretion only in the interstices created by statutory silence or ambiguity; they must always "give effect to the unambiguously expressed intent of Congress."[95]

Notwithstanding that the year before, the Supreme Court held that federal agencies have discretion to determine the substantive scope of their own authority, this 2014 Supreme Court opinion limits the additional discretion that the EPA may take, under any presidential administration, to implement a climate change or "green" statute addressing the electric power

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93. Util. Air Regulatory Grp. v. EPA, 134 S. Ct. 2427, 2446 (2014) (alteration in original) (citations omitted). In ruling against the EPA's Tailoring Rule argument, the Court

> reaffirm[ed] the core administrative-law principle that an agency may not rewrite clear statutory terms to suit its own sense of how the statute should operate. EPA therefore lacked authority to "tailor" the Act's unambiguous numerical thresholds to accommodate its greenhouse-gas-inclusive interpretation of the permitting triggers. Instead, the need to rewrite clear provisions of the statute should have alerted EPA that it had taken a wrong interpretive turn.

Id.

94. *Id.* at 2444.

95. *Id.* at 2445 (quoting Nat'l Ass'n of Home Builders v. Defs. of Wildlife, 551 U.S. 644, 655 (2007)).

sector.[96] Since the current format of the Green New Deal is in broad terms requiring significant executive branch EPA or FERC discretion in implementation, this precedent creates a potential federal administrative law consideration to making it effective.[97]

B. Michigan 2015: Economic Limitations on the EPA Energy Sector Regulations

In 2015, the Supreme Court overturned executive environmental and energy regulations that did not consider costs before implementing action.[98] This decision was issued during the Obama Administration, a year before the election of President Trump.[99] This decision, for the first time in the history of U.S. jurisprudence, elevated the consideration of costs as a necessary prerequisite to justify EPA regulation.[100] This alters traditional *Chevron* deference to executive branch and EPA initiatives, at least regarding EPA regulation of the energy sector regarding climate change.[101]

In this regulation of mercury emissions from power generation facilities, the EPA—without providing any statistical basis or medical proof—claimed long-term health benefits of $37 billion to $90 billion annually.[102] What the Supreme Court noted about costs and benefits and their ultimate balance is of note for future disputes that could embroil the Green New Deal: "During oral arguments, several members of the Court were critical that the EPA's cost-benefit analysis for the MATS rule attributed billions [of dollars] in annual public health benefits to" the reduction of $PM_{2.5}$ and other pollutants—regulated under other sections of the Clean Air Act to the MATS mercury standards, "even though the agency could only quantify between $4 million and $6 million in benefits to reductions of hazardous air pollutants," a fraction of 1% of the "benefits."[103]

The Supreme Court overturned the Mercury Air Toxics Standards (MATS) rule because the EPA is required to "consider cost—including, most importantly, cost of compliance—before deciding whether regulation is appropriate and necessary," because "[o]ne would not say that it is even

96. City of Arlington v. FCC, 569 U.S. 290, 307 (2013).

97. *Cf. id.* (holding that courts must apply the *Chevron* standard to agency decisions and give the agency discretion, even when that discretion is about jurisdictional boundaries).

98. Michigan v. EPA, 135 S. Ct. 2699, 2711–12 (2015).

99. *Id.*

100. *See id.* at 2708–10 (finding that the Court's precedent has never held that cost was necessary in an "appropriate and necessary" determination by an agency).

101. Chevron v. Nat'l Res. Def. Council, 467 U.S. 837, 844 (1984).

102. *Michigan*, 135 S. Ct. at 2706.

103. Patrick Ambrosio, *Supreme Court Remands EPA Mercury Rule for Failing to Consider Cost to Power Plants*, DAILY ENVTL REP. (BNA) (June 30, 2015), http://www.bna.com/supreme-court-remands-n17179928911/.

rational, never mind 'appropriate,' to impose billions of dollars in economic costs in return for a few dollars in health or environmental benefits."[104] One thing that is clear about the Green New Deal is that it will carry significant costs.[105] Even though the "green" elements of such a program are becoming more cost-effective,[106] the "New Deal" aspects of the program may propose to shift income from those with more to those with less, not through federal welfare and assistance programs, but through the electric sector of the economy via environmental and energy regulations.[107] The decision in *Michigan* establishes at least two new limitations on such actions targeting energy industries regarding climate change:

- A prerequisite cost consideration is now required for action under the Clean Air Act[108] and
- It is not yet clear what will be the Court's reaction when program costs far exceed benefits.[109]

C. West Virginia 2016: Stay of Clean Power Plan Addressing Energy Sector

In 2016,[110] the Supreme Court took an action that it had never taken before—indefinitely enjoined an entire federal regulation from its preamble to its final sentence—prior to any substantive federal Circuit Court decision reached it on appeal to be decided.[111] No party in the matter was able to point

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104. *Michigan*, 135 S. Ct. at 2707, 2711.

105. *See* GREEN PARTY U.S., *supra* note 87 (estimating the revenues for paying for the Green New Deal at $700 billion to $1 trillion dollars, with the "Jacobson estimate[] [for] total capital cost to go to 100% renewable energy in the U.S. would be $13.4 trillion").

106. *See e.g.*, Steven Ferrey, *Against the Wind—Sustainability, Migration, Presidential Discretion*, 44 COLUM. J. ENVTL. L. 341, 364–65 (2019) (noting that wind power is becoming extremely cost-effective and is expected to be cheaper than electricity derived from fossil fuels by 2025).

107. *See* GREEN PARTY U.S., *supra* note 87 (proposing the creation of a "[r]enewable [e]nergy [a]dministration" and massive changes to electrify everything, including transport and heating, which will all require agency regulations and allocation from Congress for the authority, by creating a carbon tax and raising taxes on the wealthy).

108. *See Michigan*, 135 S. Ct. at 2709, 2711–12 (reasoning and concluding that the EPA should have considered costs in its interpretation of its power to regulate power plants as "appropriate and necessary" under § 7412(n)(1)(A) of the Clean Air Act, creating a precedent that costs must be considered).

109. *See id.* at 2711 (declining to speculate on what the result would be if the costs outweighed the benefits when the EPA decided whether regulation is necessary and proper under the Clean Air Act, because the EPA did not explicitly mention it in the regulatory program).

110. *See generally* West Virginia v. EPA, 136 S. Ct. 1000 (2016); *see* Jonathan Adler, *Supreme Court Put the Brakes on the EPA's Clean Power Plan*, WASH. POST (Feb. 9, 2016), https://www.washingtonpost.com/news/volokh-conspiracy/wp/2016/02/09/supreme-court-puts-the-brakes-on-the-epas-clean-power-plan/?utm_term=.dd512a870f71 (reporting on the Supreme Court's decision to stay the implementation of the Clean Power Plan and how the EPA violated the law).

111. *See* LINDA TSANG & ALEXANDRA M. WYATT, CONG. RESEARCH SERV., R44480, CLEAN POWER PLAN: LEGAL BACKGROUND AND PENDING LITIGATION IN *WEST VIRGINIA V. EPA* 14–15 (2017) (clarifying that the Court's split decision was rare in that the decision of a stay, halting the legal

to any previous case in which the Supreme Court had stayed an agency rule before any court had reviewed it on its merits.[112] Again, this involved an EPA regulation of the power sector involving the core U.S. program on climate change, the Obama Administration Clean Power Plan (CPP).[113] After this reversal, the D.C. Circuit found that the Supreme Court stay not only relieved the EPA of its enforcement obligation, but also relieved the EPA of its statutory duty to regulate carbon for the indefinite future.[114]

The Green New Deal purposefully and clearly will address the power sector in its new "green" initiatives.[115] The traditional court-afforded *Chevron* deference to executive-branch discretion to administer federal law with regard to the energy sector to address climate change is now modified and restricted by three recent Supreme Court decisions.[116] The states could take over some or all of the Green New Deal power sector initiative implementation.[117] However, power sector state and federal jurisdiction is bifurcated in the Federal Power Act (FPA) by what the Supreme Court defines as a "bright line" legally separating federal and state authority, which poses additional legal challenges to state implementation of the Green New Deal.[118]

As well, not all of the 50 states have equally embraced renewable energy or other aspects of the Green New Deal.[119] Moreover, there are issues when some states control their own power systems, while others are members of

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progression of the clean power plan without a lower court hearing the case on the merits). The first application for a stay was filed in late January 2016; the Court granted the stay on February 9, 2016. *Id.* This stay before a court of appeals decision on the merits was deemed by the Congressional Research Service as "unusual." *Id.*

112. *See* Robert Percival, *In Blocking EPA Clean Power Plan, Is the Supreme Court Wading Deeper Into Politics?*, THE CONVERSATION (Feb. 12, 2017), http://theconversation.com/in-blocking-epa-clean-power-plan-is-the-supreme-court-wading-deeper-into-politics-54513 (proclaiming that there was no precedent for *West Virginia v. EPA* where the Court stayed the CCP without hearing the case on the merits, and the closest case was *Bush v. Gore*, which was decided on the merits).

113. *See id.* (describing the estimation of reduced GHG emissions the regulation at issue in *West Virginia v. EPA* will effectuate and stating that the CPP "is a key part of the Obama [A]dministration's efforts to reduce [GHGs]").

114. *See* Order, West Virginia v. EPA, No. 15-1363 (D.C. Cir. Aug. 8, 2017) (issuing an order that determined the effect of the stay of the CPP).

115. *See* GREEN PARTY U.S., *supra* note 87 (outlining the goals of the Green New Deal, including: 100% clean, renewable energy, electrifying everything, including transport and heating, with sources such as wind, solar, geothermal, wave, tidal, and hydroelectric power, all of which will be solely addressing the power sector).

116. *See supra* Part III.A–C.

117. *See supra* Part III.A–C (discussing the likelihood that states have a major voice when it comes to implementation of the Green New Deal as they do in the CPP as evidenced by three major Supreme Court cases halting the EPA and FERC's authority).

118. *See infra* Part IV.A.

119. *See Renewable & Clean Energy Standards*, DSIRE (June 2019), https://www.ncsl.org/research/energy/renewable-portfolio-standards.aspx (charting that only 29 states and D.C. have renewable portfolio standards).

multi-state Independent System Operators, in which not all states agree on whether to minimize power generation costs or to steer to a "green" new deal.[120] The next Part enters the state and federal legal challenges regarding the Green New Deal.

IV. STATE AND FEDERAL LEGAL CAPS COMPLICATING IMPLEMENTATION OF THE GREEN NEW DEAL

The legal precedent controlling federal and state jurisdiction over electric power treat all consumers equally and fairly, while minimizing the cost of provision of electric power service.[121] Both the "New Deal" elements, as well as the "green" elements of the Green New Deal would steer a new direction to: (1) eliminate all use of fossil fuels for power generation within the next decade; (2) do so without necessarily considering cost, as was the issue in the *Michigan* case;[122] and (3) could treat consumers of the same amount of power from identical sources differently. In the electric power sector, such mechanisms must be implemented by FERC at the federal level, and by each of 50 states, 5 U.S. territories, and the District of Columbia, for any of this new direction to work.[123] There are significant legal challenges at both the federal and state levels in attaining these goals.[124]

A. Federal-State "Bright Line" Division of Authority

1. The Federal Power Act "Bright Line" of the Supremacy Clause Shifting Power Away from the States

Sections 205 and 206 of the FPA[125] empower FERC to exclusively regulate rates for the interstate and wholesale sale and transmission of electricity.[126] The U.S. Supreme Court held that Congress meant to draw a "bright line"—easily ascertained and not requiring case-by-case analysis—

120. *See infra* Figure 7; *see also infra* Part VII.C.

121. *See infra* Part VI.A–B (discussing state and federal statutes and legislation, as well as case law interpreting them, along with basic principles of fairness in electric power rates for consumers).

122. *See* Michigan v. EPA, 135 S. Ct. 2699, 2711–12 (2015) (holding that the EPA acted unreasonably when it did not consider costs and the benefits that would come from its regulation of pollutants from power plants).

123. *See infra* Part IV.B.1 (explaining the collaboration of federal and state entities and authorities that will need to accept and implement the Green New Deal because of the split division of authority between wholesale and retail sale of power and permitting rights and power).

124. *See infra* Part IV.A.1 (highlighting issues of federalism in the implementation of agency regulation involving power and the Supreme Court's interpretation of the FPA though a series of cases).

125. Energy Policy Act of 2005, 16 U.S.C. §§ 824d–824e (2011).

126. Pub. Util. Dist. No. 1 v. FERC, 471 F.3d 1053, 1058 (9th Cir. 2006), *aff'd in part, remanded in part sub nom.* Morgan Stanley Capital Grp., Inc. v. Pub. Util. Dist. No. 1, 554 U.S. 527 (2008).

between state and federal jurisdiction over power.[127] When a transaction is subject to exclusive federal FERC jurisdiction and regulation, the FERC jurisdiction and regulation preempts the state regulation as a matter of both federal law and the U.S. Constitution's Supremacy Clause, according to a long-standing and consistent line of rulings by the U.S. Supreme Court.[128]

The entire suite of rates, terms, and provisions of any wholesale sale or transmission of electricity in interstate commerce are exclusively within federal jurisdiction and control—not state authority.[129] Under the FPA, FERC has "exclusive authority to regulate the transmission and sale at wholesale of electric energy in interstate commerce, without regard to the source of production."[130] The filed-rate doctrine, which preempts state law, applies with equal force to federal and state courts.[131] The filed-rate doctrine also applies to efforts by state regulators to modify the terms of a FERC-mandated rate determination or cost allocation.[132]

States, however, retain authority over retail electric sales, because "FERC's jurisdiction over the *sale* of power has been specifically confined to the wholesale market."[133] If states impose a rate in excess of avoided cost (the wholesale value of power in the market) by either "law or policy," the "contracts will be considered to be void *ab initio*."[134] The Supreme Court in

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127. Fed. Power Comm'n v. S. Cal. Edison Co., 376 U.S. 205, 215–16 (1964).

128. New England Power Co. v. New Hampshire, 455 U.S. 331, 340–44 (1982) (overturning an order of the New Hampshire Public Utilities Commission that restrained within the state—for the financial advantage of in-state ratepayers—low-cost hydroelectric energy produced within the state). The Supreme Court held this to be an impermissible violation of the dormant Commerce Clause of the U.S. Constitution, Article 1, Section 8, Clause 3, and the FPA: "Our cases consistently have held that the Commerce Clause of the Constitution, Art. I, § 8, cl. 3, precludes a state from mandating that its residents be given a preferred right of access, over out-of-state consumers, to natural resources located within its borders or to the products derived therefrom." *Id.* at 338 (citations omitted); *see also* Entergy La., Inc. v. La. Pub. Serv. Comm'n, 539 U.S. 39, 49–50 (2003) (internal quotation marks omitted) (finding that the state public service commission order, which mandated that public utilities make certain payments, impermissibly "trapped" costs that FERC had allocated in a tariff); *accord* Miss. Power & Light Co. v. Mississippi *ex rel.* Moore, 487 U.S. 354, 371–72 (1988); Nantahala Power & Light Co. v. Thornburg, 476 U.S. 953, 966 (1986); Montana-Dakota Utils. Co. v. Nw. Pub. Serv. Co., 341 U.S. 246, 251–52 (1951).

129. *See New England Power Co.*, 455 U.S. at 340 (citation omitted) (reaffirming that the FPA gave the federal government authority to regulate electric power and that "the states lacked power to regulate the rates governing interstate sales of electricity for resale").

130. *Id.*

131. *See* Ark. La. Gas Co. v. Hall, 453 U.S. 571, 581–82 (1981) ("The court below . . . has consequently usurped a function that Congress has assigned to a federal regulatory body. This the Supremacy Clause will not permit.").

132. *See Entergy La., Inc.*, 539 U.S. at 47 ("FERC-mandated cost allocations could not be second-guessed by state regulators.").

133. New York v. FERC, 535 U.S. 1, 20 (2002) (emphasis in original).

134. *Connecticut Light & Power Co*., 70 FERC ¶ 61,012, 61,029–30 (1995); *see also* Indep. Energy Producers Ass'n v. Cal. Pub. Utils. Comm'n, 36 F.3d 848, 858–59 (9th Cir. 1994) (referring to the full amount of the avoided cost as the "statutory ceiling" for rate setting); *S. Cal. Edison Co*., 70 FERC ¶ 61,215, 61,676 (1995) (explaining that FERC intended to set a full avoided cost rate as the maximum permissible rate).

1986, and again in 1988, 2003, and 2008, reaffirmed and enforced exclusive federal jurisdiction pursuant to the filed-rate doctrine when states attempted to assert jurisdiction inconsistent with FERC's exclusive authority over wholesale-rate determinations.[135]

A federal court ruled that state regulation of wholesale-power preferences and sales violated the U.S. Constitution.[136] Preemption of state jurisdiction to regulate wholesale-power transactions, as well as dormant Commerce Clause violations resulting from state attempts to discriminate in the preference for in-state regulation of power moving in interstate commerce, resulted in the federal court's finding of unconstitutionality[137]:

> Under the Federal Power Act, 16 U.S.C. § 791a *et seq.*: "Congress has drawn a bright line between state and federal authority in the setting of wholesale rates and in the regulation of agreements that affect wholesale rates. States may not regulate in areas where FERC has properly exercised its jurisdiction to determine just and reasonable wholesale rates or to insure that agreements affecting wholesale rates are reasonable." . . .
>
> [A] state "must . . . give effect to Congress' desire to give FERC plenary authority over interstate wholesale rates, and to ensure that the States do not interfere with this authority." . . .
>
> Under the "filed-rate doctrine," state courts and regulatory agencies are preempted by federal law from requiring the payment of rates other than the federal filed rate. . . . "The filed rate doctrine requires 'that interstate power rates filed with FERC or fixed by FERC must be given binding effect by state utility commissions determining intrastate rates.'"[138]

In *Hughes v. Talen Energy Marketing*, the Supreme Court held that the Supremacy Clause affirmed "bright lines" between state- and federal-legal jurisdiction over the power sector.[139] The Supreme Court unanimously

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135. *See* Morgan Stanley Capital Grp. Inc. v. Pub. Util. Dist. No. 1 of Snohomish Cty., 554 U.S. 527, 531 (2008) (providing the statutory framework that stipulates FERC's authority to review wholesale energy contracts); *Entergy La., Inc.*, 539 U.S. at 41, 49–50; Miss. Power & Light Co. v. Mississippi *ex rel.* Moore, 487 U.S. 354, 371 (1988) ("FERC has exclusive authority to determine the reasonableness of wholesale rates."); Nantahala Power & Light Co. v. Thornburg, 476 U.S. 953, 963 (1986) (stating that the filed-rate doctrine limitations also apply "to decisions of state courts").

136. Entergy Nuclear Vt. Yankee, LLC v. Shumlin, 838 F. Supp. 2d 183, 243 (D. Vt. 2012), *aff'd in part, rev'd in part*, 733 F.3d 393 (2d Cir. 2013).

137. *Id.* at 242–43.

138. *Id.* at 233–34 (second alteration in original) (citations omitted).

139. *See* Hughes v. Talen Energy Mktg., LLC, 136 S. Ct. 1288, 1297 (2016) (holding that Maryland's program regulating energy rates violated the Supremacy Clause).

upheld the Fourth Circuit opinion,[140] finding that a state energy regulatory statute intrudes on exclusive FERC wholesale-market authority:[141] "Maryland's program sets an interstate wholesale rate, contravening the [FPA's] division of authority between state and federal regulators."[142] The Court agreed that there is field preemption, consistent with all prior judges at both the federal trial and circuit levels rendering decisions on the *Hughes* matter.[143] The Supreme Court opinion discussed both field preemption and conflict preemption.[144]

The *Hughes* Court relied on its prior field preemption precedent of *Mississippi Power & Light* and *Nantahala Power & Light Co*.[145] In *Nantahala Power & Light Co. v. Thornburg*, the Supreme Court found field preemption of state-retail-rate regulation that conflicts with wholesale-power rates approved by FERC:[146] "FERC clearly has exclusive jurisdiction over the rates to be charged [to] interstate wholesale customers."[147] The author of the majority opinion in *Talen*, Justice Kagan, at oral argument stated:

> I'm not sure why it is that when you say it was subject to FERC's jurisdiction that doesn't end the case right there against you, . . . [it is FERC's authority] to set the rates and other terms of wholesale sales, and that's not for the states to do. So that means you're preempted.[148]

All nine Supreme Court Justices, as well as all four federal judges in the earlier decisions at the trial and court of appeals levels, found that the state violated the Supremacy Clause of the Constitution.[149] The Supreme Court reinforced the "bright line," excluding all state regulation affecting (directly or indirectly) transactions in interstate-wholesale power.[150] Like

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140. *Id.*

141. *See id.* at 1298 (citation omitted) ("But States may not seek to achieve ends, however legitimate, through regulatory means that intrude on FERC's authority over interstate wholesale rates, as Maryland has done here.").

142. *Id.* at 1297.

143. *See id.* (holding that Maryland's rate program encroached on FERC's authority).

144. *See id.* at 1298 (holding that Maryland cannot interfere with FERC's authority to set rates); *id.* at 1298–99 (explaining that precedent forbids a state from setting a rate that conflicts with FERC's objective).

145. *Id.* at 1298–99 (noting that the Fourth Circuit opinion, which the Court affirmed, relied on the Supreme Court's *Mississippi Power* decision).

146. Nantahala Power & Light Co. v. Thornburg, 476 U.S. 953, 966 (1986) (stating that FERC has "plenary" jurisdiction concerning interstate wholesale rates, but it does not limit the state's role regarding the prudency of a buyer's decision to purchase power).

147. *Id.* (citations omitted).

148. Rebecca Kern, *Justices Appear Convinced State Subsidy Enters FERC Turf*, BLOOMBERG BNA (Feb. 24, 2016).

149. *Nantahala Power & Light*, 476 U.S. at 961.

150. *Id.*

approximately half the states (but not the other half), Maryland chose to participate in a (PJM) interstate-wholesale-power-market system.[151] In recent times, the role of "[f]ederal [energy] regulation has become increasingly prominent."[152] The circuit court in the *Hughes* matter stressed that Maryland chose to abandon its prior state model "and throw in its lot with the federal interstate markets . . . effectively compelling" participation in, and adherence to, the exclusively federally regulated interstate wholesale market.[153] With an approximate order of magnitude increase in the percentage of wholesale transactions, there is a fundamental shift inserting the federal government, rather than the states, into exclusive control of these transactions and their regulation.[154]

2. Federal Tax Incentives Promoting Elements of the Green New Deal Terminate

Federal tax incentives for renewable "green" energy achieved an apex and are declining and being eliminated.[155] The tax reform act—effective in 2018[156]—decreased the corporate tax rate substantially.[157] However, the two federal tax credits, which specifically incentivize the renewable energy sources that the Green New Deal will require, are being eliminated or substantially reduced.[158] The federal Production Tax Credit (PTC) is eliminated if the renewable-generation project construction had not begun prior to January 1, 2020.[159] For the PTC renewable project eligibility from 2017 until 2020, each year the credit value declines by 20% until there is a

151. *See* Hughes v. Talen Energy Mktg., LLC, 136 S. Ct. 1288, 1293 (2016) (finding that Maryland and a number of other states were a part of the PJM).

152. PPL EnergyPlus, LLC v. Nazarian, 753 F.3d 467, 472 (4th Cir. 2014) (citing New York v. FERC*,* 535 U.S. 1, 7 (2002)).

153. *Id.* at 473.

154. Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities, 61 Fed. Reg. 21,540, 21,541, 21,549–50 (May 10, 1996) (to be codified at 18 C.F.R. pts. 35 and 385). In 2014, nearly 40% of U.S. electricity was generated by what the U.S. Information Administration terms "independent power producers," and increased almost 400% from 10% 2 decades earlier. *See* U.S. ENERGY INFO. ADMIN., ELECTRIC POWER MONTHLY WITH DATA FOR JUNE 2015 Tbls. 1.2–1.5 (2015), https://www.eia.gov/electricity/monthly/archive/august2015.pdf (providing data that shows the significant increase in renewable power generation across sectors between 2005 and 2015).

155. Consolidated Appropriations Act of 2016, Pub. L. No. 114-113, 129 Stat. 3038, 3038–40 (2015) (amending I.R.C. § 45 (2012)).

156. Tax Cuts and Jobs Act, Pub. L. No. 115-97, § 11001(a), 131 Stat. 2054, 2054 (2017).

157. Ferrey, *Counter-Intuitive*, *supra* note 17, at 647.

158. *See* Consolidated Appropriations Act of 2016 §§ 301, 303 (codifying the phaseout of wind and solar credit incentives).

159. FERREY, LAW OF INDEPENDENT POWER, *supra* note 55, § 3:59, at 3-258; I.R.C. § 45(b)(5).

60% reduction for projects begun in 2019.[160] Projects beginning in 2020 and after will be phased out of PTC eligibility.[161]

The alternative federal tax incentive for renewable-energy projects is the federal Investment Tax Credit (ITC), which provides a 30% of capital investment tax credit upon completion of the renewable-energy project investment.[162] While the PTC pays for ten years based on renewable energy production output, the ITC is realized in year one, based on the capital investment in the renewable-energy project.[163] The ITC 30% tax credit declines from 30% to 10% in 2021 and continues at the reduced rate.[164] Developers may claim the full ITC 30% tax credit for solar projects by meeting a "safe harbor" test of 5% of total investment by the end of 2019, and finishing the project by the end of 2023.[165]

Maintaining both of these vanishing tax credits is important for the Green New Deal's elimination of fossil fuel generation in the power sector in the next decade. With the PTC and ITC extended, the Rhodium Group analysis projects that solar and wind power assume the dominant new energy generation role through 2021—adding almost 300 terawatt-hours of generation in lieu of natural gas combined cycle generation—as the economic technology of choice.[166] This dominance of new renewable energy in lieu of natural gas- and coal-fired power reduces U.S. carbon emissions.[167]

B. State Legal Incentives for Green New Deal Power Generation

1. Uneven "Green" Resource Distribution and Access

States have always been able to provide subsidies with state funds, as long as they do not commandeer or affect the operation of wholesale-power

160. FERREY, LAW OF INDEPENDENT POWER, *supra* note 55, § 3:59.10, at 3-258.

161. *Id.* § 3.59.10, at 3-259.

162. I.R.C. § 48(a)(1)–(2) (2012). *See also* Ferrey, *Counter-Intuitive*, *supra* note 17, 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.").

163. *See* NAT'L RESEARCH 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).

164. FERREY, LAW OF INDEPENDENT POWER, *supra* note 55, § 3:59:10, at 3-262, § 3:59:40, at 3-274. *See also* Ferrey, *Counter-Intuitive*, *supra* note 17, at 653.

165. Ferrey, *Counter-Intuitive*, *supra* note 17, at 655; FERREY, LAW OF INDEPENDENT POWER, *supra* note 55, § 3:59.40, at 3-274.

166. Ferrey, *Counter-Intuitive*, *supra* note 17, at 656.

167. *Id.*

markets.[168] This can include state tax breaks[169] or direct subsidies, which some states have done for decades.[170] However, with 50 states, 5 territories, and the District of Columbia, all of the states have different dispositions as to which power-generation technologies they want to promote.[171] States have the reserved power to tell their regulated utilities the type of power generation technology that they are required to provide.[172]

However, it is clear, given that some states produce significant amounts of coal, natural gas, oil, or biomass resources, that not all states are of one mind regarding the types of power that they want to incentivize or the costs that they want their ratepayers to bear.[173] There are potential legal restrictions in mandating that we will all embark on a particular technology for generation of power, whether that technology be renewable energy or coal or any other option, without looking at the economic and equity issues.[174]

168. *See id.* at 661 n.273 (citation omitted) ("The [RPS] requirements could also be applied to wholesale electricity buyers, such as distribution companies and electricity brokers, but the states do not exercise authority over wholesale markets.").

169. FERREY, LAW OF INDEPENDENT POWER, *supra* note 55, §§ 10:151, 10:78–90.

170. *Id.* § 10:114, at 10–493.

171. *See State Profile and Energy Estimates*, U.S. ENERGY INFO. ADMIN., https://www.eia.gov/state/ (last visited May 2, 2020) (providing detailed estimates of each state's sources for electricity generation).

172. Energy Policy Act of 2005, 16 U.S.C. § 824(b)(1) (2015).

173. *See* Nadja Popovich, *How Does Your State Make Electricity?*, N.Y. TIMES (Dec. 24, 2018), https://www.nytimes.com/interactive/2018/12/24/climate/how-electricity-generation-changed-in-your-state.html (showing that different states have different primary energy sources).

174. *See infra* text accompanying notes 336–51 (explaining commissions at both the federal and state level need to set a "just and reasonable" rate and the Green New Deal, if implemented improperly, could run afoul of this).

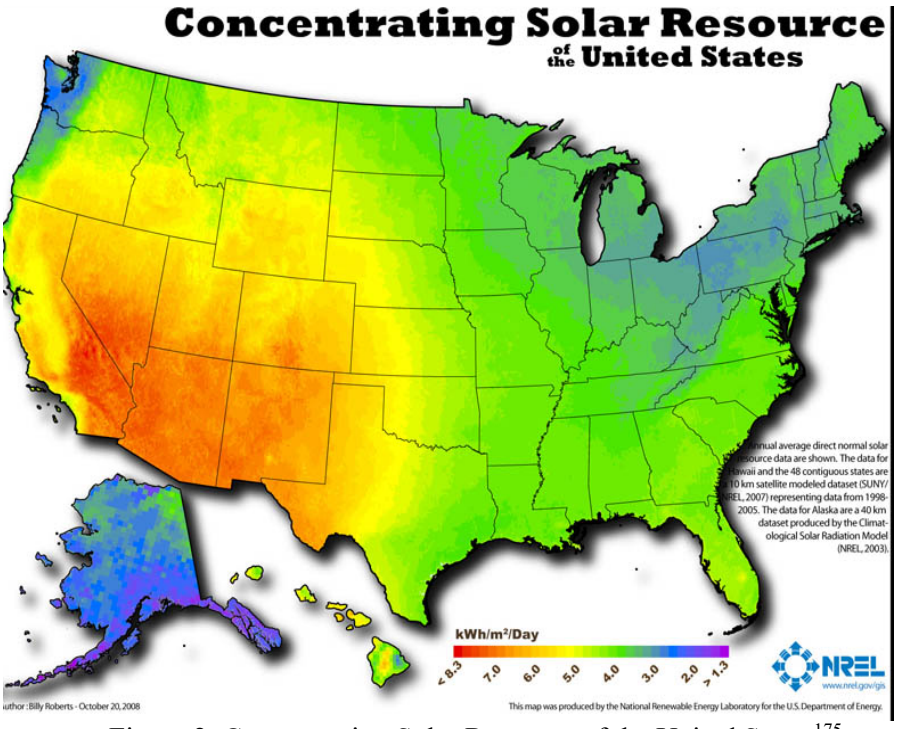

Figure 2. Concentrating Solar Resource of the United States[175]

As a physical factor, renewable-power options are not equally available in states across the United States[176] Figure 2 displays available solar resources, with the northern United States enjoying much fewer, even half, the solar resources as part of the southern United States.[177] These resource differences determine both the availability and cost of switching to a different power resource.[178] And in Figure 2, not all of the southern half of the United States enjoys more intense availability of solar power, by as great a factor as

175. E. ANDERSON ET AL., A BROAD OVERVIEW OF ENERGY EFFICIENCY AND RENEWABLE ENERGY OPPORTUNITIES FOR DEPARTMENT OF DEFENSE INSTALLATIONS 33, fig.18 (2011), https://pdfs.semanticscholar.org/6555/9b7dab611f5d35314bb3a30a13c35cc0739a.pdf.

176. *Id.*

177. *Id.*

178. *See id.* at 36–37 (explaining that multiple factors, such as location and the solar panel's efficiency and economies of scale, can impact costs, and, in some cases, be cheaper than fossil fuel-produced electricity).

2:1.[179] Rather, there is a distinct advantage to the southwest United States to utilize solar power.[180]

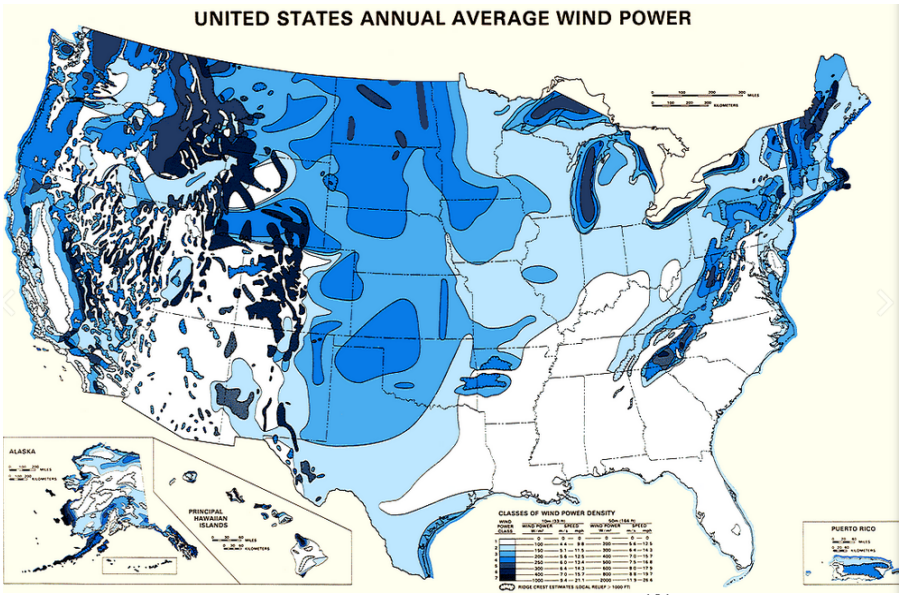

Figure 3. U.S. Annual Wind Power[181]

Figure 3 shows the amount of potential usable wind power nationwide.[182] Again, the amount of wind power across the United States varies by a substantial factor—with no substantial wind resource in a substantial number of areas.[183] Figure 4 illustrates that solar and geothermal resources, combined at approximately 0.5% of all electric power resources, were less than 20% of the contribution of wind resources and less than 10% of the contribution of hydroelectric resources.[184] Figure 4 also illustrates that solar is not the dominant renewable energy source. Yet in most of the United

179. *Id.* at 33, fig.18. (highlighting that certain southwestern states, such as Arizona and parts of California, receive over 8.0 kWhm^2/day, compared to southeastern states, such as Georgia and South Carolina, which receive approximately 4 kWhm^2/day).

180. *See id.* at 32 (identifying that solar power best suits the southwestern United States because of its "low humidity and clear blues skies," thus making production more economically feasible).

181. *United States Annual Wind Power*, NAT'L RENEWABLE ENERGY LAB., https://rredc.nrel.gov/wind/pubs/atlas/maps/chap2/2-01m.html (last visited May 2, 2020).

182. *Id.*

183. *See id.* (mapping the amount of wind power in the United States, which varies greatly by location).

184. U.S. ENERGY INFO. ADMIN., *Renewable Utility-Scale Electricity Production Differs by Fuel Among States*, EIA (May 3, 2012), https://www.eia.gov/todayinenergy/detail.php?id=6110#tabs_RenewablesMaps-2.

States, biomass (which is a renewable resource) is often burned and emits CO_2.[185] Biomass is renewable and is the dominant non-hydroelectric renewable energy source in 24 of the 50 states and the District of Columbia.[186] With the disparity of available renewable-power resources among states, motivating a concerted green response by all of the fifty states or even the tens-of-thousands of communities in real time would be a significant challenge.

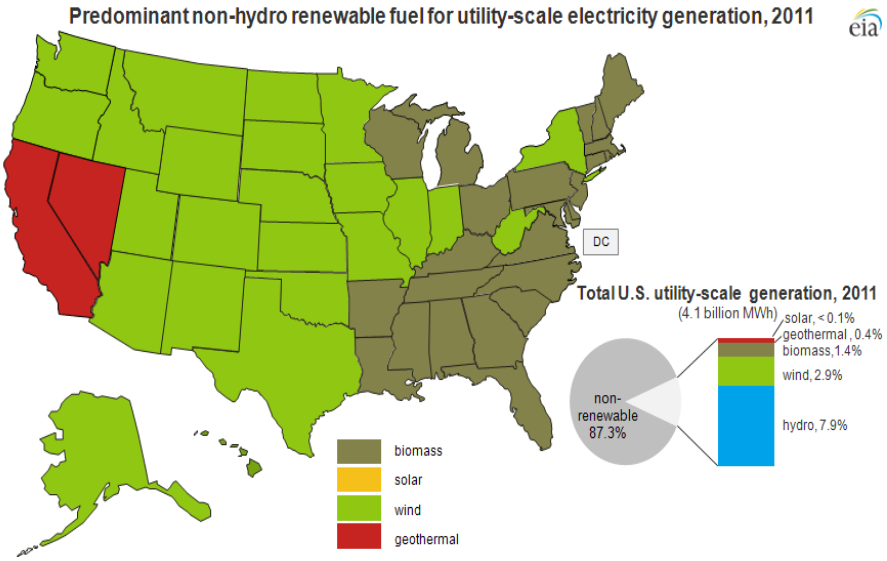

Figure 4. Predominant Non-Hydro Renewable Fuel for Utility-Scale Electricity Generation, 2011[187]

The two primary state legal mechanisms to incentivize renewable energy development required by the Green New Deal are state net metering of power and state renewable portfolio standards.[188]

185. *See id.* (showing that about half of the states, with the overwhelming majority on the eastern side of the Mississippi River, used biomass as their main non-hydro renewable fuel source in 2011).

186. *Id.*

187. *Id.*

188. *See* GREEN PARTY U.S., *supra* note 87 (proposing to move the United States to 100% renewable energy by 2030).

2. State Net Metering

With net metering, when the customer makes conventional purchases from the utility, the meter runs forward.[189] When more electricity is produced by the customer's renewable-energy facility than is used on-site, the excess flows to the electricity grid, running the meter in the reverse direction and creating credits for the customer.[190] Because only a single rate applies to a single utility meter's recorded sales, by turning the meter backwards, net metering compensates the renewable-power generator at the full retail rate.[191] Approximately two-thirds of the retail bill is attributable to transmission, distribution, and taxes for transferring just the wholesale power.[192]

In 2016, the number of net metering states had declined by 6 states to 38 states when Nevada, Georgia, and Hawaii ended their net metering programs.[193] It is still the most prominent and widespread state incentive for renewable energy.[194] In each of the 38 states that provide net metering, both solar- and wind-power technologies are eligible to be net metered.[195]

Net metering is more like an accounting convention applied to trading power than it is a legal sale of the power, because it credits the value of on-site renewable-distributed power on the customer's side of the retail utility meter.[196] The value received by the renewable energy developer for its net-metered power is an amount at a price or value above the utility's avoided cost[197] or the wholesale rate set by either FERC or independent system

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189. Jackson Salovaara, *Just and Reasonable Rooftop Solar: A Proposal for Net Metering Reform*, 7 ARIZ. J. ENVTL. L. & POL'Y 57, 58 (2017).

190. *See Glossary,* DSIRE, http://www.dsireusa.org/glossary/ (last visited May 2, 2020) [hereinafter *Glossary*] ("When a customer's generation exceeds the customer's use, electricity from the customer flows back to the grid, offsetting electricity consumed by the customer at a different time during the same billing cycle.").

191. *See id.* (defining the term "net metering").

192. *See id.* ("In effect, the customer uses excess generation to offset electricity that the customer otherwise would have to purchase at the utility's full retail rate."). *See also* STEVEN FERREY, THE NEW RULES: A GUIDE TO ELECTRIC MARKET REGULATION 211–31 (2000) [hereinafter FERREY, THE NEW RULES] (discussing whether electricity is a "good" or a "service" and how it should be treated under the law).

193. *Compare* J. HEETER ET AL., NREL, NREL/TP-6A20-61858, STATUS OF NET METERING: ASSESSING THE POTENTIAL TO REACH PROGRAM CAPS 3 (2014) (stating that 44 had adopted net metering programs by August 2014), *with* Cleveland & Durkay, *supra* note 64 (mapping the 38 state net metering programs as of November 2017).

194. *Id.*

195. *See id.* (providing an overview of state net metering policy).

196. *See* Steven Ferrey, *Virtual "Nets" and Law: Power Navigates the Supremacy Clause*, 24 GEO. INT'L ENVTL. L. REV. 267, 273 (2012) (describing "net metering" as an accounting concept applied to a consumer's "bi-directional meter" to run excess electricity from the consumer to the grid for credit); *see also Glossary*, *supra* note 190 (providing a definition of "net metering").

197. *See Glossary of Energy Terms*, INDEP. ENERGY PRODUCERS ASS'N, https://www.iepa.com/glossary-of-energy-terms/ (providing an overview of avoided cost rates) (last visited May 2, 2020); *see also* Ferrey, *Counter-Intuitive*, *supra* note 17, at 659.

operators (ISOs) who manage the utility grids for more than half of U.S. consumers.[198] The retail credit received in some high retail-rate states can be in the vicinity of $0.20/kilowatt-hour (kWh), which corresponds to roughly 500% of the wholesale $0.04/kWh value of this power in the United States during the prior decade.[199]

3. State Renewable Portfolio Standards

Renewable Portfolio Standards (RPS) require electric utilities, and in some states other retail electric providers that are allowed to sell retail power, to include in their annual retail sales evidence of a specified percentage of electricity supply from state-specified renewable energy sources, evidenced by acquisition not of renewable power itself, but tradable Renewable Energy Credits (RECs).[200] Twenty-nine states and the District of Columbia have RPS programs.[201] The required state percentage of energy delivered to consumers from eligible renewable sources currently varies from 2% to 100% of annual retail sales in different state programs.[202]

There are many variations on state RPS models in the 29 RPS states.[203] The 29 mandatory RPS programs in the United States cover 46% of nationwide retail electricity sales.[204] RPS programs were characterized as a form of "backdoor" renewable energy subsidy for renewable energy.[205] A solar REC (SREC) in those states that offer them, provides a subsidy of $0.20/kWh to $0.60/kWh in a state such as Massachusetts.[206] Such a SREC

198. Ferrey, *Counter-Intuitive*, *supra* note 17, at 652; *see* FERREY, LAW OF INDEPENDENT POWER, *supra* note 55, § 10.106, at 10-468.12 (discussing the treatment of ISOs).

199. Ferrey, *Counter-Intuitive*, *supra* note 17, at 659.

200. *U.S. Renewable Electricity Market*, EPA, https://www.epa.gov/greenpower/us-renewable-electricity-market (last updated Apr. 9, 2019); *see Most States Have Renewable Portfolio Standards*, U.S. ENERGY INFO. ADMIN. (Feb. 3, 2012), http://www.eia.gov/todayinenergy/detail.cfm?id=4850 (explaining that RPS promote electric producers to generate energy from clean energy sources and that some states trade their clean electricity generated through a REC system).

201. *See Renewable & Clean Energy Standards*, *supra* note 119 (charting the 50 states' renewable portfolio standards).

202. *See State Renewable Portfolio Standards and Goals*, NAT'L CONFERENCE OF STATE LEGISLATURES (Apr. 17, 2020), https://www.ncsl.org/research/energy/renewable-portfolio-standards.aspx (showing 40% as Hawaii's required state percentage of energy delivered to consumers from eligible renewable sources by 2030).

203. RYAN WISER & GALEN BARBOSE, LAWRENCE BERKELEY NAT'L LAB., RENEWABLE PORTFOLIO STANDARDS IN THE UNITED STATES: A STATUS REPORT WITH DATA THROUGH 2007 1 (2008), https://escholarship.org/content/qt1r6047xb/qt1r6047xb.pdf.

204. *Id.* at 5.

205. Ferrey, *Counter-Intuitive*, *supra* note 17, at 661; *see* Robert Glennon & Andrew M. Reeves, *Solar Energy's Cloudy Future*, 1 ARIZ. J. ENVTL. L. & POL'Y 91, 106 (2010) (describing renewable portfolio standard programs as a type of "state-level subsidization" creating a "mandate that utilities generate or acquire a certain percentage of renewable power regardless of increased energy procurement costs to utility providers" that is easily met).

206. Ferrey, *Counter-Intuitive*, *supra* note 17, at 662.

subsidy operates as a 500% to 1300% bonus payment above and beyond the average $0.04/kWh sale value of the power itself when it is sold.[207] Five years ago, the cost of these subsidies was already at $3 billion per year and climbing in each successive year, as there was more renewable energy.[208]

Federal tax credits, state net metering, and state RPS programs shift incentives from one group of customers to another.[209] Most of the customers who install solar, wind, or other eligible renewable-energy projects, tend to own their own buildings.[210] However, this shift would appear to be counter to what the "New Deal" elements of the Green New Deal are seeking to do.[211] Existing beneficiaries of these state net metering and RPS programs tend to be owners rather than renters, and more affluent customers of the utility.[212] Captive retail power consumers bear the cost incurred by utilities of net metering and acquiring the required RECs.[213] Those who absorb the costs of each of the state programs in higher utility rates tend to be those who do not have solar or wind power on their buildings; they are left to pay the higher cost of conventional utility service, which provides these renewable-energy subsidies to the still relatively small number of customers who have eligible renewable energy technologies.[214]

FERC held in *MidAmerican*[215] that federal law did not preempt state net metering practices, and that no sale occurs when net metering accounts for less power exported from the renewable-power generator than the amount of power sold back by the utility to the distributed generator in a given billing period (usually one month).[216] In the 2009 *Sun Edison* case,[217]FERC

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207. *Id.*

208. *Id.*

209. CONSUMER ENERGY ALL., INCENTIVIZING SOLAR ENERGY: AN IN-DEPTH ANALYSIS OF U.S. SOLAR INCENTIVES 11 (2018) https://consumerenergyalliance.org/cms/wp-content/uploads/2018/06/Solar-incentive-report-060418.pdf.

210. EPA OFFICE OF AIR, GUIDE TO PURCHASING GREEN POWER, at B-3 (2010), https://www.epa.gov/sites/production/files/2016-01/documents/purchasing_guide_for_web.pdf (last updated Sept. 2018) ("Another potential issue for commercial consumers is whether or not they own the property where they wish to site a solar energy system. Institutions leasing their buildings, for example, generally will not have the authority to make decisions regarding rooftop solar installations.").

211. *See supra* text accompanying notes 9–18 (outlining the Green New Deal elements).

212. CONSUMER ENERGY ALL., *supra* note 209, at 11.

213. *See* Glennon & Reeves, *supra* note 205, at 108 (lamenting the practice of passing the cost of RPS programs onto customers, which is a contentious issue).

214. CONSUMER ENERGY ALL., *supra* note 209, at 10.

215. *See generally* MidAmerican Energy Co., 94 FERC ¶ 61,340 (2001).

216. *Id.* ¶¶ 62,261, 62,263. In March 2001, MidAmerican Energy Company challenged before FERC the state of Iowa's regulations "directing MidAmerican to interconnect with three [a]lternate [e]nergy facilities and to offer net billing arrangements to those facilities." *Id.* ¶ 62,261. MidAmerican also requested a declaratory order that federal law preempted these regulations. *Id.* MidAmerican asked the commission to undertake enforcement action against the Iowa Board or to issue a declaratory order that the final orders of the Iowa Board are preempted by the Public Utility Regulatory Policies Act (PURPA). *Id.*

217. *See generally* Sun Edison LLC, 129 FERC ¶ 61,146 (2009).

determined that the Commission lacked jurisdiction over the on-site renewable-power generator if there was no net sale of power to the utility over the billing period.[218] There was no net sale unless the customer delivered back to the utility more electricity than the back-up power he or she purchased from the utility.[219] The *MidAmerican* and *Sun Edison* decisions limited the legal findings to the facts presented where there was no net flow of power back to the power grid.[220]

Because this shift from one group of ratepayers is not accomplished through discriminatory rates for service, which is not allowed under legal precedent, but is done by separate incentives, they do not run afoul of applicable legal ratemaking principles.[221] However, at the state level, this is the inverse of the redistributive impact that the Green New Deal seeks to foster.[222] And under *FERC v. Mississippi*, the federal government has no ability to change existing state electric utility programs or redirect state retail rate authority.[223]

C. The Economic Cost of Renewable Energy

If administrative regulations now must consider cost after the *Michigan v. EPA* decision,[224] federal tax incentives, which are disappearing, and state net metering and RPS programs have encouraged the development of renewable-power generation and caused its price to decrease.[225] The cost of new wind resource power development has dropped so that it is now no more than the price of some more traditional natural gas and coal fossil fuel resources for electricity generation.[226] In the decade since 2009, U.S. solar generation has increased by over 2,000%.[227] Wind and natural gas have dominated new sources of electric energy generation in the most recent

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218. *Id.* ¶ 18.

219. *Id.*

220. *See supra* text accompanying notes 216–20 (discussing FERC's holding in *MidAmerican* and *Sun Edison*).

221. *See infra* Part VI.

222. *See infr*a Part VI (discussing legal limits on state electric power ratemaking to further Green New Deal outcomes).

223. FERC v. Mississippi, 456 U.S. 742, 759–61 (1982).

224. Michigan v. EPA, 135 S. Ct. 2699, 2712 (2015).

225. *See supra* Part IV.A.2(discussing federal tax incentives that promote the Green New Deal elements); Part IV.B.2 (discussing state net metering programs).

226. Tara Patel, *Fossil Fuels Losing Cost Advantage Over Solar, Wind, IEA Says*, BLOOMBERG (Aug. 31, 2015), https://www.bloomberg.com/news/articles/2015-08-31/solar-wind-power-costs-drop-as-fossil-fuels-increase-iea-says;Ferrey, *Counter-Intuitive*, *supra* note 17, at 644.

227. *Solar Industry Research Data*, SOLAR ENERGY INDUS. ASS'N, (last visited May 2, 2020), https://www.seia.org/solar-industry-research-data; Ferrey, *Counter-Intuitive*, *supra* note 17, at 644.

decade.[228] PV solar-panel costs have decreased by about 60%—PV module prices decreased from about $1.90/watt in 2009 to $0.36/watt in 2017.[229]

Without other subsides, wind projects in the United States cost an average of $45/megawatt-hour (MWh) for capacity and energy without other subsidies and $58/MWh for solar-generation projects.[230] By 2040, as solar panels become more efficient and manufacturing costs continue to decline, solar could operate at the identical cost to wind.[231] New solar-electric energy is now competitive in its long-term generation cost with traditional fossil fuels, due to substantial subsidies at the state and federal levels for solar[232] and will expand in use in the next decade.[233] The U.S. Department of Energy forecasts wind power to be cheaper than electricity produced from natural gas by 2025, even without a continuing federal production tax-credit incentive.[234] Renewable energy is expected to claim almost two-thirds of the spending on new power plants over the next quarter-century, dwarfing spending on fossil fuels, as solar energy moves into a dominant position for new power-generation technology for consumers.[235]

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228. *See 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 (stating that wind energy is rapidly expanding in the United States); *accord* Ferrey, *Counter-Intuitive*, *supra* note 17, at 644.

229. Ferrey, *Counter-Intuitive*, *supra* note 17, at 644; WILSON RICKERSON ET AL., IEA-RETD, RESIDENTIAL PROSUMERS-DRIVERS AND POLICY OPTIONS (RE-PROSUMERS) 9 (2014), http://iea-retd.org/wp-content/uploads/2014/06/RE-PROSUMERS_IEA-RETD_2014.pdf.

230. Jim Efstathiou Jr & Brian K Sullivan, *Smarter Wind Turbines Try to Squeeze More Power on Each Rotation*, BLOOMBERG (May 9, 2018), https://www.bloomberg.com/news/articles/2018-05-09/smarter-wind-turbines-try-to-squeeze-more-power-on-each-rotation.

231. *Id.*

232. *See* Zachary Shahan, *Low Costs of Solar Power & Wind Power Crush Coal, Crush Nuclear, & Beat Natural Gas*, CLEAN TECHNICA (Dec. 25, 2016), https://cleantechnica.com/2016/12/25/cost-of-solar-power-vs-cost-of-wind-power-coal-nuclear-natural-gas/ (predicting that, even accounting for subsidies for renewable energy, it is still cheaper when adding all of the historical subsidies for coal, natural gas, and nuclear power).

233. *See* SOLAR INVESTMENT TAX CREDIT (ITC), SOLAR ENERGY INDUS. ASS'N 1 (2020) https://www.seia.org/sites/default/files/2020-01/SEIA-ITC-Factsheet-2020-Jan_1.pdf (emphasis omitted) (highlighting the solar investment tax credit as "one of the most important federal policy mechanisms to incentivize clean energy" and predicting "[t]he 2015 ITC extension is expected to nearly quadruple solar deployment by the end of 2020").

234. Christopher Martin & Justin Doom*, Wind Power Without U.S. Subsidy to Become Cheaper Than Gas*, BLOOMBERG BNA (Mar. 12, 2015).

235. Ehren Goossens, *Renewable Energy Expected to Draw Bulk of Spending for New Power Plants*, 46 ENV'T REP. 26 (BNA) (June 23, 2015).

V. FERC ORDERS REQUIRE LEAST-COST WHOLESALE POWER SALES WITHOUT REGARD TO "GREEN" OR OTHER TECHNOLOGIES

A. FERC Technology-Neutral Competitive Orders

Almost half of all U.S. power passes through a wholesale market before it is sold at retail.[236] During the course of the last two decades, FERC orders have established law facilitating least-cost wholesale power without regard to any other characteristics of the power, such as its "green" characteristics.[237] FERC orders increased competition in nondiscriminatory use of the transmission system without regard to whether the power was renewable or traditional fossil fuel-fired sources.[238] FERC, an adjudicatory agency, issues orders that have the effect of law.[239] Below, this Sub-Subpart examines several of these nondiscriminatory FERC orders.

1. FERC Order No. 719—Wholesale Technology-Neutral Competition for Lowest-Cost Power in Organized Electric Markets

Every day, each of the seven FERC-regulated system operators across the United States holds competitive auctions to set wholesale electricity prices and supply.[240] These ISOs and Regional Transmission Organizations (RTOs) are shown in Figure 6.[241] System operators list bids from generators who could supply electricity from lowest to highest price until all requests for electricity from load-serving entities are met.[242] Every wholesale generator receives the price of the highest bid accepted, known as the locational marginal price (LMP).[243] The Commission has directed RTO/ISO

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236. David Roberts, *The Supreme Court's Big Ruling in Favor of Clean Energy Explained*, VOX (Jan. 26, 2016), https://www.vox.com/2016/1/26/10835042/supreme-court-energy. In 2014, nearly 40% of U.S. electricity was generated by what the U.S. Information Administration terms "independent power producers," increased almost 400% from 10% 2 decades earlier. *See* U.S. ENERGY INFO. ADMIN., ELECTRIC POWER MONTHLY WITH DATA FOR JUNE 2015 tbls. 1.2–1.5, (2015), https://www.eia.gov/electricity/monthly/archive/august2015.pdf; Fed. Energy Reg. Comm'n Order No. 888, 61 Fed. Reg. 21,540, 21,541, 21,549–50 (May 10, 1996) (to be codified at 18 C.F.R. pts. 35, 385).

237. *See infra* Part V.A.1–4 (outlining major FERC orders that disregard "green" outcomes).

238. *See infra* Part V.A.1–4 (discussing the effect of FERC decisions on wholesale competition through open-access non-discriminatory transmission services).

239. *Regional Transmission Organizations (RTO)/Independent SystemOperators (ISO)*, FERC, https://www.ferc.gov/industries/electric/indus-act/rto.asp (last updated Dec. 20, 2019) [hereinafter FERC, *RTO/ISO*].

240. *Id.*

241. *See infra* Figure 6 (depicting ISOs and RTOs).

242. *See* U.S. ENERGY INFO. ADMIN., *supra* note 236, tbls. 1.2–1.5,

243. *Id.*

market operators to compensate energy storage similarly with full LMP.[244] A federal district court described the responsibilities of the federally regulated system operator:

> One mechanism FERC employs for that salutary purpose, the Court noted in *EPSA*, is to "encourage[] the creation of nonprofit entities to manage wholesale markets on a regional basis. Seven such wholesale market operators now serve areas with roughly two-thirds of the country's electricity load (an industry term for the amount of electricity used). Each administers a portion of the grid, providing generators with access to transmission lines and ensuring that the network conducts electricity reliably. And still more important for present purposes, each operator conducts a competitive auction to set wholesale prices for electricity.
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> "These wholesale auctions serve to balance supply and demand on a continuous basis, producing prices for electricity that reflect its value at given locations and times throughout each day. Such a real-time mechanism is needed because, unlike most products, electricity cannot be stored effectively."[245]

FERC initially sanctioned demand response programs formally in 2008 with Order No. 719, years after some wholesale markets had allowed demand response participation.[246] Order No. 719 required all independent system-operator markets to accept bids from demand-response resources in a manner comparable to other resources, to permit aggregators to bid demand response on behalf of retail customers, to modify market rules as needed to maintain reliability, and to study the need for further reforms to eliminate barriers to demand-response participation.[247] However, if state regulatory authorities with oversight of demand response transactions forbid market participation, that prohibition would exempt wholesale operators from the requirement.[248] To encourage more fair competition for demand-response measures competing with power generation, in Order Nos. 719 and 719-A, FERC adopted changes in demand-response and the use of market pricing to elicit demand response during periods of operating-reserve shortages, long-term

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244. *See generally* Electric Storage Participation in Markets Operated by Regional Transmission Organizations and Independent System Operators, 167 FERC ¶ 61,154 (May 16, 2019) (codified at 18 C.F.R. pt. 35).

245. Allco Fin. Ltd. V. Klee, Nos. 3:15-cv-608, 3:16-cv-508, 2016 WL 4414774, at *5–6 (D. Conn. Aug. 18, 2016) (alteration in original) (citations omitted).

246. *See generally* Wholesale Competition in Regions with Organized Electric Markets, 125 FERC ¶ 61,071 (Oct. 28, 2008) (codified at 18 C.F.R. pt. 35).

247. *See gernally id.*

248. FERC v. Elec. Power Supply Ass'n, 136 S. Ct. 760, 786 (2016).

power contracting, market monitoring, and responsiveness of the organized wholesale-electric markets to their customers and other stakeholders.[249]

2. FERC Order No. 888—Open Access Non-Discriminatory Transmission Services

In FERC Order No. 888, FERC established the foundation for non-discriminatory open access transmission service by electric utilities.[250] The order requires all regulated public utilities that own, control, or operate jurisdictional transmission facilities to have open access transmission tariffs (OATT) which must track FERC-mandated *pro forma* OATT.[251] The *pro forma* tariff requires that the transmission provider plan and construct additional transmission facilities so as to be able to serve network customers "on a basis comparable to the Transmission Provider's delivery of its own generating and purchased resources to its Native Load Customers."[252]

FERC promulgated a revised *pro forma* OATT in Order No. 888-A, providing an incumbent customer with a right-of-first-refusal (ROFR) to match the duration offered by a new customer at a full OATT rate.[253] Non-public utilities may have "reciprocity" OATTs.[254] In upholding Order No. 888's electric power restructuring initiative, the Court observed "[w]ere FERC to investigate this alleged discrimination [regarding unbundled retail transmission] and make findings concerning undue discrimination . . .

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249. Filing of Rate Schedules and Tariffs, 18 C.F.R. § 35.28(g)(6)(i) (2011).

250. Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities, 61 Fed. Reg. 21,540, 21,541, 21,549–50 (May 10, 1996) (to be codified at 18 C.F.R. pts. 35, 385), *clarified*, 76 FERC ¶ 61,009 (1996) and 76 FERC ¶ 61,347 (1996), *reh'g*, Order No. 888-A, FERC Stats. & Regs. ¶ 31,048, 62 Fed. Reg. 12,274 (Mar. 14, 1997), *clarified*, 79 FERC ¶ 61,182 (1997), *reh'g*, Order No. 888-B, 81 FERC ¶ 61,248, 62 Fed. Reg. 64,688 (Dec. 9, 1997), *reh'g*, Order No. 888-C, 82 FERC ¶ 61,046 (1998), *aff'd*, Transmission Access Policy Study Grp. v. FERC, 225 F.3d 667 (D.C. Cir. 2000), *aff'd*, New York v. FERC, 535 U.S. 1 (2002).

251. 18 C.F.R. § 35.28(a), (c); *New York*, 535 U.S. at 10–12, 26 (ratifying core provisions of Order No. 888).

252. Preventing Undue Discrimination and Preference in Transmission Service, 72 Fed. Reg. 12,266, 12,317 (Mar. 15, 2007).

253. Idaho Power Co. v. FERC, 312 F.3d 454, 457 (D.C. Cir. 2002); *see also* Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities, 62 Fed. Reg. 12,274, 12,274 (Mar. 14, 1997) (codified at 18 C.F.R. pt. 35) (affirming most of the changes set out in FERC Order No. 888 and discussing some reservations about reciprocity). FERC ordered Idaho Power Co. to continue to supply power to an incumbent customer at the end of its contract term, even though a merchant customer had offered a more attractive contract term. *Idaho Power Co.*, 312 F.3d at 457–58. The Court of Appeals reversed the FERC order and held that an incumbent must match a new potential customer's superior offer. *Id.* at 463–65. A ROFR is a right to match the terms of a third party's highest offer. *Id.* at 456.

254. 18 C.F.R. § 35.28(a), (e). "Reciprocity" provides a so-called safe harbor, ensuring that the non-public utility is entitled to transmission service from public entities. *Id.*

§ 206 . . . would require FERC to provide a remedy for that discrimination"—even though such a remedy could also extend into retail aspects of bundled transmission.[255] The Court has long held that sections 205 and 206 of the FPA confer on FERC jurisdiction to regulate "practices . . . 'affecting'" wholesale rates, even when the agency's actions also impact retail customers.[256]

3. FERC Order No. 890—Undue Discrimination or Preference in Transmission Service

In Order No. 890, the Commission amended the Order No. 888 *pro forma* tariff to require transmission providers to plan for the needs of their customers on a comparable basis to planning for their own needs.[257] To better ensure that planning and construction occur in a non-unduly discriminatory manner, Order Nos. 890 and 890-A mandated "coordinated, open, and transparent [transmission] planning process on both a local and regional level."[258] FERC Order Nos. 890 and 890-A sought to make improvements to

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255. *New York v. FERC*, 535 U.S. at 26.

256. Fed. Power. Comm'n Corp. v. Conway Corp., 426 U.S. 271, 280–81 (1976) (rejecting FERC's determination that § 206 did not permit it to consider the impact on retail rates in setting just and reasonable wholesale rates); Miss. Power & Light Co. v. Mississippi *ex rel*. Moore, 487 U.S. 354, 363–64, 372 (1988) (recognizing FERC remedial jurisdiction over the terms of agreements to integrate power supply resources between utilities, even though FERC does not itself have jurisdiction over the affected generation assets); *see also* Oneok, Inc. v. Learjet, Inc., 575 U.S. 373, 395 (2015) (Scalia, J., dissenting) (citing *Fed. Power Comm'n Corp.*, 426 U. S. at 276–80) (stating that FERC may regulate "with an eye toward blunting the sales' anticompetitive effects in the retail market—even though retail prices are controlled by the States").

257. Preventing Undue Discrimination and Preference in Transmission Service, 72 Fed. Reg. 12,265 (Mar. 15, 2007) (to be codified at 18 C.F.R. pts. 35 and 37), *reh'g*, Order No. 890-A, 73 Fed. Reg. 2984 (Jan. 16, 2008), *reh'g*, Order No. 890-B, 123 FERC ¶ 61,299 (2008), *reh'g*, Order No. 890-C, 126 FERC ¶ 61,228 (2009). N.Y. Reg'l Interconnect, Inc. v. FERC, 634 F.3d 581, 584 (D.C. Cir. 2011); Preventing Undue Discrimination and Preference in Transmission Service, Order No. 890, FERC Stats & Regs. ¶ 31,241 (2007).

258. Preventing Undue Discrimination and Preference in Transmission Service, 121 FERC ¶ 61,297, ¶ 153 (2007) (Order No. 890-A). FERC explained that, in light of a decline in investment relative to load growth resulting in increased congestion and a reduced access to alternative sources of energy, as well as a disincentive to remedy congestion on a non-unduly discriminatory basis, reform of the Order Nos. 888 and 888-A pro forma tariff was needed. *Id.* ¶ 228.

> The Commission identified nine planning principles in Order No. 890 that must be satisfied for a transmission provider's planning process to be considered compliant with that order. These nine planning principles are: (1) Coordination—the process for consulting with transmission customers and neighboring transmission providers; (2) Openness—planning meetings must be open to all affected parties; (3) Transparency—access must be provided to the methodology, criteria, and processes used to develop transmission plans; (4) Information Exchange—the obligations of and methods for customers to submit data to transmission providers must be described; (5) Comparability—transmission plans must meet the specific service requests of transmission customers and otherwise treat similarly-situated customers (e.g., network and retail native load) comparably in transmission system planning; (6) Dispute

its *pro forma* OATT, and better achieve the goal of eliminating undue discrimination/preference in transmission service.[259] The Commission deemed it critical that transmission providers improve their transmission planning processes to remedy the potential for undue discrimination, and to facilitate a more transparent and coordinated process open to customers, competitors, and state regulators.[260]

4. FERC Order No. 1000—Transmission Planning and Cost Allocation for Transmission

FERC approves all RTO and ISO terms of service and all financial tariffs. FERC Order No. 1000 creates obligations for transmission owners to engage in regional and interregional transmission planning.[261] FERC found that Order No. 1000 reforms were required to reflect new industry developments and "to address remaining deficiencies in transmission planning and cost allocation processes so that the transmission grid can better support wholesale power markets."[262] FERC lacks jurisdiction over the siting, construction, and ownership of transmission facilities, which are exclusively within state jurisdiction.[263] FERC case law exerts exclusive jurisdiction over the "transmission of electric energy in interstate commerce," and over "all facilities for such transmission or sale of electric energy."[264] FERC stated that nothing in Order No. 1000 is intended to limit

> Resolution—an alternative dispute resolution process to address both procedural and substantive planning issues must be included; (7) Regional Participation—there must be a process for coordinating with interconnected systems; (8) Economic Planning Studies—study procedures must be provided for economic upgrades to address congestion or the integration of new resources, both locally and regionally; and (9) Cost Allocation—a process must be included for allocating costs of new facilities that do not fit under existing rate structures, such as regional projects.

Id. ¶ 181 (emphasis omitted).

259. *Id.* ¶ 228.

260. *Id.* ¶ 181.

261. Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities, 136 FERC ¶ 61,051 (July 21, 2011) (to be codified at 18 C.F.R pt. 35); *see generally* RISHI GARG, NAT'L REGULATORY RES. INST., WHAT'S BEST FOR THE STATES: A FEDERALLY IMPOSED COMPETITIVE SOLICITATION MODEL OR A PREFERENCE FOR THE INCUMBENT? STATE ADOPTION OF RIGHT OF FIRST REFUSAL STATUTES IN RESPONSE TO FERC ORDER 1000 AND THE DORMANT COMMERCE CLAUSE (2013).

262. 136 FERC ¶ 61,051, ¶ 99.

263. Piedmont Envtl. Council v. FERC, 558 F.3d 304, 309–10, 313 (4th Cir. 2009).

264. Steven Ferrey, *The Double Helix of Supremacy and Commerce Clause Constitutional Restraints Encircling the New Energy Frontier*, 7 NW. INTERDISC. L. REV. 1, 17 (2014) (citation omitted).

or affect state or local laws or regulations with respect to the construction of transmission development.[265]

FERC Order No. 1000 requires incumbent transmission providers, utilities, and the RTOs that manage regional multi-state transmission access to the grid to remove ROFRs from FERC-approved transmission tariffs.[266] FERC noted that a non-incumbent transmission developer might lose the opportunity to construct its proposed transmission project to the incumbent transmission owner under a federal ROFR to construct any transmission facility in its service territory.[267] FERC's authority applies to public utility transmission provider tariffs and agreements subject to FERC jurisdiction.[268] FERC Order No. 1000 addressed the difference between an obligation to build in one's transmission zone and a federal ROFR: "[W]e do not believe that [the] obligation [to build] is necessarily dependent on the incumbent transmission provider having a corresponding federal right of first refusal to prevent other entities from constructing and owning new transmission facilities located in that region."[269]

On appeal in 2014, the D.C. Circuit Court of Appeals unanimously rejected challenges to FERC's Order No. 1000 as "unpersuasive," in response to allegations that the order would harm system reliability.[270] The circuit court rejected challenges that FERC's ROFR removal requirement violated the *Mobile-Sierra* doctrine.[271] In the Seventh Circuit, Judge Posner held:

> No one likes to be competed against. . . . [Incumbents] don't want to have to bid down the prices at which they will build new facilities in order to remain competitive. . . . [C]ontract rights are not sacred, especially when they curtail competition. . . . [The

265. *See id.* at 39 n.246 ("[P]ertain[ing] only to Commission-jurisdictional tariffs or agreements and does not require removal of references to such state or local laws or regulations from Commission-approved tariffs or agreements.").

266. *Id.*

267. 136 FERC ¶ 61,051, ¶ 228 (referencing Notice of Request for Comments, Transmission Planning Processes Under Order No. 890, 74 Fed. Reg. 32,912 (July 9, 2009).

268. *Id.* ¶ 287.

269. *Id.* ¶ 261.

270. S.C. Pub. Serv. Auth. v. FERC, 762 F.3d 41, 48–49 (D.C. Cir. 2014) (per curiam). The court declared that FERC properly addressed reliability concerns by maintaining ROFRs for projects that would be located entirely within a utility's service territory, and thus would not be subject to regional cost allocation. The court held that FERC had sufficient authority under § 206 of the FPA to require removal of federal rights-of-first-refusal provisions from federally mandated transmission tariffs "upon determining they were unjust and unreasonable practices affecting rates." *Id.*

271. *Id.* at 74–75 (citation omitted) ("The relationship between rights of first refusal and rates is far more direct than the relationship between corporate governance and rates. Nothing suggests that replacing the members of a board will necessarily affect rates. . . . The challenged orders here provide what was lacking in *CAISO*: an economic principle that directly ties the practice the Commission sought to regulate to rates.").

> parties] sophisticated enough to understand the benefits of a contract that would give each party protection against competition in the creation of new facilities. . . . [A] contract in which the parties are seeking to protect themselves from competition from third parties (cartels are the classic example of such contracts).[272]

This does not deserve *Mobile-Sierra* deference. All of these FERC orders and precedent feature the minimization of the wholesale costs of power supply through mandatory competitive pressures in the power sector.[273] They do not select or favor any particular technology, as would the Green New Deal would.[274] Since FERC interstate market participants are allowed to recover their costs of participation over their participation in long-term wholesale ISO and RTO markets, through which almost half of all U.S. power is traded every day (see Figure 6), there could be "takings" or other claims by a federal order, which scrambles this market in uneconomic ways.[275]

B. The Legal Conflict Between FERC Orders and Disparate State Technology Preferences

As states institute public policies that have an impact on FERC-regulated, wholesale electricity markets, legal jurisdictional issues arise presenting threshold questions of legal jurisdiction. State policymakers have passed statutes, like the Green Communities Act in the Commonwealth of Massachusetts, that have an effect on competitive wholesale electricity

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272. MISO Transmission Owners v. FERC, 819 F.3d 329, 333–35 (7th Cir. 2016) (citations omitted); *see also* Oklahoma Gas & Elect. v. FERC, 827 F.3d 75, 80 (D.C. Cir. 2016) (holding that the *Mobile-Sierra* doctrine does not apply to the ROFR provisions agreeing with the Seventh Circuit that the terms the parties sought to get protection against competition from "are a far cry from those in the original *Mobile-Sierra* cases"); Am. Transmission Sys. v. FERC, Docket No. 14-1085, 2, 3 (D.C. Cir. July 1, 2016) (concluding that FERC "Order No. 1000 applies only to the removal of rights of first refusal" and dismissing the petitioners' claim because they did not claim their agreement contained a ROFR under the *Mobile-Sierra* doctrine, therefore lacking jurisdiction); El Paso Elec. v. FERC, 832 F.3d 495, 510 (5th Cir. 2016) (citation omitted) (emphasis omitted) ("The *Mobile-Sierra* doctrine prevents FERC from abrogating a valid contract setting rates unless that contract seriously harms the public interest."); Ameren Servs. Co. v. Fed. Energy Regulatory Comm'n, 893 F.3d 786, 794 (D.C. Cir. June 22, 2018) (holding that FERC adequately addressed the petitioner's concerns regarding the possibility that the MISO planning process could "require them to replace an already-approved regional project with a new interregional project").

273. *See supra* Part V.A.1–4 (summarizing major FERC orders).

274. *See supra* Part V.A.1–4 (summarizing major FERC orders and precedent with no particular preference to energy type or technology).

275. *See, e.g.*, Braintree Elec. Light Dep't v. FERC, 550 F.3d 6, 8 (D.C. Cir. 2008) ("[W]hether the Federal Energy Regulatory Commission may approve rates filed by a Regional Transmission Organization ("RTO") to cover the cost of activity that for some purposes may be classified as lobbying. [The court] [r]eject[ed] petitioners' contentions that approval of the rates was arbitrary and capricious and violated their First Amendment rights . . . .").

markets,[276] or the 2016 Act to Promote Energy Diversity, which obligates Massachusetts electric distribution companies (EDCs) to procure long-term contracts (15 to 20 years) of 1,600 MW of offshore wind generation and 9,450,000 MWh of clean energy generation.[277] These procurements are not based on least cost of power and are not technology neutral.[278] These gigawatts of technology-specific power purchases represent a significant portion of the state's power demands over the next two decades and a measurable portion of the entire supply of New England's electricity market.[279]

Such individual state mandates for a particular type of power, when the state participates in a multi-state federally regulated ISO or RTO (see Figure 6) raise jurisdictional questions for state regulatory commissions and FERC.[280] FERC was granted jurisdiction to regulate regional, wholesale competitive markets pursuant to the FPA.[281] This includes jurisdiction over "the transmission of electric energy in interstate commerce and the sale of such energy at wholesale in interstate commerce [that] is necessary in the public interest[,] . . . however, to extend only to those matters which are not subject to regulation by the States."[282] States largely have jurisdiction over retail electricity transactions and generation; FERC jurisdiction does not include "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."[283] These technology-specific resource requirements instituted by states have consequences for the competitive wholesale markets.[284]

Under the FPA § 205, FERC must ensure that "[a]ll rates and charges made, demanded, or received by any public utility for or in connection with the transmission or sale of electric energy . . . shall be just and reasonable."[285] Contractual mandates for certain kinds or technologies of power created by state legislatures do not fall within the purview of FERC or FERC-regulated RTOs and may not reflect reliability-based needs of the FERC-regulated

276. Act of July 2, 2008, ch. 169, 2008 Mass. Acts 34.

277. 2016 Mass. Acts ch. 188.

278. *See id.* (prioritizing wind energy development as a means to lower carbon emissions).

279. *ISO-NE Files Profile to Harmonize Competitive Markets and State-Sponsored Resources*, ISO NEWSWIRE (Jan. 8, 2018), http://isonewswire.com/updates/2018/1/8/iso-ne-files-proposal-to-harmonize-competitive-markets-and-s.html.

280. DAY PITNEY LLP, INTEGRATING MARKETS AND PUBLIC POLICY (IMAPP): OVERVIEW OF LEGAL AND JURISDICTIONAL ISSUES 13–14 (2016), http://nepool.com/uploads/IMAPP_20161021_Legal_Jurisdictional_Issues.pdf.

281. 16 U.S.C. § 824(b)(1).

282. 16 U.S.C. § 824(a).

283. 16 U.S.C. § 824(b)(1).

284. 16 U.S.C. § 824(b)(1).

285. 16 U.S.C. § 824d(a).

power system.[286] Within the wholesale market, many states' policies regarding environmental or energy goals have a regional impact for other states that participate in the regional market (i.e. through ISOs and RTOs), particularly regarding infrastructure cost distribution within the power pool.[287]

Under the FPA, FERC is authorized by Congress to consider the public interest and its direct relation to the establishment of just and reasonable rates.[288] Individual and divergent state policies, such as the 2008 Massachusetts Global Warming Solutions Act (GWSA), provide mandatory goals for carbon emissions reductions.[289] ISO-New England (ISO-NE), the FERC-regulated wholesale electricity market operator in New England, and the New England Power Pool (NEPOOL), must somehow then try to integrate sometimes diverging state environmental goals and energy procurement into transmission tariffs where price and capacity historically are the metrics determining the transmission rules.[290] The wholesale-power market of ISO-NE was designed to meet the reliability needs of New England through the lowest-cost resources as the only factor weighed.[291] Where generation resources required by state policy receive above-market subsidies from the state to operate, these generators have overwhelmingly participated either through bilateral contracts or retail (rather than wholesale) programs, such as net energy metering.[292]

The ISO must remain resource-neutral throughout the solicitation process regardless of individual state-designated environmental attributes that are outside of the ISO's authority over the power markets.[293] The FPA § 206 requires that any FERC tariff rate cannot be "unjust, unreasonable, unduly discriminatory or preferential."[294] FERC may not exceed its statutory

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286. *See* 16 U.S.C. § 824d(a) (stating that FERC can only provide rates for areas subject to its jurisdiction); *supra* note 223 and accompanying text (stating that FERC lacks the authority to change state rates).

287. *Wholesale Electricity Markets and Regional Transmissions Organizations*, AM. PUB. POWER ASS'N, https://www.publicpower.org/policy/wholesale-electricity-markets-and-regional-transmission-organizations (last visited May 2, 2020).

288. NAACP v. Fed. Power Comm'n, 425 U.S. 662, 671 (1976).

289. MASS. GEN. LAWS ch. 298, §§ 1–6 (2008).

290. *See generally* ISO NEW ENGLAND, RE: REVISIONS TO ISO NEW ENGLAND TRANSMISSION, MARKETS AND SERVICES TARIFF RELATED TO COMPETITIVE AUCTIONS WITH SPONSORED POLICY RESOURCES DOCKET NO. ER18-___ -000, FED. ENERGY REG. COMM. (Jan. 8, 2018), https://www.iso-ne.com/static-assets/documents/2018/01/er18-619-000_caspr_filing.pdf.

291. Anna Nikolayeva, *An Electrifying Expansion of Judicial Review of Agency Actions in* PSEG Energy Resources & Trade LLC, 44 B.C. ENVTL. AFF. L. 41 (2018).

292. *About the FCM and Its Auctions*, ISO NEW ENGLAND, https://www.iso-ne.com/markets-operations/markets/forward-capacity-market/fcm-participation-guide/about-the-fcm-and-its-auctions.

293. NESCOE, STATE IMAPP OBJECTIVES 3 (2016), http://nepool.com/uploads/IMAPP_20161006_IMAPP_Objectives_to_NEPOOL_9_30_16.pdf.

294. 16 U.S.C. § 824e(a) (2018).

jurisdiction to consider different metrics, beyond what is expressly provided in the Act.[295]

In *Hughes v. Talen Energy*, the Supreme Court held that the adoption of terms and prices set by a state but not sanctioned by FERC "strikes at the heart of [FERC's] statutory power" under the FPA.[296] In *FERC v. Electric Power Supply Association*, the Court held that "[t]he FPA 'leaves no room either for direct state regulation of the prices of interstate wholesales' or for regulation that 'would indirectly achieve the same result.'"[297] Legal issues regarding FERC's or ISO-NE's authority to impose a carbon price "adder" as part of the locational marginal price determination were considered as impossible barriers.[298]

The Commission's decision regarding ISO-NE's tariff is in line with U.S. Courts of Appeals determinations with respect to compliance filings pursuant to Order No. 1000 regarding who builds what additional transmission facilities in the region.[299] Order No. 1000 requires utilities to consider transmission needs driven by public policy when approving projects for inclusion in regional-system-planning tariffs and state-by-state cost allocation.[300]

In response to this Order No. 1000 filing, FERC rejected the proposed procedure on the basis that it granted New England states authority that only FERC-regulated ISO-NE could utilize through Order No. 1000.[301] FERC asserted that only the public utility transmission provider in the region (ISO-NE), not another entity (NESCOE), could select projects for planning purposes.[302] A collective New England state organization and its affiliated states challenged the determination, claiming that FERC exceeded its authority under the FPA, which provides that the Commission's authority "extend[s] only to those matters which are not subject to regulation by the States."[303]

The D.C. Circuit Court of Appeals disagreed on the basis that the states' argument was, in essence, an objection to the regional planning and cost allocation process; the D.C. Circuit sided with FERC.[304] Furthermore, the

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295. Detroit Edison Co. v. FERC, 334 F.3d 48, 53 (D.C. Cir. 2003).

296. Hughes v. Talen Energy Mktg., LLC, 136 S. Ct. 1288, 1296 (2016) (quoting PPL EnergyPlus, LLC v. Nazarian, 753 F.3d 467, 467 (2014)).

297. FERC v. Elec. Power Supply Ass'n, 136 S. Ct. 760, 780 (2016) (quoting N. Nat. Gas Co. v. State Corp. Comm'n of Kan., 372 U.S. 84, 91 (1963)).

298. NESCOE, *supra* note 293, at 1.

299. Emera Maine v. FERC, 854 F.3d 662, 665 (2017).

300. *Id.* at 672.

301. *See id.* at 673 (noting FERC's argument that the authority granted under Order No. 1000 applies only to the RTO—authority that may not be left to another entity).

302. *Id.*

303. *Id.* at 673 (citation omitted).

304. *Id.* at 674.

division of duties between ISO-NE and the states does not create a conflict of jurisdiction for FERC.[305] The court held that ISO-NE has no role in setting public policy for states and FERC did not require the selection of any particular proposal.[306] The FERC-regulated ISO-NE, not the states, must determine which projects are recognized in the regional planning process.[307] The Court of Appeals explained that, "ISO-NE considers transmission needs that arise from a variety of sources, one of which is the public policy requirements chosen by federal and state officials."[308]

Notwithstanding this decision, great uncertainty remains nationally, as well as regionally, given that the state policy-based non-technology-neutral power procurements are unlikely to cease in the foreseeable future.[309]

VI. LEGAL LIMITS ON STATE ELECTRIC POWER RATEMAKING

Each of the states and territories, in addition to FERC orders which establish wholesale and transmission law within their states, over the last 100 years has made binding state law precedent for their retail electric power.[310] First, unlike anything else in constitutional law, the FPA clearly cleaves the division between federal and state power over electric energy, as discussed above.[311]

Moreover, this division was tested in a 1982 Supreme Court case.[312] In *FERC v. Mississippi*, the Supreme Court declared that the federal government could not mandate any mandatory requirements for states to implement any set of restructured retail power utility rates or activities.[313] So new federal programs may not prescribe substantive requirements for the states to complete or implement pursuant to this second element of law.[314] *FERC v. Mississippi* illustrates that states get the final decision on retail rate matters and the regulation of activities of retail utilities. And this authority may create hurdles to implementing the Green New Deal.[315]

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305. *Id.*
306. *Id.*
307. *Id.*
308. *Id.*
309. *See supra* Part V.A.4 (noting that the state policy-based non-technology-neutral procurements are deeply rooted in precedent).
310. *See supra* Part IV.A.1 (revisiting a state's authority to regulate retail electric power since FERC's jurisdiction over sale of power applies to the wholesale market).
311. *See supra* Part IV.A.1.
312. FERC v. Mississippi, 456 U.S. 742, 759–61 (1982).
313. *Id.*
314. *See id.* at 769 ("Titles I and III do not involve the compelled exercise of Mississippi's sovereign powers. And, equally important, they do not set a mandatory agenda to be considered in all events by state legislative or administrative decisionmakers.").
315. *See id.* (highlighting the fight for regulation and implementation of the Green New Deal between states and the government).

Under the Green New Deal, it is reasonable to assume that certain states, like the plaintiffs in *FERC v. Mississippi*, will resent being told by the federal government what they have to do or pay for regarding some or all of the redistributive effects of the proposed Green New Deal.[316] It is clear that the 50 states are of two minds about renewable energy versus traditional forms of electricity production and related costs of electric power.[317] President Trump has made protecting traditional fossil fuels used for electric power a cornerstone of his pledges to the Nation.[318]

Second, in this area of environmental law, there is a "cooperative federalism" that allows the states some discretion on environmental areas affecting the quality of the air governed by the Clean Air Act.[319] These Green New Deal efforts seek to transition within ten years from the dominant source of electric power production being derived from burning fossil fuels, to one where no fossil fuels are used.[320] Since electric power is regulated at both state and federal levels, cooperation of both may be required to implement the Green New Deal.

The states, for those that are so motivated and choose to attempt to exercise both their inherent exclusive authority over retail rates and the discretionary ability to exercise some regulatory power under "cooperative federalism," face two hurdles in implementing certain elements of the Green New Deal. First, the Green New Deal seeks to transfer the costs of key infrastructure from certain groups in the United States to other groups of people.[321] If done as part of electric power regulation (although the details or the Green New Deal are not yet in place), legal precedent in many states may not let states do so.[322] Second, Professor Jacobson's roadmap for use of 100% renewable solar and wind power requires a massive investment in new transmission infrastructure to move power from solar and wind sites to population centers and to spread it across the states hour-by-hour from the most productive locations for generation at any given time.[323] Unless every

316. *See generally* FERC v. Mississippi, 456 U.S. 742 (1982). In *FERC v. Mississippi*, the State of Mississippi challenged PURPA, asserting that it went "beyond the scope" of Congress's Commerce Clause powers, and "that it constituted an invasion of state sovereignty in violation of the Tenth Amendment." *Id.* at 752.

317. Ellen Knickmeyer, *Amid Urgent Climate Warnings, EPA Gives Coal a Reprieve*, ASSOCIATED PRESS (June 19, 2019), https://www.apnews.com/d48562a8d7ee4df1bceec0990205e5b3.

318. *Id.*

319. *Governance*, ENVTL. LAW INST., https://www.eli.org/keywords/governance (last visited May 2, 2020).

320. *See* GREEN PARTY U.S., *supra* note 87.

321. *See* ENVTL. LAW INST., *supra* note 319 (establishing local government power under cooperative federalism to transfer infrastructure costs from unsustainable groups to sustainable industries).

322. *See supra* Part IV.

323. Oberhaus, *supra* note 41.

affected state supports this required new transmission infrastructure constructed through its state, a state can block this, and there is no power of the federal government to preempt this.[324] Several states have recently successfully engaged in blocking interstate transmission infrastructure expansion.[325]

With the limitations on federal power to make certain energy or climate change decisions, as recently articulated by the Supreme Court,[326] the question is: what can the states do under the separation of power in our federalist system of governance? Can states be the motive mechanism to implement Green New Deal policies? The answer is "yes" under legal federalism provisions, but then maybe "no" under common law legal precedent governing the principles of certain state and federal rate making.[327]

A. Legal Principles Embedded in State and Federal Law

The Green New Deal provides a finance roadmap:

> The wealthy, who have most benefited from the excessive burning of fossil fuels, should pay increased taxes to help with the cost of transitioning to a green economy. Jill Stein has called for a higher estate tax on the wealthiest Americans; raising the top income tax rate while lowering it for low and middle income Americans; and closing various tax loopholes, especially for corporations.[328]

However, when there has been resistance to raising new taxes, utility rate revenues are the next largest source of potential funds under significant government control, as every state regulates retail rates.[329] How big of an amount are utility rates? Electric power has a delivered value in the United States of approximately $390 billion annually,[330] exceeding the total amount

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324. *See supra* notes 315–18 and accompanying text.

325. *See* Oberhaus, *supra* note 41 ("Given the economic and legal complexities involved with interstate and inter-regional transmission, most of the new renewable energy sources that have been added to the US grid in the past two decades have been developed within individual states or regions.").

326. *See supra* Part III.

327. *See infra* Part VI.

328. *See* GREEN PARTY U.S., *supra* note 87 (proposing to move the United States to 100% renewable energy by 2030).

329. *Compare* U.S. ENERGY INFO. ADMIN., 2018 TOTAL ELECTRIC INDUSTRY-REVENUE (THOUSANDS DOLLARS), https://www.eia.gov/electricity/sales_revenue_price/pdf/table3.pdf (last visited May 2, 2020) (listing the total electric industry revenue for each state and region), *with 2018 State Tax Revenue*, FED'N OF TAX ADM'RS, https://www.taxadmin.org/2018-state-tax-revenue (last visited May 2, 2020) (listing the total state tax revenue for each state).

330. T. Wang, *Revenue of the Electric Power Industry in the United States from 1970–2017*, STATISTA (Dec. 5, 2019), https://www.statista.com/statistics/190548/revenue-of-the-us-electric-power-industry-since-1970/ (showing $390.32 billion in utility power sale revenue in 2017).

of corporate income taxes collected in the U.S, even *before* the corporate tax rate was dramatically reduced in 2018.[331] With these details about which source of funds the Green New Deal will choose to incorporate in legislation still not finalized, this Article, in the next subparts, examines whether this could be accomplished under federal or state law in the United States by differential rates for electric power, not based on quantity of power usage, but based on income or wealth of the individual customer.

Both state and federal energy regulatory commissions, when enacting any rate for electric service are legally required to be "just and reasonable."[332] A nearly universal obligation imposed by federal and state laws on public utilities is to furnish service and to charge rates that will avoid undue or unjust discrimination among customers.[333] The Green New Deal proposes to reallocate the welfare impacts of the electric energy service changes that it includes.[334] However, "'undue' or 'unjust' discrimination among customers is prohibited."[335] Policy considerations, such as providing environmental incentives for Green New Deal types of power or discounting rates to certain segments of the customer base, play a subsidiary role in the ultimate rate allocation among customer classes.[336] These principles are embedded in rate decisions of both FERC[337] and state regulatory commissions,[338] and in principles when courts review the application of these principles by regulatory agencies.[339]

The redistributive aspects of the Green New Deal would potentially be achievable if done through the federal tax and public assistance and welfare systems, but raise questions of inconsistency with legal principles if done through the electric utility rate structure.[340] Selling at retail, the regulated electric service and commodity must be sold in a non-discriminatory manner

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331. *Amount of Revenue by Source*, TAX POL'Y CTR. (Feb. 12, 2020), https://www.taxpolicycenter.org/statistics/amount-revenue-source.

332. 16 U.S.C. § 824d(a) (2011).

333. JAMES C. BONBRIGHT ET AL., PRINCIPLES OF PUBLIC UTILITY RATES 515 (2d ed. 1988). "[I]f an electric plant is operating near its full capacity, the imposition of higher charges for on-peak than for off-peak service would actually be required to avoid discrimination." *Id.* at 528.

334. GREEN PARTY U.S., *supra* note 87.

335. CHARLES F. PHILLIPS JR., THE REGULATION OF PUBLIC UTILITIES: THEORY AND PRACTICE 434 (3d ed. 1993).

336. *See* BONBRIGHT ET AL., *supra* note 333, at 524, 540 (noting that Ramsey pricing can lead to service and user subsidies and "regulation may be unnecessary for social optimality").

337. *See* Ala. Elec. Coop., Inc. v. FERC, 684 F.2d 20, 27 (D.C. Cir. 1982) (holding that rate schemes applying a uniform rate to two similar groups of customers may be unlawfully discriminatory if the scheme creates an undue disparity between the rates of return on sales to different groups).

338. MICH. COMP. LAWS § 460.557(3)–(4) (2019); *see also* TEX. UTIL. CODE ANN. § 36.003(a)–(c) (West 2019) (prohibiting rate-setters in Texas from prescribing "prejudicial . . . or discriminatory" rates).

339. *Ala. Elec. Coop., Inc*., 684 F.2d at 27.

340. *See supra* notes 328–39 and accompanying text.

irrespective of policy goals outside of the purchase of the service: "The principles of *horizontal equity* that 'equals should be treated equally' and *vertical equity* that 'unequals should be treated unequally' . . . [is interpreted to mean] that equal . . . cost causers for the provision of a good or service should pay the same . . . prices."[341] Horizontal equity among different customer classes or types of customers is based on cost of service: it can be illegal for a state to set rates that "grant any undue preference or advantage to any person or subject any person to any undue prejudice or disadvantage."[342] An electric power customer only needs to show substantial vertical disparity in rates between customers of the same class or size of consumption in order to raise questions of discriminatory or preferential rates.[343]

The federal case law here also applies to principles of state energy regulatory law.[344] The burden is on the utility to demonstrate that all rates are just and reasonable.[345] Under the FPA, FERC may only allow "such rates as will prevent consumers from being charged [with] any unnecessary or illegal costs."[346] Whenever FERC determines that a public utility's rates, charges, or service classifications are unjust, unreasonable, or unduly discriminatory, FERC can determine and order rates that are just and reasonable.[347]

Notably, unlawful discrimination may arise under a single rate design where "a uniform rate creates an undue disparity between the rates of return on sales to different groups of customers."[348] If this rate design provides costs of service to one group that are different from costs of service to another, "the two groups are [then,] in one important respect[,] quite dissimilar."[349] It

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341. BONBRIGHT ET AL., *supra* note 333, at 568 (emphasis in original).

342. 16 U.S.C. § 824d(b)(1) (2011).

343. Pub. Serv. Co. of Ind. v. FERC, 575 F.2d 1204, 1212 (7th Cir. 1978), *aff'd sub nom.* City of Frankfort v. FERC, 678 F.2d 699 (7th Cir. 1982).

344. *See supra* notes 349–57 and accompanying text.

345. Nantahala Power & Light Co. v. FERC, 727 F.2d 1342, 1351 (4th Cir. 1984).

346. NAACP v. Fed. Power Comm'n, 425 U.S. 662, 666 (1976).

347. 16 U.S.C. § 824e(a). The D.C. Circuit Court directly answered the issue of current "usefulness" and provided further insight into what types of canceled investments can be included in rate bases:

> [T]he Commission's decision to authorize full recovery was just and reasonable and consistent with Commission policy. We are unpersuaded by Norwood's argument that forcing ratepayers to pay for a plant no longer producing electricity conflicts with the regulatory precept that ratepayers should only pay for items 'used and useful' in providing service. Although a utility's rate base normally consists only of items presently 'used and useful' . . . a utility may include 'prudent but canceled investments' in its rate base as long as the Commission reasonably balances consumers' interest in fair rates against investors' interest in 'maintaining financial integrity and access to capital markets.'

Town of Norwood v. FERC, 80 F.3d 526, 531 (D.C. Cir. 1996) (citations omitted).

348. Ala. Elec. Coop., Inc. v. FERC, 684 F.2d 20, 27 (D.C. Cir. 1982).

349. *Id.*

is also illegal for a public utility to "maintain any unreasonable difference in rates . . . as between localities," which again is a geographically based discrimination.[350] This would apply to pricing different census tracts differently as a way to create a concept of shifting welfare for reasons unrelated to the cost of service.[351] "The provision and pricing of services to any person(s) should not impose unwarranted economic costs on other person(s)."[352] The rate charged to one group should not impose a cost burden derived from a different pricing policy of another group.[353]

Utilities recover costs from discounts to a given class of customers through an unitemized charge imposed on the utility bills of other classes of customers.[354] The rate-making allocation is not absorbed by the utility, but is passed on to another class's increased costs, dollar for dollar.[355] As the legal touchstone, a public utility regulatory commission lacks the power to approve the collection of unjust, unreasonable, discriminatory, preferential, or prejudicial rates.[356]

So here lies the potential barrier to the redistributive aspects of a Green New Deal. Although to the degree to which the Green New Deal would implement its redistributive goals through manipulation of electric power retail rates for different customers, depending on the language of the state constitution, the practice of discounted utility rates to one class and not to another class with identical costs of service may violate applicable state equal protection clauses.[357]

B. Case Precedents in Certain States Outlaw Discrimination in Electric Power Prices

The bulk of legal challenges to policies of differentiated utility rates have been based on the equal protection clause of the applicable state constitution.[358] State regulatory commissions must determine whether

350. 16 U.S.C. § 824d(b)(2).

351. 16 U.S.C. § 824d(b)(2).

352. BONBRIGHT ET AL., *supra* note 333, at 568.

353. *Id.*

354. *See* FERREY, LAW OF INDEPENDENT POWER, *supra* note 55, § 10:17; STEVEN FERREY, THE NEW RULES, *supra* note 192, at 341.

355. FERREY, LAW OF INDEPENDENT POWER, *supra* note 55, § 10:17.

356. 73B C.J.S. *Public Utilities* § 32 (2013).

357. *See* RICHARD J. PIERCE JR. & ERNEST GELLHORN, REGULATED INDUSTRIES: IN A NUTSHELL 177–87 (4th ed. 1999) (providing examples where courts found rate differences to be both fair and discriminatory).

358. FERREY, LAW OF INDEPENDENT POWER, *supra* note 55, § 10:17, at 10–110.3; *see also* Mountain States Legal Found. v. Pub. Utils. Comm'n, 590 P.2d 495, 496–97 (Colo. 1979) (challenging differentiated rates on Colorado state constitutional grounds); Re Cent. Me. Power Co., 26 Pub. Util. Rep. 4th (PUR) 388, 430 (Me. 1978); Pa. Pub. Util. Comm'n v. Phila. Elec. Co., 91 Pub. Util. Rep. 3d (PUR) 321, 373 (Pa. 1971).

different customers have paid variable "amounts for the same service under the same circumstances."[359] At the federal level of regulation, Section 205 of the FPA prohibits utilities from granting "any undue preference or advantage to any person or . . . maintain[ing] any unreasonable difference in rates . . . either as between localities or as between classes of service."[360] FERC regulations specify that it is illegal to discriminate in rates between customers of the same class.[361] There should be horizontal equity between different customer classes and vertical equity among customers of different amounts of electricity usage within the customer class.[362]

Legal challenges have prevented states attempting to affect welfare policy through utility tariffs rather than utilizing more direct state tax or spending policy financed from general state revenues. Pennsylvania's energy regulatory commission order requiring electric utility retail charges to be applied equally within the residential class and offering a special rate to low-income and fixed-income customers constituted unconstitutional discrimination.[363] The commission was concerned about the spillover impact of decreased costs to the benefited group of consumers and the commensurate increased costs to similar-cost-to-serve customers.[364]

Indiana law prohibited utilities from charging different rates for customers who receive "the same services under the same conditions."[365] Targeted lifeline rates that provided a below-cost electric rate for specific customers based on their level of income or demography were found to

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359. FERREY, LAW OF INDEPENDENT POWER, *supra* note 55, § 10:17, at 10-110.4 (citation omitted).

360. 16 U.S.C. § 824d(b) (2011).

361. Pub. Serv. Co. of Ind. v. FERC, 575 F.2d 1204, 1212 (7th Cir. 1978), *aff'd sub nom.* City of Frankfort v. FERC, 678 F.2d 699 (7th Cir. 1982); Wis. Mich. Power Co., 54 Pub. Util. Rep. 3d (PUR) 321 (Fed. Power Comm'n 1964) ("Section 205 [of the Power Act] does not prohibit all rate distinctions but only rate discrimination as between customers of [the] same class.").

362. *See* Am. Elec. Power Serv. Corp., 67 FERC ¶ 61,490 (citation omitted) ("[T]he focal point of claims of undue discrimination has changed from discrimination in the treatment of different customers to discrimination in the rates and services the utility offers third parties when compared to its own use of the transmission system.").

363. *See* Pa. Pub. Util. Comm'n v. Phila. Elec. Co., 91 Pub. Util. Rep. 3d (PUR) 321, 373 (Pa. 1971).

364. *Id.*

365. Citizens Action Coal. of Ind., Inc. v. Pub. Serv. Co. of Ind., 450 N.E.2d 98, 101 (Ind. Ct. App. 1983). Section 8-1-2-103(a) of the Indiana Code states:

> No public utility, or agent or officer . . . [thereof], or officer of any municipality constituting a public utility, as defined in this chapter, may charge, demand, collect, or receive from any person a greater or less compensation for any service rendered or to be rendered, or for any service in connection . . . [therewith], than that prescribed in the published schedules or tariffs then in force or established as provided . . . [herein], or than it charges, demands, collects, or receives from any other person for a like and contemporaneous service.

IND. CODE. ANN. § 8-1-2-103(a) (2019).

violate state statutes prohibiting undue discrimination.[366] The court held that it was discriminatory to charge customers different rates when they were "receiving the same service under the same circumstances."[367]

The Colorado Supreme Court held that targeted lifeline rates for low-income customers were unconstitutional because they were unjustly preferential, discriminatory, and contrary to legal prohibition of preferential rates.[368] The Court reasoned that the PUC is a nonelected body that cannot determine which customers could receive a special rate[369]: "To find otherwise would empower the PUC, an appointed, nonelected body, to create a special rate for any group it determined to be deserving."[370] The Court expressed concern that other ineligible captive retail customers were compelled to finance the lower rates.[371]

The Maine PUC held that a reduced rate for elderly, low-income customers was unjust and unreasonable.[372] The commission held that the reduced rate was an inappropriate "social judgment[]."[373] When Washington ordered utility companies to reduce the utility rates of distressed farmers,[374] the Washington Supreme Court held that the ability to pay could not support a rate reduction borne by other ratepayers.[375]

Certain states are exceptions to this rule of equal protection when selling electric service. The Public Service Commission of Utah concluded that

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366. *Citizens Action Coal. of Ind., Inc.*, 450 N.E.2d at 101.

367. *Id.*

368. *See* Mountain States Legal Found. v. Pub. Utils. Comm'n, 590 P.2d 495, 498 (Colo. 1979) (en banc).

369. *Id.*

370. *Id.*

371. *Id.* at 497.

372. *See* Re Cent. Me. Power Co., 26 Pub. Util. Rep. 4th (PUR) 388, 430 (Me. Pub. Util. Comm'n 1978), *appeal sustained in part*, *denied in part sub nom.* Cent. Me. Power Co. v. Pub. Util. Comm'n, 405 A.2d 153 (Me. 1979).

373. *Id.* The commission stated:

> We cannot solve the nation's economic problems and we cannot solve ratepayers' financial problems. What we can do, however, is try to insure that those who buy electricity pay what it costs to generate and deliver that electricity to them, and that no one group of customers is subsidized at the expense of another. By doing this, we believe that all customers will be treated as fairly as possible; that they will be more able to choose wisely among competing energy technologies; that use of electricity will be neither promoted nor discouraged artificially; and that rates will, ultimately, be more stable than might otherwise be the case.

Id. at 429.

374. *See* State *ex rel.* Puget Sound Power & Light Co. v. Dep't of Pub. Works, 38 P.2d 350, 351–52 (Wash. 1934) (explaining that the Board held public hearings and made findings to decide that "rate reductions are both necessary and advisable" in light of the farmers' dire financial situation).

375. *Id.* at 353; *see also* Narragansett Elec. Co. v. Harsch, 368 A.2d 1194, 1213 (R.I. 1977) (holding that the commission erred in relying upon consumers' ability to pay in setting cost of equity).

lifeline rates were legal under state law[376] and in the public interest.[377] Massachusetts is the only state in which a discounted rate has been upheld by its highest court.[378] In Massachusetts, utility companies provide a straight percentage discount for low-income customers.[379] Aside from states that are exceptions, state constitutions in many states and their common law require equal protection and only cost-of-service-based rates for all retail power consumers.[380]

VII. LEGAL TRIAGE FOR THE GREEN NEW DEAL

A. A Complex Web of Hurdles for a Green New Deal

Regardless of one's policy preferences, the Green New Deal confronts significant hurdles to fully pass muster under U.S. state and federal law. The FPA, Supreme Court decisions, FERC wholesale market orders, and state retail electricity law in several states create a legal matrix that must be navigated by the Green New Deal.[381] The FPA creates a "bright line" between federal and state jurisdictions requiring electricity commodities and services to be sold equitably.[382] Constitutional clauses and judicial branch Supreme Court and agency precedent establishing U.S. common law on electric power are not easily changeable by congressional or executive branch action.[383]

Federal tax incentives for renewable energy phase-out or -down at the end of 2019.[384] FERC legal orders and precedent mandate technology-neutral competitive operation of lowest-cost power generation resources, pursuant to the FPA.[385] Three recent decisions of the Supreme Court limit traditional *Chevron* deference for any EPA regulations that address electric sector emissions affecting climate.[386] These all constrain federal policy options.

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376. *See* Re PacifiCorp, No. 98-2035-04, 1999 WL 1489663 (Utah Pub. Serv. Comm'n Nov. 23, 1999) (approving a lifeline rate with respect to vulnerable and disabled customers).

377. *Id.*

378. *See* Am. Hoechest Corp. v. Dep't of Pub. Utils., 399 N.E.2d 1, 4 (Mass. 1980) (explaining that it was not improper for the Massachusetts Department of Public Utilities to consider the age and income of customers to offer a reduced rate); FERREY, LAW OF INDEPENDENT POWER, *supra* note 55, § 10:17.

379. *See Am. Hoechest Corp.*, 399 N.E.2d at 2 (explaining that a customer qualifies for a rate reduced from the standard domestic rate if the customer is at least 65 years old, head of the household, and a recipient of supplemental social security income).

380. *See supra* notes 362–84 and accompanying text.

381. *See supra* Parts III–VI.

382. *See supra* Parts III, V, VI.

383. *See supra* Part VI.B (revisiting common law precedent of electric power).

384. *See supra* Part IV.B.

385. *See supra* Part V.

386. *See supra* Part III.

States differ on their electric power technology preferences; renewable energy resources are not equally distributed among the states, with as much as a 2:1 state-by-state differential on available renewable-power resources in different U.S. states.[387] A recent decision of the Supreme Court outlaws certain state regulations that attempt to manipulate energy prices to foster certain power generation to their states.[388] In addition, state energy regulatory precedents in many of the states prohibit "New Deal" elements of the Green New Deal to bypass required horizontally and vertically equitable retail treatment of electric power customers.[389]

Any one of these, or all of these together, poses legal impediments for the Green New Deal if it were enacted.[390] Depending on its final provisions, the Green New Deal redistributive goals implemented through the sale of electric power commodities and services could violate both federal and state law and precedent.[391] However, legal triage is possible for the "green" aspects of the Green New Deal.[392] This Part of the Article charts triage to rehabilitate those "Green" elements.

A significant portion of traditional base-load electricity generation is being replaced by non-dispatchable, intermittent renewable generation that, alone, lacks the ability to maintain needed reliability for the electric system and provide fast demand and supply balancing capabilities to the grid.[393] Additionally, distributed renewable energy resources such as wind and solar may operate at times of lower demand when electricity hourly changing prices are not at peak, lowering the value proposition of the renewable resource.[394] If the energy generated by distributed intermittent renewable generation could be stored and then discharged reliably into the grid at peak demand times, such assets would benefit from higher hourly wholesale market rates for power, while eliminating the need to dispatch (typically fossil-fueled) generation, providing essential grid reliability services.[395]

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387. *See supra* Part IV.B.1.

388. Hughes v. Talen Energy Mktg., LLC, 136 S. Ct. 1288, 1293 (2016).

389. *See supra* Part VI.B.

390. *See supra* Part VI (highlighting the legal limits on state electric power ratemaking as it pertains to the Green New Deal); *see also* Part VI.B (examining the precedent of states who prohibit elements of the Green New Deal).

391. *See supra* Part VI.

392. *See supra* at Part VII.A (introducing the legal hurdles—including the FPA, Supreme Court decisions, FERC wholesale market orders, and state retail electricity law—the Green Deal confronts); *see also* Part VII.C (noting how Opportunity Zone provisions of the new tax law creates triage to sustain the core elements of the Green New Deal).

393. MASS. DEP'T OF ENERGY RES., STATE OF CHARGE: MASSACHUSETTS ENERGY STORAGE INITIATIVE STUDY, at viii (2016), https://www.mass.gov/files/2017-07/state-of-charge-report.pdf.

394. *Id.* at ix.

395. *Id.*

What makes electricity unique is that, unlike all other forms of energy, moving electric copper electrons cannot be efficiently stored as electricity before they are lost as waste heat.[396] One must convert electricity either into chemical energy in batteries, into stored physical energy as potential compressed air or greater elevated reservoir capacity in hydroelectric pumped storage facilities, into active physical energy in spinning flywheels, or into thermal storage.[397] Electricity itself is not stored in any of these forms.[398] Pumped hydro storage constitutes 95% of the storage utilized in the United States, and dominates how we store electric energy potential worldwide (see Figure 5).[399]

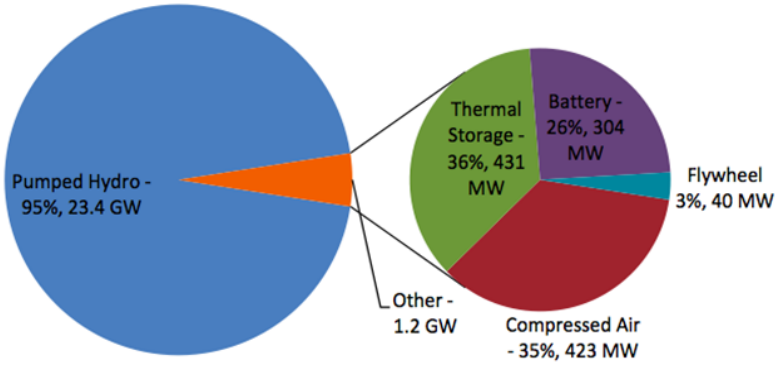

Figure 5. U.S. Electric Grid Storage Projects[400]

New advances in battery storage at an affordable price can totally change the energy contribution of intermittent renewable energy.[401] Modular storage in modern battery technologies can be deployed any place, at any size, on either side of the retail utility meter.[402] In contrast, pumped hydro storage,

396. FERREY, ENVIRONMENTAL LAW: EXAMPLES & EXPLANATIONS, *supra* note 48, at 605.

397. *See* FERREY, LAW OF INDEPENDENT POWER, *supra* note 55, § 2:21.

398. *Electricity and Energy Storage*, WORLD NUCLEAR ASS'N, https://www.world-nuclear.org/information-library/current-and-future-generation/electricity-and-energy-storage.aspx (last updated Jan. 2020).

399. U.S. DEP'T OF ENERGY, GRID ENERGY STORAGE 11 (2013), https://www.energy.gov/sites/prod/files/2013/12/f5/Grid%20Energy%20Storage%20December%202013.pdf.

400. *Id.*

401. *See id.* at 57 ("The Sustainable Transportation programs focus on reducing the cost, volume, and weight of batteries, while simultaneously improving the batteries' performance (power, energy, and durability) and ability to tolerate abuse conditions.").

402. *See id.* at 20–24 ("The services and applications identified in this table [bulk energy, ancillary, transmission infrastructure, distribution infrastructure, and customer energy management services] show that energy storage can be used to support generation, transmission, and distribution, as well as customer-side-of-the-meter needs of the grid.").

which constitutes 95% of all traditional electric power storage, needs to be placed only where there are rivers or water bodies with two large storage reservoirs near each other at a significant difference in their relative elevations.[403] Advancements in technology have reduced costs and improved both reliability and output capacity of battery energy storage technologies.[404] Lithium-ion batteries, as of 2018, held a more than 80% share of the large-scale power battery market, followed by vanadium flow batteries and lead-acid solid-state batteries.[405] Lithium-ion battery storage technology is a game changer in scale, location, and economy.[406]

Energy storage projects typically undergo the same interconnection processes as similarly sized renewable and traditional generation resources.[407] And there is always the sensitive question of what either retail or wholesale regulated rates storage facilities pay to procure power for storage, and what wholesale or retail rate they receive when they discharge batter storage as electricity, and whether each is regulated as a wholesale or a retail transaction.[408] Energy storage related to wholesale-power transactions is subject to plenary federal regulation, and retail energy storage is subject exclusively to state regulatory authority.[409] There is a "green" renewable energy "back door" opened by a recent FERC order, and the response of certain state energy regulators.[410] This pathway forward, through both federal and state venues, is set forth below.[411]

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403. *Id.* at 16–17, 19.

404. *Id.* at 46–48. The challenge has been to reduce capital costs and increase the number of charges provided by any given battery technology. *Id.* at 47, 57. There is an inability of most battery storage systems to operate at full capacity 24 hours per day, although there is the ability of a storage system to act as both generation and load. This raises new regulatory issues. *See id.* at 14 ("Energy storage could serve many grid needs in both China and India to bridge the gap between available generation and customer loads during system peaks and as a distributed resource on the customer-side of the meter.").

405. U.S. DEP'T OF ENERGY, U.S. BATTERY STORAGE MARKET TRENDS 8 (2018), https://www.eia.gov/analysis/studies/electricity/batterystorage/pdf/battery_storage.pdf.

406. *See id.* ("Lithium-ion batteries have high-cycle efficiency and fast response times. In addition, their high energy density makes them the current battery of choice for the portable electronic and electric vehicle industries.").

407. *Id.* at 18.

408. Amy L. Stein, *Reconsidering Regulatory Uncertainty: Making a Case for Energy Storage*, 41 FLA. ST. U. 697, 716–18 (2014) (contemplating the jurisdictional uncertainty belying energy storage facility transactions). Energy storage technology requires more active and sophisticated management over the life of the project as to when one charges the storage medium and when one elects to discharge the storage medium. Amjed H. Fathima & Kaliannan Palanisamy, *Energy Storage Systems for Energy Management of Renewables in Distributed Generation Systems*, *in* ENERGY MANAGEMENT OF DISTRIBUTED GENERATION SYSTEMS 157, 158 (Lucian Mihet-Popa ed., 2016).

409. *See supra* notes 123, 148 and accompanying text (describing exclusive state jurisdiction over retail sales and plenary federal jurisdiction over wholesale rates, respectively).

410. *See infra* Part VII.B.

411. *See infra* Part VII.B.

B. Through the "Back Door": A New Federal Entrée for "Green" Power Storage

There are seven different RTOs/ISOs across the United States illustrated in Figure 6; each administers the reliability of the electric grid, as well as the non-discriminatory operation of wholesale electricity markets.[412] Each RTO/ISO establishes participation models for electric resources and the requirements for providing services to the grid differently.[413] While all regions provide access to wholesale electricity markets for generators, customer demand response entities, and retail load serving entities, the variance in participation models limits the services that certain types of resources are eligible to provide.[414]

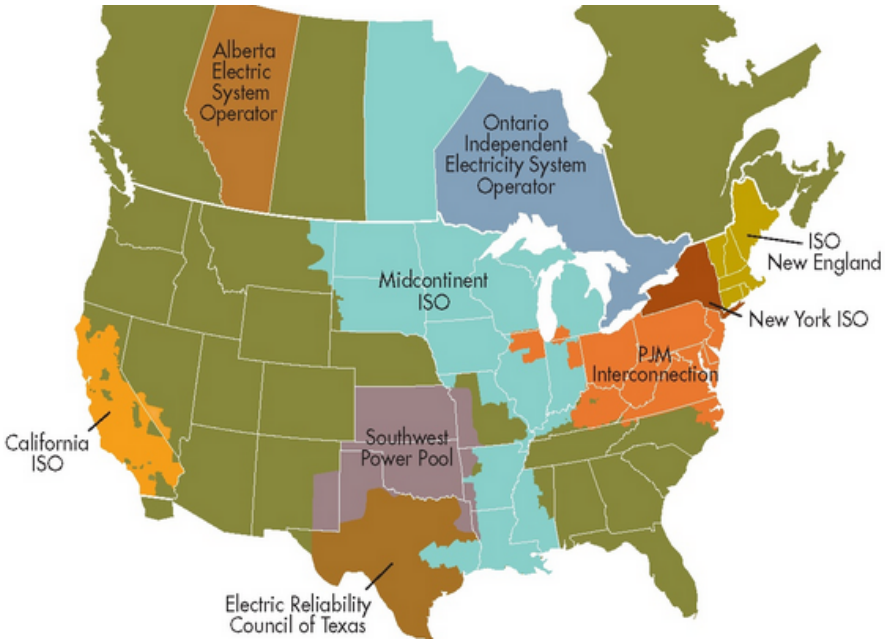

Figure 6. Independent System Operators and Regional Transmission Organizations[415]

Most of the tariffs dictating market participation rules were developed at a time when traditional fossil-fueled or nuclear generation represented the

412. FERC, *RTO/ISO*, *supra* note 239.
413. Ferrey, *Counter-Intuitive*, *supra* note 17, at 644.
414. *Id.*
415. FERC, *RTO/ISO*, *supra* note 239.

only significant participation in wholesale markets.[416] Energy storage resources have been able to participate to some degree within the RTO/ISO markets, but have been forced to utilize existing models developed for other resources (generally within demand response programs designed for curtailing use).[417] This limited the market opportunities for storage resources and the potential to deliver tangible benefits to the markets, while impeding adoption of storage by participants.[418]

Recently, through a new Order No. 841, FERC required each RTO/ISO to revise its tariff to establish a participation model consisting of market rules that, recognizing the physical and operational characteristics of electric storage resources, facilitate their participation in RTO/ISO wholesale markets.[419] The Order was issued pursuant to the Commission's legal authority under Section 206 of the FPA to ensure that rates are "just and reasonable," given that then-present rules did not recognize the operational characteristics of current power storage.[420] FERC defined an "electric storage resource" as "a resource capable of receiving electric energy from the grid and storing it for later injection of electric energy back to the grid."[421] The Commission provided that the definition applies to resources on the transmission system, on the distribution system, and behind the retail utility meter.[422]

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416. *Id.* at 3.

417. *Id.*

418. *Id.*

419. Electric Storage Participation in Markets Operated by Regional Transmission Organizations and Independent System Operators, 83 Fed. Reg. 9580, 9580 (Mar. 6, 2018) (to be codified at 18 C.F.R. pts. 35, 385).

420. *Id.* Under this FERC rule, RTO/ISO tariffs shall: (1) ensure resources are "eligible to provide all capacity, energy, and ancillary services;" RTOs and ISOs must allow an electric storage resource to de-rate its capacity to meet minimum run-time requirements to provide capacity or other services; (2) "ensure . . . resource[s] can be dispatched and can set the wholesale market clearing price [for] both a wholesale seller and wholesale buyer of power consistent with existing market rules;" (3) "account for the physical and operational characteristics of electric storage resources through bidding parameters or other means;" bidding parameters must reflect and "account for physical and operational characteristics of electric storage resources," and RTOs and ISOs must require electric storage resources to provide a state of charge, upper charge limit, lower charge limit, maximum energy charge rate, and maximum energy discharge rate; (4) "establish a minimum size requirement for participation . . . that does not exceed 100 kW;" and (5) each RTO/ISO specify in its tariffs "that the sale of electric energy from the RTO/ISO markets to an electric storage resource" which "then resells [power] back to those markets must be [established at the RTO/ISO] locational marginal price." *Id.*

421. *Id.* at 9582 n.1. The order included covering all markets for capacity, energy, and ancillary services. Each RTO and ISO already allowed such resources to participate in organized markets to an extent. Each RTO and ISO is required to revise its tariff to an establish participant category for electric storage resources and to allow distributed generation resources to participate in its organized wholesale markets. "Electric storage resource" includes all types of electric storage technologies capable of receiving electric energy from the grid and storing it for later injection of electricity, regardless of size, method of storage, and location on either a transmission or a distribution system of the utility. *Id.* at 9585–86.

422. *Id.* at 9586.

However, the Commission provided that behind-the-meter resources that do not inject electric energy onto the grid are not included in the definition.[423] In this recent FERC rulemaking, the Commission deferred to act on reforms related to distributed energy resource aggregations, finding that more information was needed.[424] Although it did not, FERC could have asserted authority over energy storage interconnection to any distribution facility.[425] Since Order No. 841 did not address distributed energy resource interconnection jurisdiction, Order No. 2003's "first-use" test still covers such resources, with the exception of QFs selling to third parties.[426] The jurisdictional foundation of Order No. 841-A could not rest on prior orders of FERC in *Tex-La*,[427] *TAPS*,[428] or *Detroit Edison*,[429] in which FERC established exclusive FERC jurisdiction over all wholesale distribution transactions.[430] FERC clarified in Order No. 841-A that "Order No. 841 did not mandate that electric storage resources must have access to the distribution system" and "Order No. 841 does not modify states' authority to regulate the distribution system, including the terms of access."[431]

Storage resources possess unique attributes: bi-directional capability, as well as the ability to both inject energy to the grid and receive energy from it.[432] An electric storage resource that injects electric energy back to the grid

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423. *Id.* FERC has previously ruled that such resources are considered to be demand response resources and must participate in those programs (Alternative Technology Regulation Resources in ISO-NE). *Id.* The definition only applies to resources that are "physically designed and configured to inject electric energy back onto the grid and . . . [are] contractually permitted to do so (e.g., per the interconnection agreement between an electric storage resource that is interconnected on a distribution system or behind-the-meter with the distribution utility to which it is interconnected)." *Id.* at 9587.

424. *Id.* at 9580. FERC finds that new distributed energy resources that are smaller and more geographically dispersed may not be able to participate in organized markets because of their size. *Id.* FERC allows these resources to participate through aggregation, similar to the way demand response resources may be aggregated under FERC Order No. 719. *Id.* FERC permits a distributed energy resource aggregator to add or remove individual distributed energy resources from its aggregation list without undue burden, and requires RTOs/ISOs to adopt metering and telemetry system requirements for distributed energy resource aggregations.

425. *See* LISA G. DOWDEN ET AL., DECARBONIZATION 2.0: IN AN ERA OF CONFLICTING JURISDICTIONAL CLAIMS, WHAT STAYS, WHAT RETIRES, WHO PAYS, AND WHO DECIDES? 25 (2014) (explaining FERC's "nuanced approach" to asserting jurisdiction to order public utilities to interconnect with distributed energy resources).

426. Standardization of Small Generator Interconnection Agreements and Procedures, 68 Fed. Reg. 49,974, 49,977 (Aug. 19, 2003) (to be codified at 18 C.F.R. pt. 35).

427. Re: Tex-La Elec. Coop, FERC Docket No. Tx94-4-000 (April 4, 1994).

428. *See generally* Transmission Access Policy Study Grp. v. FERC, 225 F.3d 667 (D.C. Cir. 2000).

429. Detroit Edison Co. v. FERC, 334 F.3d 48, 51 (2003) (citations omitted) ("[W]hen a local distribution facility is used in a wholesale transaction, FERC has jurisdiction over that transaction pursuant to its wholesale jurisdiction under FPA § 201(b)(1).").

430. *See supra* notes 131–32 and accompanying text.

431. Fed. Energy Reg. Comm'n Order No. 841-A, 84 Fed. Reg. 23,902, 23,911 (May 23, 2019) (to be codified at 18 C.F.R. pt. 35).

432. Electric Storage Participation in Markets Operated by Regional Transmission Organizations and Independent System Operators, 83 Fed. Reg. 9580, 9586 (March 6, 2018).

for purposes of participating in a FERC-regulated RTO/ISO market engages in a sale of electric energy at wholesale in interstate commerce.[433] Resources may be dispatched as supply and demand and set the wholesale clearing price as both a wholesale seller and wholesale buyer (i.e., must be available as a dispatchable resource).[434] In Order No. 841-A, FERC stated that it would

> consider any proposal to establish a rate for providing wholesale distribution service to an electric storage resource for its charging (whether a facility-specific rate, a wholesale distribution service rate that applies to all or some subset of electric storage resources, a generally applicable wholesale distribution service tariff, or any other rate mechanism) on a case-by-case basis in light of the record evidence.[435]

FERC asserted jurisdiction over the "inbound" wholesale distribution service (WDS) required by distributed storage resources to charge battery storage that participate in FERC-jurisdictional energy and ancillary service markets (Wholesale Storage DERs).[436] There are tariff issues as to how owners of distribution should set rates for WDS and differentiate between wholesale and retail energy delivered to Wholesale Storage DERs and co-located retail load.[437] FERC's policy preferred that WDS rates be individual case-specific direct-assignment rates reflecting the costs of the actual

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433. *Id*. Electric storage resources are not required to participate in RTO/ISO markets. *See id.* at 9592 (requiring energy storage resources to develop a *participation model* for engaging in RTO/ISO markets but stopping short of mandating that they actually *participate* in said markets). Each RTO/ISO participation model must allow electric storage resources to provide services that the RTO/ISO does not procure through an organized market mechanism (e.g., black-start capability, frequency response, reactive power). *Id.* RTOs/ISOs must allow electric storage resources to de-rate their capacity to meet minimum run-time requirements (e.g., 10 MW/20 MWh resource to offer 5 MW of capacity in the capacity market with a 4-hour minimum run-time). *Id.* at 9594.

434. *Id.* at 9600.

435. Fed. Energy Reg. Comm'n Order No. 841-A, 84 Fed. Reg. at 23,921–22.

436. Jennifer Key, *Charging Storage Load—Distribution Owner Challenges Regarding Inbound Wholesale Distribution Service*, STEPTOE (Jan. 21, 2019), https://www.steptoepurpablog.com/2019/01/charging-storage-load-distribution-owner-challenges-regarding-inbound-wholesale-distribution-service/ [hereinafter Key, *Charging Storage Load*]. "Wholesale Storage DERs [could] be located behind the same retail meter as retail load unrelated to the Wholesale Storage DER . . . ." *Id.* A Wholesale Storage DER will also likely use retail station power load. One option to segregate these flows is dual metering to separate the wholesale and retail load that will increase the cost to the DER. *Id.* In Order No. 841, FERC indicated dual meters may be required for transmission-connected storage facilities, but it could lack jurisdiction over the metering requirements where the interconnection of the Wholesale Storage DER also is state-jurisdictional. *Id.*

437. *See* Electric Storage Participation in Markets Operated by Regional Transmission Organizations and Independent System Operators, 83 Fed. Reg. at 9623–25 (discussing feedback FERC received on whether metering and accounting practices designed to delineate between wholesale and retail activities would need to be established in RTO/ISO tariffs).

facilities used by DERs, rather than system-wide rolled-in rates.[438] FERC's policy also preferred that energy delivered to co-located retail load (including station power load) should be segregated in pricing from the energy delivered that will be resold into the wholesale market.[439]

FERC disagreed with the proposition that only storage resources connected to the transmission system should be able to purchase energy at wholesale LMP.[440] Under the rule, storage resources interconnected to the distribution system also can purchase charging power at locational marginal price (LMP).[441] However, pursuant to 149 FERC ¶ 61,185, the Commission permitted a distribution utility to assess a wholesale distribution charge to an electric storage resource participating in the wholesale market.[442] However, for resources that buy and sell at LMP, the RTO/ISO is required to directly meter the resource.[443]

FERC anticipates that wholesale and retail loads typically can be distinguished by RTOs/ISOs, although it did acknowledge that, for distributed resources with retail load, the task is more complex.[444] Several

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438. *Id.* at 9625. "FERC has permitted rolled-in pricing for WDS rates," where a relatively small utility "argued that its wholesale distribution facilities operate as a single, integrated system consisting of mostly networked and looped facilities rather than a collection of radial segments off the transmission system, for which the specific costs can not be easily assigned to particular customers." Key, *Charging Storage Load*, *supra* 436.

439. Key, *Charging Storage Load*, *supra* 436.

440. Electric Storage Participation in Markets Operated by Regional Transmission Organizations and Independent System Operators, 83 Fed. Reg. at 9590.

441. *Id.* at 9582. FERC has insisted that each RTO/ISO must demonstrate how it is going to *prevent* participating energy storage facilities from ending up paying twice for "charging for later discharge" energy. Key, *Charging Storage Load*, *supra* note 436. FERC determined that an energy storage resource should pay the wholesale market price (which is the nodal LMP) for initially charging energy that would be used for later discharge back into the wholesale market. *Id.* FERC noted that it was not "persuaded by commenters who argue that developing metering practices that distinguish between wholesale and retail activity is impractically complex." Electric Storage Participation in Markets Operated by Regional Transmission Organizations and Independent System Operators, 83 Fed. Reg. at 9625.

442. Electric Storage Participation in Markets Operated by Regional Transmission Organizations and Independent System Operators, 83 Fed. Reg. at 9622.

443. *Id.* at 9625.

444. Jennifer Key, *Order No. 841 (Storage Final Rule) Deficiency Letters—The Double Charging Issue*, STEPTOE (Apr. 3, 2019), https://www.steptoepurpablog.com/2019/04/order-no-841-storage-final-rule-deficiency-letters-the-double-charging-issue/ [hereinafter Key, *Order No. 841*].The issue revolves around the circumstances if the RTO/ISO does not have a proven method for distinguishing wholesale and retail load. *Id.* An RTO/ISO authority may not extend this widely over all load-serving entities. *Id.* If FERC issues a ruling on a case involving the sale of energy to an energy storage resource, it establishes a precedent that this charging function is a wholesale sale preempted by federal authority. *Id.* In ¶ 321 of Order No. 841, FERC stated:

> [W]e require each RTO/ISO to prevent resources using the participation model for electric storage resources from paying twice for the same charging energy. To the extent that the host distribution utility is unable—due to a lack of the necessary metering infrastructure and accounting practices—or unwilling to net out any energy purchases associated with a resource using the participation model for electric storage resources' wholesale charging activities from the host customer's retail bill, the RTO/ISO would be prevented from charging that

RTOs/ISOs explained to FERC regarding compliance that they would not assess a wholesale charge unless the retail and wholesale loads could be distinguished.[445] All of the RTOs/ISOs stated that they would provide an option to energy storage resources to distinguish their loads and double-charging should not occur.[446] FERC did not find these measures adequate as an assurance.[447]

FERC Order No. 841 requires that regulated electric wholesale markets better incorporate energy storage into their markets by applying processes to accommodate physical and operational characteristics of energy storage systems.[448] The Commission's Order No. 841 rulemaking raises an issue of concern because it represents a further reach of federal authority into what has traditionally been considered an area to be regulated by states.[449] The FPA provides that FERC has jurisdiction over the "use or sale of electric energy in interstate commerce . . . apply[ing] to the transmission of electric energy in interstate commerce and to the sale of electric energy at wholesale

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> resource using the participation model for electric storage resources electric wholesale rates for the charging energy for which it is already paying retail rates.

Electric Storage Participation in Markets Operated by Regional Transmission Organizations and Independent System Operators, 83 Fed. Reg. at 9626. This contemplates where a distributed storage resource is located within a distribution utility that will not net out wholesale purchases from the retail bill or use a single bi-directional meter, and could not bill the storage resource at wholesale for charging energy. Key*, Order No. 841*, *supra*.

445. Electric Storage Participation in Markets Operated by Regional Transmission Organizations and Independent System Operators, 83 Fed. Reg. at 9626, ¶ 326. For example, "MISO Tariff Attachment HHH, Section 6 states 'To the extent the [energy storage resource] is paying retail rates for energy associated with wholesale charging activities, the [energy storage resource] shall complete Appendix 3 to this agreement in order for MISO to exclude settlement at wholesale prices for the same charging energy.'" Key*, Order No. 841*, *supra* note 444. "The CAISO provided ESRs several options, including one where the CAISO does not charge such ESRs for their charging because the Distribution utility already has done so at a retail rate." *Id*.

446. Electric Storage Participation in Markets Operated by Regional Transmission Organizations and Independent System Operators, 83 Fed. Reg. at 9618, ¶ 272. "PJM created different categories of charging energy [where the energy storage resource] would purchase the wholesale energy and a chartered load serving entity would purchase the energy that would be sold at retail to [a retailer]." Key*, Order No. 841*, *supra* note 444. "ISO-NE explained that with its metering and wholesale load asset model, retail-wholesale double billing would only occur in the case of an error." *Id.* "MISO . . . would require Market Participants to separately meter [energy storage resources] and any variances or special arrangements necessary [for] tariff metering requirements would be documented in the Distribution [energy storage resource] Agreement if an [energy storage resource] sought to distinguish its retail and wholesale load." *Id.* CAISO provided that an energy storage resource could become a scheduling coordinator metered entity and work with the distribution company to distinguish between charging energy and station power: "The NYISO stated that . . . New York's utilities d[id] not intend to invoice Energy Storage Resources for Energy withdrawals for wholesale market participation." *Id.*

447. Electric Storage Participation in Markets Operated by Regional Transmission Organizations and Independent System Operators, 83 Fed. Reg. at 9625, ¶ 323.

448. *Id.* at 9612.

449. U.S. Dep't of Energy, Quadrennial Energy Review, Transforming the Nation's Electricity System: The Second Installment of the QER, at 2-57 (2017), https://www.energy.gov/sites/prod/files/2017/02/f34/Quadrennial%20Energy%20Review--Second%20Installment%20%28Full%20Report%29.pdf.

in interstate commerce."[450] "Any other sale," including the distribution of retail electric energy, is outside of FERC's authority and currently left to states to regulate.[451] The next subpart dissects state regulation of this game-changing new battery storage technology.

C. State Regulations and "Green" Energy Storage in Enterprise Zones

FERC rules control all wholesale transactions in power,[452] which now are more than 40% of power sales, unlike prior to the year 2000, when they were only a non-significant percentage.[453] State energy regulatory commissions control the retail transactions of their regulated utilities.[454] Some new storage technologies can and are being deployed "behind-the-meter" on-site at retail consumers' roof-top solar facilities; state storage rules and initiatives governing these retail sector storage applications are critical.[455] Some deregulated states which allow retail competition are already initiating energy storage statutory and regulatory initiatives for their utilities.[456] The deregulated state retail markets are shown in Figure 7.[457]

450. 16 U.S.C. § 824(b) (2011) (emphasis omitted).

451. 16 U.S.C. § 824(b)(1).

452. *See supra* Part IV.A.

453. *See supra* Part IV.A.2.

454. New York v. FERC, 535 U.S. 1, 28 (2002); *see supra* note 133 and accompanying text.

455. IRENA, Behind the Meter Batteries: Innovation Landscape Brief 16 (2019), https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2019/Sep/IRENA_BTM_Batteries_2019.pdf?la=en&hash=86DF5CFBEDB71EB9A00A5E3680D72D6E346BD23A.

456. AM. PUB. POWER ASSOC., RETAIL ELECTRIC RATES IN DEREGULATED AND REGULATED STATES 2 (2019), https://www.publicpower.org/system/files/documents/2019%20%282018%20data%29%20Retail%20Electric%20Rates_final.pdf.

457. *See supra* Figure 7.

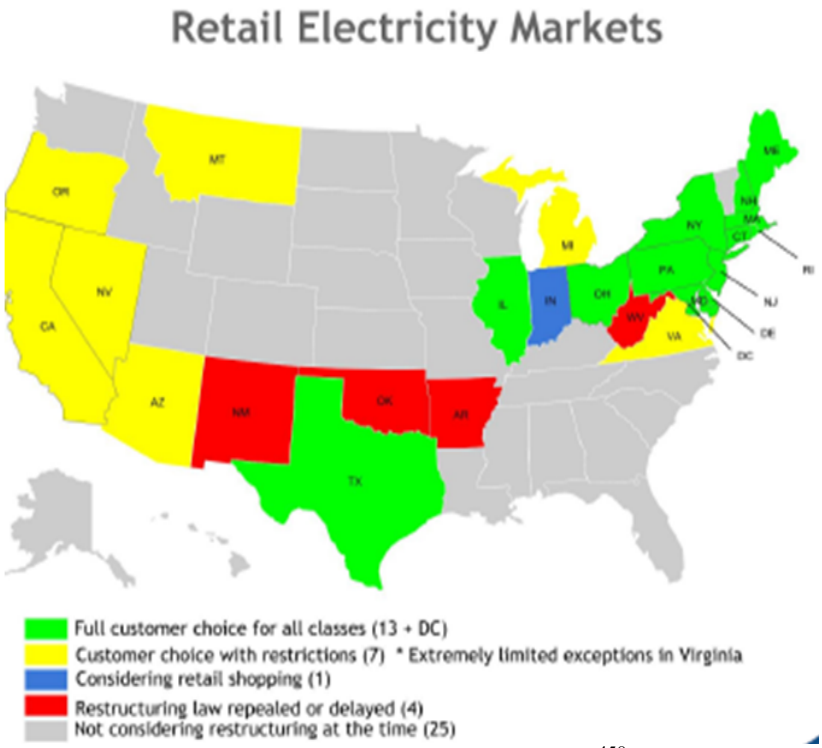

Figure 7. Retail Electricity Markets[458]

In the eastern United States, several states have seized the opportunity to promote energy storage. In Massachusetts, the new Solar Massachusetts Renewable Target (SMART) Program, approved for utility participation by the Massachusetts Department of Public Utilities in 2018, provides incentives and a financial "adder" higher than "avoided cost" rates for solar projects paired with co-located energy storage projects.[459] The New York

458. AM. PUB. POWER ASSOC., *supra* note 456.

459. 225 MASS. CODE REGS. 20 (2017). On October 31, 2018, the Massachusetts Department of Energy Resources published a *Guideline on Energy Storage* explaining the formula used to calculate the SMART program's storage adder and approving the state's utility model tariff provisions to implement the SMART program. MASS. DEP'T OF ENERGY RES., SOLAR MASSACHUSETTS RENEWABLE TARGET (SMART) PROGRAM SUMMARY (2018), https://www.mass.gov/files/documents/2018/11/09/SMART%20Program%20Overview%2011218.pdf. The SMART program became available on November 26, 2018. MASS. DEP'T ENERGY RES., EXEC. OFFICE OF ENERGY & ENVTL. AFFAIRS, SOLAR MASSACHUSETTS RENEWABLE TARGET PROGRAM (225 CMR 20.0) GUIDELINE: GUIDELINE ON ENERGY STORAGE 2 (2018), https://www.mass.gov/doc/energy-storage-guideline-final-091318/download?_ga=2.171629923.213713902.1536675176-483334923.1493903549. Issues were raised as to the legality of the Massachusetts SMART subsidy program, which increases the total prices earned by solar projects participating in the wholesale-power market, which is exclusively within the jurisdiction of FERC, and

State Public Service Commission, in 2018, established an energy storage goal of 3,000 MW in service by 2030, with an interim goal of 1,500 MW in service by 2025.[460] New Jersey became the first state within the 13-state PJM interconnection territory to establish an energy storage target.[461] The 2018 legislation mandates that the New Jersey Board of Public Utilities must conduct an analysis of energy storage and submit a written report to the governor within one year of enactment.[462]

In the western United States, California adopted laws that require utilities to procure considerable amounts of energy storage resources, as well as revamped and extended interconnection requirements for small energy storage project interconnection, and providing consumer rebates worth an estimated $800 million by 2026.[463] These included:

- 2010 legislation to encourage widespread adoption of energy storage, requiring the California PUC to determine appropriate viable procurement and economical energy storage system targets for each large investor-owned utility in the state of California.[464]
- 2016 legislation that requires each of California's investor-owned utilities (PG&E, SCE, and SDG&E) to propose programs for an additional 500 MW of distribution-connected or behind-the-meter energy storage resources with a useful life of at least ten years.[465]

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not state authority. *See* Hughes v. Talen Energy Mktg., LLC, 136 S. Ct. 1288, 1292 (2016) (holding that Maryland could not set an electricity rate that interfered with FERC's scheme).

460. Peter Maloney, *New York Sets 3 GW Storage Target, Doubles Efficiency Goals for Utilities*, UTIL. DIVE (Dec. 14, 2018), https://www.utilitydive.com/news/new-york-psc-sets-states-energy-storage-target-at-3-gw-by-2030/544371/. The target was based, in part, on the amount it would take to retire vintage combustion turbine peaking plants in New York City and Long Island by 2025. *See* Julia Pyper, *New York Governor Launches Green New Deal With Accelerated Clean Energy Targets*, GREENTECH MEDIA (Jan. 15, 2019), https://www.greentechmedia.com/articles/read/new-york-cuomo-green-new-deal-clean-energy (outlining key details and effects of the new clean energy mandate).

461. Peter Maloney, *N.J. Sets Aggressive 2 GW Storage Target by 2030*, UTIL. DIVE (May 29, 2018), https://www.utilitydive.com/news/new-jersey-sets-aggressive-target-2-gw-by-2030-for-energy-storage/524422/; *Territory Served*, PJM, https://www.pjm.com/about-pjm/who-we-are/territory-served.aspx (last visited May 14, 2020).

462. S. 2314, 2018 Leg., 218th Sess. (2018 N.J.), https://www.njleg.state.nj.us/2018/Bills/S2500/2314_I1.HTM (last visited May 3, 2020).

463. *See* Jeff St. John, *California Passes Bill to Extend 800M in Incentive for Behind-the-Meter Batteries*, GREENTECH MEDIA (Aug. 31, 2018), https://www.greentechmedia.com/articles/read/california-passes-bill-to-extend-incentives-for-behind-the-meter-batteries (explaining California's plan to create a market for energy storage in the same way it created a market for solar power a decade before).

464. Assemb. B. 2514, 2010 Gen. Assemb., Reg. Sess. (Cal. 2010), https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=200920100AB2514 (last visited May 3, 2020). This also requires each of California's municipally owned utility to determine appropriate storage targets. *Id.* California's regulated investor-owned utilities are required to collectively procure and install 1,325 MW of energy storage by 2024 under this bill and follow up on implementing PUC orders. Buck Endemann et al., *CPUC Requires Additional 500 MW of Energy Storage From California IOUS*, GLOB. POWER L. POL'Y (May 2, 2017), https://www.globalpowerlawandpolicy.com/2017/05/cpuc-requires-additional-500-mw-of-energy-storage-from-california-ious/.

465. Assemb. B. 2868, 2016 Gen. Assemb., Reg. Sess. (Cal. 2016), https://leginfo.legislature.

- Legislation in 2017 that requires utilities to consider how peak demand during late afternoon and early evening hours could be met by fast-ramping renewable energy storage resources and efficiency and demand response strategies.[466]
- A 2018 California PUC Order, which included a dozen rules governing how energy storage resources could participate in multiple grid domains at the same time.[467]

An Oregon statewide energy storage mandate was enacted in 2015, requiring each electric company with 25,000 or more retail customers to procure storage systems with the capacity to store at least 5 MWh of energy.[468] The total capacity procured by each Oregon utility company is limited to no more than 1% of that company's 2014 peak electric load.[469] The Washington Utilities and Transportation Commission issued a policy statement in 2017, recognizing energy storage as a key technology for decarbonizing the state's electric power grid,[470] and Washington utilities proposed projects.[471]

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ca.gov/faces/billTextClient.xhtml?bill_id=201520160AB2868 (last visited May 3, 2020). This new law excludes transmission-connected resources not subject to the deadlines set forth in AB 2514. *Id.* A decision of the CPUC in 2017 requires each IOU to be responsible for developing programs and investments for one-third of these 500 MW, 166.66 MW each, of distributed energy storage systems in their service territories, which focuses on consumer and distribution-connected opportunities for battery energy storage systems. Endemann et al., *supra* note 464. *See* Ariel Cohen, *Charging Up: Battery Storage Investments to Reach $620 Billion by 2040*, FORBES (Nov. 21, 2018), https://www.forbes.com/sites/arielcohen/2018/11/21/charging-up-battery-storage-investments-to-reach-620-billion-by-2040/#5fda4455d96d (identifying the most impactful players and challenges for California's energy storage bills).

466. S.B. 338, 2017 S., Reg. Sess. (Cal. 2017), https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180SB338 (last visited May 3, 2020).

467. CAL. PUB. UTIL. COMM'N, ORDER 18-01-003, at 11–12, http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M206/K462/206462341.PDF; *see also* 2018 CAL. PUB. UTIL. COMM'N SMART GRID ANN. REP. 1–5, https://www.cpuc.ca.gov/uploadedFiles/CPUCWebsite/Content/About_Us/Organization/Divisions/Office_of_Governmental_Affairs/Legislation/2019/CPUC%20Smart%20Grid%20Annual%20Report%202018.pdf (describing California's multi-faceted approach to building a state-wide smart grid).

468. H.B. 2193, 2015 Leg. Assemb., 78th Sess. (Or. 2015), https://olis.oregonlegislature.gov/liz/2015R1/Measures/Analysis/HB2193 (last visited May 3, 2020).

469. *Id.* The two primary Oregon utilities, Pacific Power and Portland General Electric Company, were required to submit proposals in 2018 for qualifying energy storage systems that must be operational by January 1, 2020. *Id.*

470. *Rep. Pol'y Statement on Treatment of Energy Storage*, Wash St. Util. Transp. Comm'n ¶ 34 (Oct. 11, 2017), https://www.utc.wa.gov/_layouts/15/CasesPublicWebsite/GetDocument.ashx?docID=237&year=2016&docketNumber=161024. Washington's investor-owned utilities were directed to employ integrated resource planning processes to analyze the most cost-efficient energy storage options, before committing to additional traditional energy peaking resources, such as gas-fired peaking power units. *Id.* ¶ 36. The Washington Utilities and Transportation Commission applies ordinary cost recovery mechanisms to utility recovery of costs from the acquisition of energy storage resources. *Id.* ¶ 55.

471. *Id.* ¶ 38. Public-private partnerships have contributed significant efforts towards aggressive renewable targets set up by the state of Washington. *State Pursues New Smart Grid Projects to Capture, Store More Solar and Wind Power*, WA. GOVERNOR JAY INSLEE (July 8, 2014),

Nevada statute assures the right to interconnect solar energy projects accompanied by energy storage systems.[472] In 2018, Nevada utility NV Energy issued its first request for proposals for renewable energy projects, including battery energy storage systems, and thereafter entered contracts for three large-scale battery storage projects with a cumulative 100 MW of capacity.[473] Enacted in 2015, a Hawaii law requires utilities in Hawaii by 2045 to generate 100% of their electricity sales from renewable energy resources.[474]

The southern United States' only retail-deregulated state, Texas, is in a different regulatory posture, as are California and New York.[475] In these three states, there is an ISO or RTO regulating wholesale and transmission of power pursuant to the FPA, which is approximately coincident with state borders, rather than stretching across multiple states, as do the geographically larger PJM, ISO-NE, and MISO ISOs or the SPP RTO.[476] See Figure 6.[477]

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https://www.governor.wa.gov/news-media/state-pursues-new-smart-grid-projects-capture-store-more-solar-and-wind-power. Puget Sound Energy (PSE) launched the Glacier Battery Storage Project, involving the installation of a 4.4-MWh lithium ion battery system to serve as a backup power source for the Glacier project area, made up of a variety of businesses and residences. Aaron Kunkler, *PSE's Battery Storage Project Could Help the Clean Energy Roll-Out*, BOTHELL-KENMORE REP. (July 12, 2019), https://www.bothell-reporter.com/news/pses-battery-storage-project-could-help-the-clean-energy-roll-out/. PSE and the Washington State Department of Commerce (WADOC) supplied $7.4 million and $3.8 million to the project, respectively. *Id.* Avista and the WADOC also commenced a 3.2 MWh large-scale battery storage project used to research and further develop the battery technology. Glenn Meyers, *Avista Utilities Develops Energy Storage Project in Washington*, CLEAN TECHNICA (Mar. 15, 2016), https://cleantechnica.com/2016/03/15/avista-utilities-develops-energy-storage-project-washington/. Avista and the WADOC each gave more than $3 million to the project. *Id.* Meanwhile, Energy Northwest (EN), a Washington-based energy provider, has started building a combined 5-MW solar plus-storage facility in Richland, where they hope commercial operations will begin in 2020. Mike Paoli & Carla Martinez, *Washington's First Utility Solar & Battery Project,* ENERGY NORTHWEST (Oct. 25, 2018), https://www.energy-northwest.com/whoweare/news-and-info/Pages/Washington%E2%80%99s-First-Utility-Solar--Battery-Project.aspx. The Clean Energy Fund underwrote half of the $6.5 million cost to build the facility. *Id.*

472. Assemb. B. 405, 2017 Leg., 79th Sess. (Nev. 2017), https://www.leg.state.nv.us/App/NELIS/REL/79th2017/Bill/5487/Overview (last visited May 3, 2020).

473. *See* Julia Pyper, *NV Energy Contracts to Build More Than 1,000 MW of New Solar, 100 MW of Battery Storage*, GREENTECH MEDIA (May 31, 2018), https://www.greentechmedia.com/articles/read/nv-energy-contracts-more-than-1gw-of-new-solar-100mw-of-battery-storage (announcing Nevada's plans to invest in clean energy storage).

474. *See* John Fialka, *As Hawaii Aims for 100% Renewable Energy, Other States Watching Closely*, E&E NEWS (Apr. 27, 2018), https://www.scientificamerican.com/article/as-hawaii-aims-for-100-renewable-energy-other-states-watching-closely/ (explaining the clean energy "preview" Hawaii presents to other states); Press Release, Governor of the State of Hawai'i, Governor Ige Signs Bill Setting 100 Percent Renewable Energy Goal in Power Sector (June 8, 2015), https://governor.hawaii.gov/newsroom/press-release-governor-ige-signs-bill-setting-100-percent-renewable-energy-goal-in-power-sector/.

475. *Whole Electricity Markets and Regional Transmission Organizations*, AM. PUB. POWER ASS'N, https://www.publicpower.org/policy/wholesale-electricity-markets-and-regional-transmission-organizations (last visited May 3, 2020).

476. *Id.*

477. *See supra* Figure 6.

Therefore, each of these three states exercises more practical in-state control over both the RTO- or ISO-regulated wholesale-power sales, as well as over in-state retail sales of power.[478]

The wholesale (exclusively federal) and retail (exclusively state) regulation of power in the United States is separated by what the Supreme Court distinguishes as a jurisdictional "bright line."[479] Wholesale energy storage is not subject to retail tariffs, rates, charges, or fees assessed in conjunction with the retail purchase of electricity in Texas: Energy storage facilities are allowed to interconnect, obtain transmission service, and participate in ERCOT's wholesale energy market.[480] For participation in ERCOT's wholesale electricity markets in Texas, the PUCT retail jurisdictional rule provides that "wholesale storage" is exempt from transmission service rates, and wholesale storage load is excluded from ERCOT's four coincident peak demand calculations.[481]

In New York, California, and Hawaii, energy storage systems have been installed on the consumer's side of the meter, thereby allowing the end-use consumer to charge the system during off-peak hours and discharge it during peak hours.[482] Such systems can be dispatched in response to demand-response price signals to reduce a customer's usage of peak power or, if the service is demand-metered, to reduce peak demand charges by shaving peak usage.[483] Solar-plus-storage is primarily used for behind-the-meter projects in markets where the retail price of electricity is high and net metering has

478. AM. PUB. POWER ASS'N, *supra* note 475.

479. Fed. Power Comm'n v. S. Cal. Edison Co., 376 U.S. 205, 215–16 (1964).

480. S.B. 943, 82nd Leg., Reg. Sess. (Tex. 2011), https://capitol.texas.gov/tlodocs/82R/billtext/pdf/SB00943F.pdf#navpanes=0 (providing that energy storage facilities intended to be used to sell energy or ancillary services in ERCOT's competitive wholesale markets will be considered "generation assets" that must register with the Public Utilities Commission of Texas (PUCT)).

481. Pub. Util. Comm'n Tex., Substantive R. 25.192 (2016), https://www.puc.texas.gov/agency/rulesnlaws/subrules/electric/25.501/25.501.pdf (last visited May 3, 2020). A PUCT retail jurisdictional rule defines "wholesale storage" as the energy component where electricity is used to charge a storage facility, the "facility is separately metered from all other facilities," energy "from the electricity is stored in the storage facility," subsequently regenerated, and sold on a wholesale basis as energy or ancillary services. Pub. Util. Comm'n Tex., Substantive R. 25.501 (2012), https://www.puc.texas.gov/agency/rulesnlaws/subrules/electric/25.501/25.501ei.aspx (last visited May 3, 2020).

482. Mike Munsell, *A Record-Breaking Quarter for America's Behind-the-Meter Energy Storage Market*, GREENTECH MEDIA (Sept. 7, 2017), https://www.greentechmedia.com/articles/read/record-breaking-quarter-for-u-s-behind-the-meter-energy-storage-market.

483. Robert Walton, *The Value of Customer-Sited Storage: It's About More than Demand Charges, Study Finds*, UTIL. DIVE (Sept. 16, 2019), https://www.utilitydive.com/news/the-value-of-customer-sited-storage-its-about-more-than-demand-charges-s/562528/.

reached its cap limit or may no longer be a viable option.[484] There are examples in Hawaii[485] and Arizona.[486]

Amid tension associated with federal versus state legal authority, there is a "back door" legal opening for advancement of "green" power with new technology pivoting on different FERC orders and strategically utilizing a new provision of the tax code that was not originally designed for "green" energy.[487] The new technology of battery storage can be interconnected to the wholesale-power grid.[488] FERC Order No. 792 amended FERC's pro forma SGIA and SGIP interconnection agreement and procedure rules to cover small energy storage resources.[489] The SGIP rules apply to facilities and resources that produce or store less than 20 MW.[490] FERC Order No. 845 amended both the pro forma LGIP for large and SGIA for small generators without providing specific requirements for energy storage resources.[491]

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484. Ferrey, *The Poles of Power: Magnetic Bi-Directional Turn of the Meter*, *supra* note 66, at 41.

485. *See Renewables*, KAUA'I ISLAND UTIL. COOP., https://website.kiuc.coop/renewables (last visited May 3, 2020) ("[In March 2017,] KIUC unveiled the world's first utility-scale solar-plus-battery storage generation facility[] . . . ."). In 2015, KIUC, a Hawaii utility, signed a 20-year power purchase agreement for a project to store solar energy from a 17 MW solar PV project during the day and discharge 52 MWh of storage to meet evening peak. *SolarCity to Provide Dispatchable Solar to Kaua'i Island Utility Cooperative*, SCOTT MADDEN, https://www.scottmadden.com/insight/solarcity-to-provide-dispatchable-solar-to-kauai-island-utility-cooperative/ (last visited May 3, 2020). In 2017, KIUC entered an agreement with AES Distributed Energy to combine generation from a 28 MW solar project with 20 MW of batteries that could discharge the stored power over 5 hours. Julian Spector, *AES' New Kauai Solar-Storage 'Peaker' Shows How Fast Battery Costs Are Falling*, GREENTECH MEDIA (Jan. 16, 2017), https://www.greentechmedia.com/articles/read/aes-puts-energy-heavy-battery-behind-new-kauai-solar-peaker. In 2019, the Hawaii PUC approved six utility grid-scale solar-plus-battery storage projects in Hawaii, adding 247 MW with almost 1 GWh of storage, at a cost for the stored electricity ranging from $0.08–0.10/kWh. *Six Low-Priced Solar-Plus-Storage Projects Approved for Oahu, Maui and Hawaii Islands*, HAW. ELEC. (Mar. 27, 2019), https://www.hawaiianelectric.com/six-low-priced-solar-plus-storage-projects-approved-for-oahu-maui-and-hawaii-islands.

486. Peter Maloney, *How Can Tucson Solar Get Solar + Electric for 4.5¢/kWh?*, UTIL. DIVE (May 30, 2017), https://www.utilitydive.com/news/how-can-tucson-electric-get-solar-storage-for-45kwh/443715/. In 2017, Tucson Electric Power announced it entered into a power purchase agreement with NextEra Energy for the output of a 100 MW solar PV project and a 30 MW, 4-hour energy storage system, expected to be in-service in 2020, that would produce 120 MWh of stored electricity, at a reported all-in price of $0.045/kWh. *Id.*

487. *See infra* text accompanying notes 489–511 (explaining several FERC orders and the Opportunity Zone tax incentive).

488. Sky Stanfield et al., *A New Frontier: The Interconnection of Energy Storage*, GREENTECH MEDIA (Jan. 4, 2018), https://www.greentechmedia.com/articles/read/a-new-frontier-the-interconnection-of-energy-storage.

489. Small Generator Interconnection Agreements and Procedures, 145 FERC ¶ 61,159 (Dec. 5, 2013) (to be codified at 15 C.F.R. pt. 35).

490. *Id.* ¶ 2. A storage device which can interconnect through the SGIP procedures or qualifies for the fast-track procedure must be equal to the maximum capacity the device is capable of discharging, which is calculated as the maximum capacity it can inject into the provider's system. *Id.* ¶ 229.

491. Reform of Generator Interconnection Procedures and Agreements, 83 Fed. Reg. 21,342, 21,343 (May 9, 2018) (to be codified at 18 C.F.R. pt. 37). The final rule adopted requires transmission providers to include specific modifications and limitations regarding when electric storage resources must provide primary frequency response. *Id.*

FERC Order No. 819 allows energy storage resources to provide further ancillary services, including primary frequency response service.[492] Thereby, solar and wind renewables can now transform their standalone intermittent profile by pairing with new battery storage technologies to provide broader on-demand power.[493]

There is a somewhat concealed additional incentive usable for "green" power obscured in an unrelated recent federal tax law change. The December 2017 tax law amendments added Opportunity Zone incentives that provide additional tax benefits to investors with capital gains, which could be utilized for renewable energy and storage projects in more than 8,700 designated U.S. geographic Opportunity Zone areas.[494] For energy storage plus renewable energy facilities, the Opportunity Zone tax incentive can be combined with the ITC and PTC federal tax credits, as these latter credits phase down.[495]

The benefits of Opportunity Zone incentives are available to a taxpayer when he or she disposes of an asset and thereafter, within 180 days, invests the proceeds into a qualified opportunity fund that invests in Opportunity Zone property, 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.[496] The Opportunity Zone incentive provides three key tax benefits to investors.[497] First, it allows federal taxes on capital gains invested in qualified opportunity funds in Opportunity Zones to be deferred until the 2026 tax year.[498] Second, if the taxpayer holds the qualified opportunity fund for five years, the capital gain ultimately recognized as taxable income could be reduced by 10%.[499] It may be further reduced by an additional 5%, if the taxpayer holds the investment for at least seven years.[500] Finally, if the taxpayer holds the investment for at least a decade, capital gains realized upon disposition of the investment are free

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492. Third-Party Provision of Primary Frequency Response Service, 80 Fed. Reg. 73,965, 73,966 (Nov. 27, 2015) (to be codified at 18 C.F.R. pt. 35).

493. Electricity Storage and Renewables: Costs and Markets to 2030, IRENA, https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2017/Oct/IRENA_Electricity_Storage_Costs_2017.pdf (last visited May 3, 2020).

494. Tax Cuts and Jobs Act, Pub. L. No. 115–97, § 1400Z-2, 131 Stat. 2054, 2174 (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 (last visited May 3, 2020).

495. *See Are Opportunity Zones Truly an Opportunity for Renewables?*, FTI CONSULTING (Mar. 28, 2019), https://www.fticonsulting.com/fti-intelligence/energy/research/clean-energy/opportunity-zones-truly-opportunity-renewables (explaining that Opportunity Zone capital gains incentives are separate, but combinable, with existing tax credits for renewable energy projects such as ITC and PTC).

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

497. *Id.* § 1400Z-2(b).

498. *Id.* § 1400Z-2(b)(1).

499. *Id.* § 1400Z-2(b)(2)(B)(iii).

500. *Id.* § 1400Z-2(b)(2)(B)(iv).

from federal income tax due to a step up in basis of the investment to its fair market value at the time of disposition.[501]

"Green" power plus storage projects, with an expected lifecycle of ten years or more, located in an Opportunity Zone are an attractive vehicle through which to invest realized capital gains.[502] Because electric transmission and distribution lines cross every populated region of the country and some unpopulated areas, solar PV facilities paired with electric storage facilities can be sited anywhere proximate to these lines, including in the many newly created Opportunity Zones. In many distressed Opportunity Zones, land and rental prices for land on which to host generation and storage facilities may be depressed.[503]

New energy storage fundamentally changes the traditional nature of electric power.[504] The ubiquitous nature of solar energy insolation makes solar energy an ideal technology, along with storage investment, to be located in Opportunity Zones.[505] Rather than siting traditional power plants where there is access to fossil fuels and abundant cooling water, solar and storage can be co-sited anywhere there are power transmission and distribution lines.[506] See Figure 2.[507]

Interfacing recent federal orders on storage[508] and various state sustainable power incentives[509] with Opportunity Zone provisions of the new tax law (which were not designed for renewable power), creates triage to sustain the "green" power at the core of the Green New Deal.[510] Interfacing these mechanisms isolates support of the "green" aspects of the Green New Deal.[511] These alone can provide a legal foothold advancing long-term power generation and storage infrastructure that leads to a lower-carbon climate future, notwithstanding future legal challenges contesting whether other provisions of the Green New Deal violate U.S. law. Through this "back door"

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501. *Id.* § 1400Z-2(c).

502. *Id.*

503. *See* Alexander Casey, *Sale Prices Surge in Neighborhoods with New Tax Break*, ZILLOW RESEARCH (Mar. 18, 2019), https://www.zillow.com/research/prices-surge-opportunity-zones-23393/ (describing, however, that the new tax incentive has driven sale prices up in Opportunity Zones).

504. *See supra* Part II.B.

505. Jacob Crabtree et al., *Solar Development in Opportunity Zones*, JD SUPRA (June 7, 2019), https://www.jdsupra.com/legalnews/solar-development-in-opportunity-zones-33074/.

506. *See Solar-Plus-Storage 101*, U.S. DEP'T OF ENERGY (Mar. 11, 2019), https://www.energy.gov/eere/solar/articles/solar-plus-storage-101 (comparing relative costs for different solar-battery storage configurations, including co-siting).

507. *See supra* Figure 2.

508. *See supra* Part VII.B.

509. *See supra* Part IV.B.2–3.

510. Emma Foehringer Merchant, *Green New Deal Calls for 100% Clean, Renewable, and Zero-Emission Energy Sources*, GREENTECH MEDIA (Feb. 7, 2019), https://www.greentechmedia.com/articles/read/green-new-deal-resolution-calls-for-100-clean-renewable-and-zero-emission-e.

511. *Id.*

of federal and state law, Congress can pass some of the sustainable renewable energy elements of the Green New Deal.