

Zero Emission Credits: Does Supporting Nuclear Power Help Us to Achieve Our Environmental and Economic Goals?

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I. INTRODUCTION

In today's political and economic climate, governments, many private entities, and individuals strive to find and promote efficient, reliable, and environmentally clean sources of electricity. With the threats of climate change looming, the world is seeking zero-emission and environmentally friendly sources with a long-term goal of power generation. Unfortunately, in many parts of the United States, renewable energy remains only a fraction of electricity sources, while coal, natural gas, and in some states, nuclear energy, dominate the electricity markets. In an attempt to ensure the reliability of electricity, as well as the

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environmental efficiency of production, some states established subsidy systems called Zero-Emissions Credits (ZECs).

This Comment examines these credits through multiple lenses. First, Parts II and III look at the national energy markets of the country along with an overview of what ZECs are, why states have them, and how they work. Next, Parts IV to VI examine the legal challenges to the New York and Illinois programs and possible legal issues for the program in the future. Last, Parts VII to IX briefly look at the interests of other states in adopting a ZEC program and whether these programs bring us closer to reaching our environmental goals.

II. THE OUTLOOK OF ENERGY IN THE UNITED STATES

In the United States, there are sixty nuclear power plants, with a total of ninety-eight nuclear reactors across thirty states.¹ Of the major sources of electricity (natural gas, renewables, coal, etc.), nuclear power constitutes 19% of current electricity production in the United States, behind natural gas (34%) and coal (28%).² Production from nuclear and coal are projected to decrease to 12% and 17% of electricity generation in 2050, respectively, while natural gas and renewables are expected to rise.³ These predictions stem from the decline of natural gas prices, resulting in lower wholesale electricity prices, causing larger operating losses of both nuclear and coal generators.⁴ The projections of declining costs and improved performance will apply for renewables, especially solar, where projected costs will fall faster than other sources of electricity.⁵

Since 2013, seven nuclear reactors have permanently shut down, and twelve reactors are planned for retirement by 2025.⁶ The decommissioning of these plants is due, in part, to sustained low natural gas prices, making it less expensive to produce electricity than using other fuel sources.⁷ Other factors that restrain the growth of nuclear power include low, or in some markets, no growth in consumer demand for electricity; the aging of nuclear power plant infrastructure; federal and state mandates for

1. *Frequently Asked Questions*, U.S. ENERGY INFO.ADMIN. Aug. 27, 2018), <https://www.eia.gov/tools/faqs/faq.php?id=207&t=3>.

2. U.S. ENERGY INFO. AGENCY, #AEO2019, ANNUAL ENERGY OUTLOOK 2019, at 22 (Jan. 24, 2019), <https://www.eia.gov/outlooks/aeo/pdf/aeo2019.pdf>.

3. *Id.*

4. *Id.*

5. *Id.*

6. NUCLEAR ENERGY INST., NUCLEAR COSTS IN CONTEXT 6-7 (Oct. 2018), <https://nei.org/CorporateSite/media/filefolder/resources/reports-and-briefs/nuclear-costs-context-201810.pdf>.

7. *Id.* at 6.

renewable generation; and constraints on the transmission of electricity that would place charges on producers to move power on the electrical grid.⁸ Another factor negatively impacting nuclear power is that most market designs do not favor nuclear power because they do not compensate nuclear power providers for the “value” they provide to the grid, such as zero-emission power and resilience to the electrical grid.⁹ Because of these difficulties for the industry, greater than one-third of existing plants that represent 22% of U.S. nuclear capacity are unprofitable or scheduled to close, as projected operating costs for the plants are expected to exceed revenues between 2018-2022.¹⁰ These factors helped contribute to the development of New York’s and Illinois’ ZEC programs in hopes of keeping their plants open. Currently, New York generates roughly one-third of its electricity from nuclear power plants.¹¹

III. ZERO-EMISSION CREDIT PROGRAMS

ZECs are payments made by a state to electricity generators that produce power without emitting greenhouse gases; they are similar to Renewable Energy Credits (RECs), which are intended to subsidize renewable energy producers, such as wind and solar.¹² ZECs are created whenever a zero-emission plant produces a megawatt-hour of electricity, and then the subsidy compensates the nuclear plant for producing electricity without carbon emissions.¹³ After these ZECs are created, carbon emitting utilities will then purchase the credits and typically roll the cost onto the retail customer’s bills.¹⁴ These credits are based on the “social cost of carbon,” and to determine the credits’ value, the social cost of carbon is monetized into a price per megawatt hour and multiplied by the average emissions from natural gas or coal.¹⁵ In the case where a state has coal plants, the average cost of a ZEC is higher than those with only

8. *Id.*

9. *See id.*

10. STEVE CLEMMER ET AL., UNION CONCERNED SCIENTISTS, THE NUCLEAR POWER DILEMMA: DECLINING PROFITS, PLANT CLOSURES, AND THE THREAT OF RISING CARBON EMISSIONS 2 (Nov. 2018), <https://www.ucsusa.org/sites/default/files/attach/2018/11/Nuclear-Power-Dilemma-full-report.pdf>.

11. *New York State Profile and Energy Estimates*, U.S. ENERGY INFO. ADMIN., <https://www.eia.gov/state/?sid=NY> (last visited Feb. 14, 2020).

12. NUCLEAR ENERGY INST., ZERO-EMISSION CREDITS 3 (Apr. 2018), <https://www.nei.org/CorporateSite/media/filefolder/resources/reports-and-briefs/zero-emission-credits-201804.pdf>.

13. *Id.*

14. *Id.*

15. *Id.*

natural gas because of the increased emissions.¹⁶ The local utilities are then required to purchase a designated amount of these credits from the plants, based on the amount of carbon the facilities emit.¹⁷ ZECs serve as an additional source of revenue for nuclear plant operators that help make them more competitive in the electricity market against other carbon-emitting energy sources, such as coal or natural gas.¹⁸

In August of 2016, New York implemented the New York Clean Energy Standard with policy goals to combat climate change and modernize the electric system to improve the efficiency, affordability, resiliency, and sustainability of the system.¹⁹ The bill was introduced to help reduce greenhouse-gas emissions by 40% by 2030.²⁰ The New York program gave discretion to the Public Service Commission and awards credits based on (1) the verifiable historic contribution the facility has made to clean energy resources in New York, (2) the degree of which projected wholesale revenues would risk the retirement of the plant, (3) the costs and benefits for the plant if it received ZEC benefits, (4) the impacts of the cost on retail consumers, and (5) the public interest.²¹

IV. LEGAL CHALLENGE TO THE NEW YORK ZEC PROGRAM

In 2017, various energy groups brought suit against the New York Public Service Commission challenging New York's Clean Energy Standard, specifically the ZEC program, alleging that the Federal Power Act (FPA) preempts the program and that it violates the Dormant Commerce Clause of the United States Constitution.²² The defendants moved to dismiss the complaint for failure to state a claim, and the Southern District of New York granted the motion.²³ The district court held that the plaintiffs failed to state a plausible claim because the FPA foreclosed them from invoking equity jurisdiction.²⁴ The court also held the plaintiffs lacked standing to sue under the Dormant Commerce Clause because their alleged injuries did not fall within the scope of Dormant

16. *Id.*

17. *Id.*

18. *See id.*

19. Order Adopting a Clean Energy Standard 3 (Pub. Serv. Comm'n of N.Y. Aug. 1, 2016), <http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7b44c5d5b8-14c3-4f32-8399-f5487d6d8fe8%7d>.

20. *Id.* at 2.

21. *Id.* at 124.

22. Coal. for Competitive Elec., *Dynergy Inc. v. Zibelman*, 906 F.3d 41, 46 (2d Cir. 2018).

23. *Id.* at 48; Fed. R. Civ. P. 12(b)(6).

24. *Id.*

Commerce Clause protections.²⁵ Upon *de novo* review, the Second Circuit addressed 1) whether the FPA preempts the Clean Energy Standard, and 2) whether the Clean Energy Standard violates the dormant Commerce Clause.²⁶

A. *Preemption by the FPA*

Under the Supremacy Clause of the Constitution, Congress may preempt state law through the enactment of federal law.²⁷ Congress can preempt a state statute either expressly or implicitly through “field” or “conflict” preemption.²⁸ State law is preempted under field preemption if Congress “legislated comprehensively to occupy an entire field of regulation, leaving no room for the States to supplement federal law.”²⁹ Conflict preemption occurs where complying with both federal and state law would be impossible, or if the state law would be an “obstacle to the accomplishment and execution of the objectives of Congress.”³⁰

The Second Circuit first considered field preemption to determine whether Congress intended to regulate interstate sales of electricity through the Federal Energy Regulatory Commission (FERC) with no opportunity for the states to regulate in this domain.³¹ While FERC does have exclusive power to regulate electricity sold at wholesale in interstate commerce,³² the court cited to *FERC v. Electric Power Supply Ass’n*, which notes that FERC’s authority does not “assum[e] near-infinite breadth” because its jurisdiction is limited to rules that directly affect the wholesale rate of electricity.³³ However, the court relied on the language of the Act, which leaves states the power to regulate “any other sale” of electricity, specifically the retail sale of electricity within the individual states alone.³⁴ The Second Circuit noted there is a strong presumption against preempting a state’s legislation under the FPA if the state’s legislation was drawn with “meticulous regard for the continued exercise

25. *Id.*

26. *Id.* at 49, 57.

27. *See* U.S. CONST. art. VI, cl. 2.

28. *Zibelman*, 906 F.3d at 49.

29. *N.W. Cent. Pipeline Corp. v. State Corp. Comm’n of Kan.*, 489 U.S. 493, 509 (1989).

30. *Oneok, Inc. v. Learjet, Inc.*, 135 S. Ct. 1591, 1599 (2015).

31. *Zibelman*, 906 F.3d at 49.

32. *Id.* at 49-50 (citing 16 U.S.C. § 824(a) (2015)).

33. *Id.* at 50 (quoting *FERC v. Elec. Power Supply Ass’n*, 136 S. Ct. 760, 774 (2016)).

34. *Id.* (quoting 16 U.S.C. § 824(b)) (citing *Elec. Power Supply Ass’n*, 136 S. Ct. at 766).

of state power.”³⁵ This presumption can only be defeated if Congress had a “clear and manifest purpose” to prevent the states from regulating.³⁶

B. *Hughes Decision*

The plaintiffs relied largely on the Supreme Court case, *Hughes v. Talen Energy Marketing, LLC*, where a Maryland program required utilities to enter into “contracts for differences” with power from a state-favored power plant.³⁷ This regulatory scheme was intended to aid the development of new in-state generation for Maryland.³⁸ The capacity auction, run by PJM Interconnection (PJM), a Regional Transmission Organization, was subject to regulation by FERC.³⁹ Here, the owners of the system’s capacity bid to sell off their capacity, and the regional operator of the electricity accepts bids, beginning with the lowest bidder until it has purchased enough capacity to satisfy the projected electricity demand.⁴⁰ Regardless of what the sellers listed in their original bids, they would receive the highest accepted rate, which is the “clearing price.”⁴¹ The load-serving entities (LSEs), which are utilities that provide electricity to customers, would then be required to purchase the electricity from the auction operator at the clearing price and at a quantity enough to satisfy its share of electricity demand to sell to retail customers.⁴² If the auction had a high clearing price, it would encourage new generators to enter the market, which would increase supply and lower the auction clearing prices for the shorter-term auctions.⁴³ However, a low clearing price would discourage new entry and encourage the retirement of the higher-cost generators.⁴⁴ Maryland electricity regulators became concerned in 2009 that the PJM capacity auction was failing to encourage the development of new in-state generation of electricity; since Maryland sits in a congested part of the PJM electricity grid, importing electricity from outside the state was difficult.⁴⁵

35. *Id.* (first quoting *Rochester Gas & Elec. Corp. v. PSC of N.Y.*, 754 F.2d 99, 104 (2d Cir. 1985); and then quoting *Wyeth v. Levine*, 555 U.S. 555, 565 (2009)).

36. *Id.* (quoting *Rochester Gas*, 754 F.2d 99, 104 (2d Cir. 1985); and then quoting *Wyeth*, 555 U.S. at 565).

37. 136 S. Ct. 1288, 1292 (2016); *Zibelman*, 906 F.3d at 50.

38. *See Hughes*, 136 S. Ct. at 1294.

39. *Id.* at 1292-93.

40. *Id.*

41. *Id.* at 1293.

42. *Id.*

43. *Id.*

44. *Id.*

45. *Id.* at 1294.

Maryland, attempting to address this issue, made a proposal to FERC, requesting the agency to extend the New Entry Price Adjustment (NEPA), which would give new suppliers longer payments and assurances of capacity that are not available to existing suppliers.⁴⁶ FERC rejected this proposal on the basis that this extension would improperly favor new generation over existing generation, which would throw the auction's market-based price-setting regime out of balance.⁴⁷ Shortly after the rejection, the Maryland Public Service Commission created a Generation Order allowing Maryland to solicit proposals from various companies for construction of a new gas-fired power plant and accepted the proposal from CPV Maryland (CPV), a company based in Maryland that provides renewable energy services.⁴⁸ Maryland then required LSEs to enter twenty-year pricing contracts with CPV at a rate it specified in its proposal with the state.⁴⁹ CPV would then be able to sell its capacity on the PJM auction, but Maryland's program would guarantee the contract price, rather than the auction clearing price the LSEs would need to pay. Under this system, if CPV's capacity clears the auction and the clearing price falls below the contract price, Maryland's LSEs are required to pay CPV the difference between the contract price and the clearing price, and the costs are passed along to consumers in higher prices.⁵⁰ If the clearing price exceeds the guaranteed contract price, CPV pays the LSEs the difference between the contract and clearing price, and the LSEs then pass the savings onto the consumers in the form of lower retail prices. However, if CPV fails to clear the auction, then it receives no payments from LSEs, incentivizing CPV to bid capacity at the lowest possible price because it is guaranteed the contract price when it clears.⁵¹

The U.S. Supreme Court held that the federal law preempted Maryland's program because the program disregarded an interstate wholesale rate set by FERC but limited the holding specifically to Maryland's program.⁵² In her concurrence, Justice Sotomayor reasoned that Maryland's rule guaranteed a rate different from FERC's "just and reasonable rate" and contravened the goals of the Federal Power Act.⁵³ The Court urged the opinion should be read to prevent Maryland or other states

46. *Id.* (citing 123 FERC P 61157, 94 (2009)).

47. *Id.* at 1294 (citing 128 FERC P 61157 at 125).

48. *Id.*

49. *Id.* at 1294-95.

50. *Id.* at 1295.

51. *Id.*

52. *Id.* at 1299.

53. *Id.* at 1300.

from encouraging production of clean or new energy production through measures “untethered to a generator’s wholesale market participation.”⁵⁴

The plaintiffs here, in reliance on *Hughes*, claimed that the ZEC program is “expressly tethered to wholesale prices related to NYISO auctions” because (1) New York requires utilities to pay for the difference between the state’s rate and the FERC rate, (2) the subsidy varies largely from the FERC auction rates, and (3) “favored producers” receive a subsidy in connection with the sale of electricity in wholesale markets.⁵⁵ The court found that the plaintiffs mischaracterized the court’s holding in *Hughes* and the ZEC program because the ZEC price does operate in the same matter as *Hughes* in that the ZEC price is fixed for two years and does not fluctuate during those periods to match the clearing price.⁵⁶ Also, the ZEC price is capped by the social cost of carbon, so generators are exposed to market risk in the event energy prices fall, unlike in *Hughes*, where CPV is guaranteed its price if its bid cleared.⁵⁷ The price can also be fixed below the social cost of carbon, but only on the basis of forecast wholesale prices, which are based on future prices FERC does not regulate, and the ZEC price can also be adjusted based on the amount of renewable energy generation in New York.⁵⁸

The court also addressed the plaintiffs’ argument that the ZEC program is field preempted because it exerts downward pressure on wholesale electricity rates.⁵⁹ The court compared the ZEC program to the REC programs, as they operate in similar ways and REC programs fall within the jurisdiction of the states.⁶⁰ The court relied on a FERC order, where FERC asserted jurisdiction over “bundled” REC transactions.⁶¹ Here, a REC sale and wholesale energy sale were part of the same transaction but were not in “unbundled” sales where the REC payments were not made in connection with a wholesale energy sale and therefore would not affect wholesale energy rates.⁶² Similar to RECs, ZECs are separated from the purchase or sale of electricity in wholesale, and the ZEC is separated from the wholesale rate.⁶³

54. *Id.*

55. *Coal. for Competitive Elec., Dynergy Inc. v. Zibelman*, 906 F.3d 41, 51 (2d Cir. 2018) (quoting 16 U.S.C. § 824d(a), 824d(e) (2015)).

56. *Id.* at 51.

57. *Id.*; *see Hughes*, 136 S. Ct. at 1294-95.

58. *Zibelman*, 906 F.3d at 51.

59. *Id.* at 54.

60. *Id.*

61. *Id.*

62. *Id.* (citing *WSPP, Inc.*, 139 FERC P 61061, 2, 5, 9, 24 (2012)).

63. *Id.*

The plaintiffs argued that ZECs are distinguishable from RECs under preemption because (1) the ZEC subsidy is tethered to wholesale prices, and (2) ZECs are only available to generators participating in the New York wholesale auction, which ties the sale of ZECs to wholesale transactions of electricity.⁶⁴ The court rejected the first argument because ZEC prices are capped by the social cost of carbon and can adjust in future years based on forecast wholesale energy prices.⁶⁵ The court rejected the second argument that ZECs are tied into the wholesale sale of electricity because no language in the CES order required ZEC plants to sell into the wholesale market, as these plants can choose whether to sell at wholesale and therefore does not raise preemption issues.⁶⁶ The court, therefore, held that the plaintiffs failed to raise a plausible field preemption claim.⁶⁷

C. Conflict Preemption

For the ZEC program to be conflict-preempted, the plaintiffs would need to show it would cause “clear damage” to efforts to attain federal goals.⁶⁸ When state law impacts matters within FERC’s control, the state must have the purpose to regulate production or other areas of state jurisdiction, and the state must use means that are at least plausibly related to matters of legitimate state concern.⁶⁹ The Second Circuit incorporated this reasoning and looked to whether the plaintiffs could show the ZEC program causes clear damage to the achievement of federal goals.⁷⁰

The plaintiffs claimed the goal of FERC’s wholesale market design is to encourage competition from more efficient generators, but the ZEC program artificially depresses market prices because it encourages the ZEC beneficiaries to bid lower than they would without the program.⁷¹ They claimed, the ZEC program “enable[s] the unprofitable plants to keep dumping substantial amounts of electricity in the FERC markets for over a decade, even though the FERC-approved price signals should have caused the plants to retire.”⁷²

64. *Id.*

65. *Id.*

66. *Id.* at 54-55.

67. *Id.* at 55.

68. *Id.* at 56 (citing *Nw. Cent. Pipeline Corp. v. State Corp. Comm’n of Kan.*, 489 U.S. 493, 522 (1989)).

69. *Nw. Cent. Pipeline Corp.*, 489 U.S. at 518.

70. *Zibelman*, 906 F.3d at 56.

71. *Id.*

72. *Id.*

The Second Circuit relied on FERC administrative orders, which stated that a state may make policies to subsidize, loan, or give tax credits to facilities on environmental or policy grounds, including efforts to make clean generation more competitive than fossil-fueled generation, as long as the states regulate on issues in their jurisdiction.⁷³ The court also reasoned that states can require the shutdown of existing generators or the construction of more environmentally friendly generators, as well as any other action in regulating generation, even though it may affect the clearing price.⁷⁴

As the court noted, the ZEC program does not directly affect price signals, as it does not guarantee a certain wholesale price that would alter the auction price.⁷⁵ However, it increases revenues for qualifying nuclear plants, increasing the electricity supply, which then lowers auction clearing prices, making at most an incidental effect on wholesale clearing prices.⁷⁶ As FERC uses auctions to set prices, the “FPA establishes a dual regulatory system between the states and the federal government and that the states engage in public policies that affect wholesale markets.”⁷⁷ The court, therefore, held the ZEC program does not cause clear damage to federal goals and the plaintiffs failed to make a plausible claim for the ZEC program to be conflict-preempted.⁷⁸

D. *Dormant Commerce Clause*

A state law violates the Dormant Commerce Clause only if it “(1) clearly discriminates against interstate commerce in favor of intrastate commerce, (2) imposes a burden on interstate commerce incommensurate with the local benefits secured, or (3) has the practical effect of extraterritorial control of commerce occurring entirely outside the boundaries of the state in question.”⁷⁹ The plaintiffs argued the ZEC program violated the Dormant Commerce Clause because (1) the program discriminates against interstate commerce by intentionally propping up in-state plants through a “distortion” of the interstate energy market and

73. *Id.* (citing Cal. PUC, 133 FERC P 61059, 31 n.62; S. Cal. Edison Co., 71 FERC P 61269, 62080 (1995)).

74. *Id.* (quoting Conn. Dep’t of Pub. Util. Control v. FERC, 569 F.3d 477, 481 (D.C. Cir. 2009)).

75. *Id.* at 57.

76. *Id.*

77. *Id.*

78. *Id.*

79. *Selevan v. N.Y. Thruway Auth.*, 584 F.3d 82, 90 (2d Cir. 2009) (quoting *Freedom Holdings Inc. v. Spitzer*, 357 F.3d 205, 216 (2d Cir. 2004)).

(2) places an undue burden on interstate commerce that outweighs any local interests by “impos[ing] market-distorting burdens that will drive out, and deter entry of, more cost-efficient, environmentally friendly out-of-state generators.”⁸⁰ The court found it unnecessary to address these issues because it held the plaintiffs lacked standing to sue.⁸¹ The court relied on *Summers v. Earth Island Institute*, which held that for a plaintiff to have standing under Article III of the Constitution, the plaintiff must allege he has a personal stake in the outcome of the controversy.⁸² This requires the plaintiff to allege (1) that he suffered an “injury in fact” that is (2) “fairly traceable” to the defendant’s conduct and is “likely to be redressed by a favorable decision.”⁸³

The plaintiffs alleged that they were injured because the ZEC program favored power plants in New York to prevail in interstate markets against plaintiffs because the credits would allow the plaintiffs to be underbid.⁸⁴ The plaintiffs claimed that even if the Public Service Commission awarded ZECs in a nondiscriminatory matter to out-of-state nuclear plants, there would be no lessening of the plaintiff’s injuries.⁸⁵ The court noted that the plaintiffs have not alleged ownership of any nuclear power plants in New York, or even outside of the state, and held that the plaintiffs’ alleged injuries are not traceable to the alleged discrimination the ZEC program caused; therefore the plaintiffs lack standing to challenge the program.⁸⁶

V. LEGAL CHALLENGE TO ILLINOIS’ ZEC PROGRAM

The Court of Appeals for the Seventh Circuit upheld a similar ZEC program in Illinois in *Electric Power Supply Ass’n v. Star*.⁸⁷ The plaintiffs, an association representing electricity producers and several municipalities, alleged the price-adjustment system in the ZEC program (1) is preempted by the FPA and infringes on FERC’s regulatory authority and (2) violates the Dormant Commerce Clause of the Constitution.⁸⁸ Under the Illinois law, coal and gas power generators are required to

80. *Zibelman*, 906 F.3d at 57.

81. *Id.*

82. *Id.* at 58 (citing *Summers v. Earth Island Inst.*, 555 U.S. 488, 493 (2009)).

83. *Spokeo, Inc. v. Robins*, 136 S. Ct. 1540, 1547 (2016).

84. *Zibelman*, 906 F.3d at 58.

85. *Id.*

86. *Id.*

87. *Electric Power Supply Ass’n v. Star*, 904 F.3d 518, 525 (7th Cir. 2018), *reh’g denied* (Oct. 9, 2018).

88. *Id.* at 522, 524.

purchase these credits from the recipients (nuclear power generators) at a price set by Illinois of \$16.50 per megawatt-hour, which was determined by the calculation of the social cost of carbon emissions.⁸⁹ In the case of surges in electricity prices of above \$31.40 per megawatt-hour, the price per credit would decrease in an effort to ensure the price of electricity remains affordable to retail consumers.⁹⁰

A. Preemption by the FPA

The court held that the ZEC program is not preempted by the FPA and does not infringe on FERC's regulatory authority because the ZEC program only affects the price of electricity by increasing the quantity of energy for sale.⁹¹ The court noted that FERC regulates the wholesale sale of electricity in interstate commerce, while states regulate local distribution and the facilities used to generate power.⁹² This allocation of power led to legal issues because states affect interstate sales through exercise of their own power, while FERC encroaches on state authority and affects the economic feasibility of plants the states have authority over.⁹³ Similar to *Zibelman*, the court relies on *Hughes*, which held Maryland's price protection policy requiring older utilities to enter contracts for differences and established a price floor to benefit new entrants.⁹⁴ The court notes that the Supreme Court in *Hughes* stressed that the decision will only apply to state rules that depend on interstate auction participation, while states can regulate within their authority, even if their laws incidentally affect FERC's authority.⁹⁵ The court also relies on the *Hughes* argument that "[n]othing in this opinion should be read to foreclose [states] from encouraging production of new or clean generation through measures 'untethered to a generator's wholesale market participation.'" ⁹⁶

The plaintiffs argued that the ZEC program should be preempted because PJM asked FERC to approve changes to its auction design to improve price-discovery and output-allocation effects following the enactment of new state laws, including the ZEC program, which FERC

89. *Id.* at 521-22.

90. *Id.* (citing 20 ILL. COMP. STAT. 3855/1-75(d-5)(1)(B) (2018)).

91. *Id.* at 524.

92. *Id.* at 522-23 (citing 16 U.S.C. § 824(b)(1) (2015)).

93. *Id.* at 523.

94. *Id.*; see *Hughes v. Talen Energy Mktg., LLC*, 136 S. Ct. 1288, 1293 (2016).

95. *Electric Power Supply Ass'n v. Star*, 904 F.3d 518, 523 (7th Cir. 2018) (citing *Hughes*, 136 S. Ct. at 1298).

96. *Id.* (quoting *Hughes*, 136 S. Ct. at 1299).

later denied.⁹⁷ However, FERC did not deem Illinois' ZEC system as forbidden, and the "[s]tates may continue to support their preferred types of resources in pursuit of state policy goals."⁹⁸ The court held that the market effects by the ZEC program are not preempted by the FPA, and they are merely a consequence of a system in which power is shared by the state and federal government.⁹⁹

B. *Dormant Commerce Clause*

The court then briefly addressed whether the ZEC program violates the Dormant Commerce Clause of the Constitution, as the plaintiffs argued that the programs will help some Illinois companies, while condemning interstate competition.¹⁰⁰ The court saw the argument as claiming the powers reserved to the states by the FPA are denied by the Constitution, as state authority is limited to its own territory.¹⁰¹ The court disregarded this view because "whenever Illinois, or any other state, takes some step that will increase or reduce the state's aggregate generation capacity, or affect the price of energy, then the state policy is invalid. That can't be right; it would be the end of federalism."¹⁰² The court furthered this position by quoting *General Motors Corp. v. Tracy*, which stated the Commerce Clause does not "cut the States off from legislating on all subjects relating to the health, life, and safety of their citizens, [just because] the legislation might indirectly affect the commerce of the country."¹⁰³

The court noted the commerce power belongs to Congress and the Supreme Court has interpreted congressional silence as preventing discriminatory state legislation; however, the FPA explicitly gave states the authority to regulate local generation of electricity.¹⁰⁴ The court cited to *Prudential Insurance Co. v. Benjamin*, where the Supreme Court did not find a Dormant Commerce clause issue. South Carolina implemented a tax on out-of-state insurance companies that do business in the state, while in-state companies did not because Congress consented in a statute.¹⁰⁵ The court emphasized that the FPA, unlike the statute in

97. *Id.* at 524 (citing *Calpine Corp. v. PJM Interconnection, L.L.C.*, 163 FERC P 61236, 173 (June 29, 2018)).

98. *Id.* (citing *Calpine Corp.*, 163 FERC ¶ 61236, at 158).

99. *Id.*

100. *Id.*

101. *Id.* (citing 16 U.S.C. § 824(b)(1) (2015)).

102. *Id.*

103. *Id.* at 524-25 (quoting *Gen. Motors Corp. v. Tracy*, 519 U.S. 278, 306 (1997)).

104. *Id.* at 525 (citing 16 U.S.C. § 824(b)(1)).

105. *Id.* (citing *Prudential Ins. Co. v. Benjamin*, 328 U.S. 408, 414 (1946)).

Benjamin, does not authorize express discrimination, so it would not require the balancing test from *Pike v. Bruce Church, Inc.*, which balances the strength of the state's interest to justify an effect on interstate commerce.¹⁰⁶ The court reasoned that the Illinois statute has no discriminating effect because all carbon-emitting plants in Illinois would need to buy credits (whether owned by an in-state company or not) and the recipients of the credits are in-state, as well as the payers.¹⁰⁷ The prices of wholesale power remain the same in the interstate auction.¹⁰⁸ Since the FPA gives states power to regulate energy production and the court can find no overt discrimination, the Seventh Circuit held that the ZEC program does not violate the Dormant Commerce Clause.¹⁰⁹

VI. ANALYSIS OF NEW YORK AND ILLINOIS DECISIONS

The holdings of *Zibelman* and *Star* upheld the ZEC programs in Illinois and New York. In both of these cases, plaintiffs sought to defeat the programs through the Supremacy Clause and the Dormant Commerce Clause of the Constitution; however, the programs survived the challenges.¹¹⁰ As observed above, the Second Circuit in *Zibelman* greater scrutinized the plaintiff's claim that the ZEC program was preempted by the FPA and violated the Dormant Commerce Clause but noted its agreement with the Seventh Circuit's decision in *Star*.¹¹¹

One issue the Seventh Circuit noted in *Star*, but not in *Zibelman*, was whether the statute was expressly discriminatory.¹¹² However, the Seventh Circuit did not find any discrimination, so it found no need to apply the *Pike* balancing test, where the court would balance whether or not the state's interest is strong enough to justify its effect on interstate commerce.¹¹³ Here, the state's interest would be to protect an industry that provides zero-emission energy production, which benefits the environment and the health of its citizens. The effects on interstate commerce would be the costs of nuclear facilities. To preserve Illinois' and

106. *Pike v. Bruce Church*, 397 U.S. 137 (1970); *Electric Power Supply Ass'n v. Star*, 904 F.3d 518, 525 (7th Cir. 2018).

107. *Star*, 904 F.3d at 525.

108. *Id.*

109. *Id.*

110. *Id.* at 522, 525; *Coal. for Competitive Elec., Dynergy Inc. v. Zibelman*, 906 F.3d 41, 46 (2d Cir. 2018).

111. *Zibelman*, 906 F.3d at 46.

112. *See Star*, 904 F.3d at 525.

113. *Id.* The *Pike* Balancing test asks whether a state's interest is strong enough to justify an interstate effect. As the court mentions, the test would not apply to regulation of electric capacity or a subsidy to promote carbon free or carbon neutral power generation. *See id.*

New York's nuclear industry, these programs likely would pass judicial review even if the law was discriminatory because of the importance and economic impact of having reliable power generation.

However, the plaintiffs in both cases petitioned the United States Supreme Court to address whether the ZEC programs in New York and Illinois were preempted by federal law and claimed the Second and Seventh Circuits misinterpreted *Hughes* in deciding these cases.¹¹⁴ As both cases shared similarities in their opinions, there is no circuit split on the issues. Also, considering the recent Supreme Court decision in *Hughes*, the Court may decline to take a case on state law preemption by the FPA. Although many power generators strongly oppose ZEC programs and the programs themselves raise questions of whether subsidizing nuclear producers contravene the American ideals of a free-market, or whether states should have greater power in regulating their energy producers than FERC, the Supreme Court denied writs.¹¹⁵

VII. NEW JERSEY'S PROPOSED ZEC PROGRAM

In an effort to save its nuclear plants, New Jersey is moving forward in several attempts to create a ZEC program.¹¹⁶ Nuclear energy was the dominant source of electricity in New Jersey until natural gas recently surpassed it.¹¹⁷ Currently, nuclear plants produce 44% of the state's electricity, down from 51% in 2001.¹¹⁸ In 2018, the state increased its renewable energy standard, requiring 21% of electricity to come from renewable sources by 2021, and by 2025 and 2030, 35% and 50%, respectively.¹¹⁹ The implementation of a ZEC system also serves to ensure more zero-emissions electricity, since renewables only make up roughly 5% of New Jersey's energy mix.¹²⁰ New Jersey currently has four nuclear

114. See Petition for Writ of Certiorari at 15-16, *Zibelman*, 906 F.3d 41, *cert denied, rev'd sub nom.* Elec. Power Supply Ass'n v. Rhodes, 139 S. Ct. 1547 (2019) (No. 18-879); Petition for Writ of Certiorari at 13, *Star*, 904 F.3d 518 (No. 18-868).

115. *Star*, 904 F.3d 518, *cert. denied*, 139 S. Ct. 1547 (2019); *Zibelman*, 906 F.3d at 46, *cert. denied, Rhodes*, 139 S. Ct. 1547.

116. Robert Walton, *New Jersey Moves Ahead on Nuke Subsidies, Approving ZEC Application Process*, UTIL. DIVE (Nov. 21, 2018), <https://www.utilitydive.com/news/new-jersey-moves-ahead-on-nuke-subsidies-approving-zec-application-process/542730/>.

117. 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?mtref=www.google.com>.

118. *Id.*

119. *Id.*

120. *New Jersey: State Profile and Energy Estimates*, U.S. ENERGY INFO. ADMIN. (July 19, 2018), <https://www.eia.gov/state/analysis.php?sid=NJ>.

power reactors that produce 97% of the state's emission-free electricity and employs more than 2700 workers.¹²¹

The New Jersey ZEC plan will require plants to present financial information required by the New Jersey Board of Public Utilities, including cost projections for three years, operation expenses, overhead costs, and other information demonstrating the power plant's likelihood of operating losses that could lead to closure.¹²² With New Jersey's new program in place, more states that rely largely on nuclear power will likely launch their own subsidy programs in hopes of decreasing emissions.

VIII. ENVIRONMENTAL CONCERNS OF NUCLEAR ENERGY

The support of states like New York and Illinois in creating ZEC programs aims to use nuclear energy as a bridge to one day switching over largely to renewable energy. However, many opponents of nuclear energy, including Green Peace, claim that nuclear energy is counterintuitive in this respect.¹²³ Green Peace argues that nuclear energy is costly, dangerous, expensive, and not worth the risks of using.¹²⁴ The organization cites to the high-profile disasters, such as Chernobyl and Fukushima, in stating that a major meltdown can be expected about once per decade.¹²⁵ Chernobyl and Fukushima have shown that a nuclear disaster can have disastrous effects, not only where the plant is located, but around the world as well. However, the United States and the international community have striven to improve their nuclear power plants through safety measures in both preventing and limiting the extent of a meltdown, as well as creating evacuation and post incident plans in case of a meltdown. Compared to Chernobyl, the United States has better fortified structures to keep radioactive materials intact, better emergency shutoff systems, as well as a superior plant design in general.¹²⁶ Following Chernobyl and Fukushima, the United States worked to reevaluate plant design and ensure better safeguards were in place to prevent an incident from happening here.¹²⁷ Although fears of

121. NUCLEAR ENERGY INST., FACT SHEET: NEW JERSEY AND NUCLEAR ENERGY (July 24, 2018), <https://www.nei.org/CorporateSite/media/filefolder/resources/fact-sheets/state-fact-sheets/New-Jersey-State-Fact-Sheet.pdf>.

122. N.J. STAT. ANN. § 48:3-87.5(a) (2018).

123. *Nuclear Energy*, GREEN PEACE, <https://www.greenpeace.org/usa/global-warming/issues/nuclear/> (last visited Feb. 17, 2020).

124. *Id.*

125. *Id.*

126. U.S. NUCLEAR REGULATORY COMM'N, BACKGROUNDER: CHERNOBYL NUCLEAR POWER PLANT INCIDENT (Aug. 2018), <https://www.nrc.gov/docs/ML0511/ML051160016.pdf>.

127. *See id.*

another meltdown are justified, the likelihood of another is likely decreasing over time because of post-Chernobyl adjustments and the strict regulatory landscape for nuclear power producers around the world. However, one incident itself can be disastrous, and without proper maintenance and safeguards from internal and external agents, the risk of meltdowns or major incidents remains.

Another major concern of nuclear energy is the radioactive waste that is a byproduct of production, as the waste can remain active and dangerous to human health for thousands of years.¹²⁸ Currently, all nuclear power plants produce roughly 2000 metric tons of radioactive waste per year, with the majority of waste stored on-site at the plants in dry casks.¹²⁹ As available space decreases, proposed plans suggest burying the nuclear waste in casks in the Yucca Mountains in Nevada. However, the United States is still years away from approving and completing the project, leaving the future storage of nuclear waste uncertain.¹³⁰

The Nuclear Energy Institute (NEI), a trade organization for the nuclear sector, views nuclear generation as a climate change solution rather than a cause.¹³¹ The organization claims that nuclear energy provides greater than 56% of the country's emission-free electricity, and that nuclear should be used to complement the growth of wind, solar, and geothermal power to combat the dangers of climate change.¹³² The group, citing to a 650,000-metric-ton increase in emissions after two months of the Vermont Yankee power plant closing, also claims the closing of nuclear plants without replacement by other non-emissions sources damages the environment because carbon emissions will increase.¹³³

In determining whether nuclear power is an environmentally focused method to combat carbon emissions, one will need to decide what the priorities are in respect to electricity generation—including the cost, reliability, safety, and environmental concerns not related to climate change. Although the high level of long-term waste management and risks

128. *Nuclear Explained: Nuclear Power and the Environment*, U.S. ENERGY INFO. ADMIN., <https://www.eia.gov/energyexplained/nuclear/nuclear-power-and-the-environment.php> (last updated Jan. 15, 2020).

129. Kevin Lee, *The Disadvantages of Nuclear Energy*, SCIENCING (Oct. 16, 2018), <https://sciencing.com/disadvantages-nuclear-energy-4578885.html>.

130. *Id.*

131. *Climate*, NUCLEAR ENERGY INST., <https://www.nei.org/advantages/climate> (last visited Feb. 17, 2020).

132. *Id.*

133. *Id.*

of a meltdown or related leaks cause concern, nuclear energy remains a valuable tool in the long process of switching to renewable sources.

IX. CONCLUSION: BRIDGING THE GAP TO LOWER CARBON EMISSIONS

Finding a clear solution to reaching society's goals to have efficient, reliable, and environmentally friendly energy will remain difficult for years to come. Support of nuclear power through ZEC subsidies can help to cut carbon emissions, while governments and private companies work to improve the availability of renewable energy. Although nuclear energy is not the preferred power source by proponents of renewables or carbon-emitting providers, it provides reliable, zero-emission energy. Many opponents of nuclear power argue that nuclear power has adverse environmental effects because of waste and the chances of leaks or meltdowns. However, with nuclear power being one of the most regulated industries in the United States, those risks are significantly less than they were since Chernobyl and Three-Mile Island. States should use nuclear energy to complement their renewable sources to help decrease emissions sourced from natural gas and coal power. The continued implementation of ZECs will help states reach emissions targets and will prevent nuclear plants from retiring early. Although legal challenges against ZEC programs are pending, ZEC programs will likely remain in place and will help bridge the gap until we reach our renewable targets.