17-2654-cv

IN THE UNITED STATES COURT OF APPEALS
FOR THE SECOND CIRCUIT

COALITION FOR COMPETITIVE ELECTRICITY, DYNEGY INC., EASTERN GENERATION, LLC, ELECTRIC POWER SUPPLY ASSOCIATION, NRG ENERGY, INC., ROSETON GENERATING LLC, SELKIRK COGEN PARTNERS, L.P.,

Plaintiffs-Appellants,

v.

AUDREY ZIBELMAN, in her official capacity as Chair of the New York Public Service Commission, PATRICIA L. ACAMPORA, in her official capacity as Commissioner of the New York Public Service Commission, GREG C. SAYRE, in his official capacity as Commissioner of the New York Public Service Commission, DIANE X. BURMAN, in her official capacity as Commissioner of the New York Public Service Commission,

Defendants-Appellees,

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On Appeal from a Final Judgment of the United States District Court for the Southern District of New York, No. 16-cv-8164 (VEC)

BRIEF OF INDEPENDENT ECONOMISTS AS *AMICI CURIAE* IN SUPPORT OF DEFENDANTS-APPELLEES AND AFFIRMANCE

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(caption continued from front cover)

and

EXELON CORP., R.E. GINNA NUCLEAR POWER PLANT LLC,
CONSTELLATION ENERGY NUCLEAR GROUP, LLC,
NINE MILE POINT NUCLEAR STATION LLC,
Intervenor-Defendants-Appellees

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INTEREST OF *AMICI CURIAE*[1]

The undersigned *amici curiae* are economists who are expert in the field of energy and environmental economics. They teach and publish widely in this field, and several have served at the highest levels of government. An appendix to this brief details their credentials and affiliations. *Amici* economists have no financial interest in the outcome of this case and have received no compensation for their participation. The foregoing reflects their independent judgment regarding the important economic issues involved in this case and does not represent the views of any institutions with which they are affiliated.

All parties have consented to the filing of this brief.

[1] No person made a monetary contribution to this brief's preparation or submission. Counsel is proceeding *pro bono publico*. No counsel for any party authored this brief in whole or in part.

SUMMARY OF THE ARGUMENT

Plaintiffs contend that New York's Zero Emissions Credit (ZEC) program "disrupts," "manipulat[es]," and "intrudes" into wholesale power markets and – invoking the language of economics – that the program will "distort" prices there. Brief for Plaintiffs-Appellants Coalition for Competitive Electricity et al. at 6, 10, 16 & 46 (Oct. 13, 2017). In their telling, apart from the recent intrusion of ZECs, wholesale markets are free from the influence of state policies aimed at reducing the environmental impacts of electric power generation.

They are mistaken. State environmental policies have had pervasive economic impacts on the wholesale markets since their inception and without objection from FERC. Moreover, states have had good reason for pursuing these policies. Absent intervention, electric power markets do not yield economically efficient outcomes. That is so because the cost of pollution is borne by society at large rather than the entities doing the polluting. It is no coincidence, therefore, that the states that have led the way toward market competition in electricity (rather than centralized resource planning) have also led the way

toward policies, like the ZEC program, that use economic incentives to achieve environmental objectives.

Prices in wholesale power markets assimilate a wide range of state policies aimed at mitigating environmental harms. These policies vary in their design, scope, and stringency. Some create economic incentives for cleaner generation or economic penalties for emitting pollution. Others impose emission standards or technology requirements directly on polluters. No matter their design, all of these policies influence investment decisions and operational practices at power plants, and therefore also affect wholesale market prices. That the composition of resources in these markets, and the resulting prices, bear the influence of environmental policies does not mean these markets are less competitive. It means, simply, that the terms of competition include satisfying environmental performance objectives as well as other factors.

New York's Zero Emissions Credit (ZEC) program compensates power plants that generate electricity without emitting pollutants that harm public health and cause climate change. To be sure, the program will affect wholesale markets. The ZEC program will incentivize the

ZEC recipients to submit lower bids into energy and capacity markets, and will generally improve their competitive position. The program will, therefore, also indirectly affect other market participants. But, in these respects, the ZEC program is no different than other state (or federal) policies targeting the environmental consequences of electric power generation. Nor is it greater in magnitude. In fact, the current ZEC price of $17.48/MWh is lower than the benefits that have generally been received by other, new zero-carbon resources.

New York has good reason to put a value on carbon-free electricity. A fundamental principle of economics is that markets do not operate efficiently when transactions within those markets cause harm to third parties. (The harm to third parties is referred to in economics as a "negative externality"). The classic example of this concept is pollution: if polluters need not pay for the harm they cause, they will engage in market transactions that result in more pollution than is economically efficient. The ZEC program addresses that problem, if only in part, by compensating qualifying generators for the value of their carbon-free electricity. By doing so, the program ensures that the economic decisions made by the owners of these resources (including

retirement decisions) take account of their environmental advantages over the fossil-fuel fired generators that dominate the market and that are not required to pay for the social cost of their carbon dioxide (CO_2) emissions.

ARGUMENT

I. Prices in Wholesale Energy and Capacity Markets Reflect Policies Aimed at Environmental Objectives

a. Evolution of the competitive landscape

FERC's approach to wholesale competition over the past two decades has been an exercise in cooperative federalism. *See, e.g., FERC v. Elec. Power Supply Ass'n*, 136 S. Ct. 760, 779-80 (2016). FERC has required that all generators have non-discriminatory access to the interstate transmission system. *See, generally*, Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Servs. by Pub. Utils., FERC Order No. 888, 61 Fed. Reg. 21,540, 21,541 (May 10, 1996). But, in other ways FERC has accommodated divergent state preferences. With regard to market competition, FERC has urged utilities to join regional transmission organizations (RTOs) and promoted organized wholesale markets. Regional Transmission

Organizations, FERC Order No. 2000, 65 Fed. Reg. 809 (Jan. 6, 2000). But, ultimately, FERC has let states decide whether their utilities join RTOs. *Id.* FERC has also let states decide whether to maintain traditional regulatory structures based on cost-of-service regulation of generation assets owned by vertically-integrated utilities. Today, in large expanses of the country, mainly in the West and Southeast, there are no RTOs or organized wholesale markets, and wholesale transactions are through bilateral agreements. Even where centrally organized FERC-regulated wholesale markets do exist, many states have retained their roles as economic regulators over generation resources. For instance, in much of the Midwest and central parts of the United States, RTOs operate the transmission system and administer markets, but many of the generation units belong to vertically-integrated utilities and recover their cost of service plus a return on equity through state-regulated retail rates (an arrangement that would also presumably be invalid under Plaintiffs' theory). With respect to these vertically-integrated utilities, state officials exercise control over which new resources are built and which retire.

Another group of states – in the East and Midwest, along with California and Texas – embraced wholesale competition more completely. These states, like New York, directed their investor-owned utilities to transfer control of their transmission facilities to an independent system operator, and for the most part broke up the vertically-integrated utility structures (although to a lesser degree in California). These decisions largely took those states out of the role of economic regulator for merchant-owned power plants within their borders.

By limiting their role as economic regulators over power plants, these states in no way gave up their role as environmental regulators over power plants. To the contrary, many of the states that led the way to market competition, including California and the Eastern states, also pursued the most aggressive policies to shape the mix of resources that now prevail in their states. Indeed, it would be impossible to understand the wholesale markets as they exist today without attention to the role that state environmental policies have played over the past twenty years. Most notably, California and the Northeastern states have nearly eliminated the use of coal and have aggressively promoted

renewable energy and energy efficiency measures within their markets. These states have achieved rates of carbon dioxide emissions per unit of electricity that are less than half of those in the more polluting states.[2]

b. The effect of State (and Federal) environmental policies on organized wholesale markets

State and federal environmental policies have had pervasive effects on organized wholesale markets. These policies affect energy and capacity markets differently, so it is helpful to consider each separately.

"Energy," as a term of art in organized wholesale markets, means the generation of electricity at a particular location on the system for a specified period of time. New York's Independent System Operator (NYISO) administers day-ahead and real-time auctions for energy. Generators that clear in the auction receive the clearing price at their location. The unit in energy markets is the megawatt-hour (MWh). Because energy markets compensate generators per MWh, policies that

[2] *See* ENVIRONMENTAL PROTECTION AGENCY, EMISSIONS & GENERATION RESOURCE INTEGRATED DATABASE (eGRID) (eGRID2014 Data File v2 at ST14) *at* https://www.epa.gov/energy/emissions-generation-resource-integrated-database-egrid.

affect the marginal cost or benefit of generating each incremental MWh impact bidding there. Some policies provide additional sources of revenue (or tax abatement) for generators and therefore encourage them to bid lower in energy markets than they otherwise would. These same policies also induce some generators into the market – many of which have no fuel cost – thereby increasing the quantity of generation bidding into those markets with low marginal cost.

The most prominent example of this type of state policy is the renewable portfolio standard (RPS). RPS programs require utilities to procure a specified percentage of electricity from renewable sources. RPS programs typically allow the renewable attributes to be unbundled from the physical electricity and sold separately as renewable energy credits (RECs). For each MWh they generate, renewable resources earn one REC they can sell. The prospect of additional revenues from the sale of RECs will cause generators to bid lower than they otherwise would in wholesale energy markets, and will cause some new resources to enter the market that otherwise would not have. In this way, RPS programs affect wholesale energy prices. Some RPS programs place

additional value on the promotion of particular technologies, such as solar energy, by carving out technology-specific targets.

Federal tax credits – while not raising the preemption issue that is the subject of this case – directly reward generators for producing clean energy and so have similar wholesale market impacts to ZECs and RECs. Renewable resources may claim these tax credits in addition to RECs. The Production Tax Credit (PTC) provides wind, geothermal, biomass, and other generators with tax credits for the first ten years of operation. In 2017, the PTC is worth $24 per MWh generated. *See* Internal Revenue Service, Credit for Renewable Electricity Production and Refined Coal Production, and Publication of Inflation Adjustment Factor and Reference Prices for Calendar Year 2017, 82 Fed. Reg. 17,740 (Apr. 12, 2017). Under current law, the PTC will phase out for new wind projects and end entirely for projects that have yet to begin construction by 2020. 26 U.S.C. § 45(b)(5). Solar resources may claim the PTC or the Investment Tax Credit (ITC), which provides a tax credit equivalent to 30% of the capital cost of the resource. The ITC remains at 30% through 2019 then phases down to 10% by 2022. 26 U.S.C. § 48(a)(6).

Pulling in the opposite direction are policies that require generators to pay a cost for negative environmental outcomes that is proportional to the amount of energy they generate. These policies will tend to increase the price at which certain generators bid into energy markets and, therefore, to increase average clearing prices. For example, several states have imposed sector-wide caps on carbon dioxide emissions, requiring generators to purchase allowances for each ton of carbon dioxide they emit. Nine Northeastern and Mid-Atlantic states (including New York) have formed the Regional Greenhouse Gas Initiative (RGGI), a cap-and-trade program that sets a 2030 emissions cap that is 65% lower than 2009 levels.[3] Likewise, California has implemented a cap-and-trade program that includes the transportation and industrial sectors as well as the electric sector and that will require substantial emissions reductions through 2031. At the federal level, implementing the Clean Air Act, EPA has created markets for allowances to emit certain air pollutants. *See, e.g.*, Environmental

[3] *See*, Press Release, RGGI States Announce Proposed Program Changes: Additional 30% Emissions Cap Decline by 2030 (Aug. 23, 2017) *at* http://rggi.org/docs/ProgramReview/2017/08-23-17/Announcement_Proposed_Program_Changes.pdf.

Protection Agency, Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS, 81 Fed. Reg. 74,504 (Oct. 26, 2016). Generators that need allowances for compliance purposes would generally bid higher into wholesale markets than they would if they had no compliance obligation.

Environmental policies also affect capacity market prices. "Capacity" is a commitment by the generator to make a certain amount of generating capacity available at a specified time in the future. The purpose of capacity requirements is to ensure that there will be adequate resources in the market to meet peak demand. The unit of capacity is the megawatt (MW), but because capacity commitments extend over time, capacity market prices are articulated per MW-day or kW-month.

Wholesale capacity markets require generators to commit to make their resources available at certain future dates. Generators, therefore, base capacity bids on the opportunity cost of remaining in the market. A generator that is profitable solely from its participation in the energy market, for example, might submit a low capacity bid because it knows it will stay in operation regardless of the price at which the capacity

market clears. A generator that does not make much in the energy market or has high fixed costs, by contrast, might submit a higher capacity market bid, because only a high clearing price in the capacity market would make staying in the market profitable. In this way, capacity market bidding is inextricably linked with generators' overall profitability and their decisions about retiring existing resources and bringing new ones into the market.

Because of the broad range of economic inputs that generators must consider in determining their opportunity costs of remaining in the market, an equally broad range of public policies affect those bids. The policies that affect energy market bidding described above (such as RECs, tax credits, etc.) also affect capacity market bidding because, by making each MWh more or less profitable, those policies also affect the willingness of existing generators to remain in the market and of new generators to enter the market.[4] Many other policies affect capacity market bidding as well. For example, state permitting requirements may constrain what types of resources are able to enter the market and

[4] Note, however, that some capacity markets constrain the types of costs that may be used to formulate bids and/or impose minimum offer prices that generators may not bid below.

submit capacity bids. State and federal rules requiring generators to install new equipment to meet air or water quality standards might cause those generators to increase their capacity market bids. *See*, *e.g.*, PAUL HIBBARD ET AL., ANALYSIS GROUP, NYISO CAPACITY MARKET: EVALUATION OF OPTIONS 120 (2015) ("current NYISO rules allow generators to include mandatory expenditures to comply with federal or state environmental, safety, or reliability requirements in the calculation of going-forward costs.").[5] Likewise, for nuclear generators, the cost of renewing their licenses with the Nuclear Regulatory Commission (NRC) or complying with NRC safety rules might affect the profitability of remaining in operation, and therefore the capacity prices those generators would require to stay in the market.

[5] *Available at* http://www.analysisgroup.com/uploadedfiles/content/insights/publishing/nyiso_capacity_market_evaluation_of_options.pdf; *see also* MONITORING ANALYTICS LLC, STATE OF THE MARKET REPORT FOR PJM, JANUARY THROUGH SEPTEMBER 307 (2017) ("investments required for environmental compliance have resulted in higher offers in the Capacity Market."), *available at* http://www.monitoringanalytics.com/reports/PJM_State_of_the_Market/2017/2017q3-som-pjm-sec8.pdf.

II. New York's Zero Emission Credit program has similar market impacts to other state and federal policies

The ZEC program is designed to achieve an environmental outcome. It is available only to resources that produce zero-emission electricity. It rewards those resources in an amount, $17.48 /MWh, that is derived from the social cost of each incremental ton of carbon dioxide emissions as measured by the Interagency Working Group on the Social Cost of Greenhouse Gases (IWG).[6] The IWG was an inter-disciplinary group of experts drawn from across the federal government and supported by analysis from the National Academy of Sciences, Engineering, and Medicine. To inform regulatory decisionmaking, the IWG developed the social cost of carbon, which is an estimate of the monetized damages of each incremental increase in carbon emissions. The social cost of carbon includes, among other impacts, changes in net agricultural productivity, human health, property damage from

[6] The New York PSC used the social cost of carbon from the IWG's most recent analysis as of the date of the CES Order. Subsequently, the current Administration has disbanded the IWG and produced a social cost of carbon estimate that excludes harmful effects outside the United States and is, therefore, sharply lower.

increased flood risk, and the value of ecosystem services due to climate change.

The social cost of carbon (expressed as dollars per ton) may be multiplied by an emissions factor (expressed as tons of CO_2 per MWh) to calculate a value of carbon-free electricity in dollars per MWh. The New York Public Service Commission (PSC) did so in its Clean Energy Standard (CES) Order by using an emissions factor (0.53846 tons CO_2/MWh) meant to approximate the rate of carbon dioxide emissions from the mix of resources that would be avoided by the generation of energy by the ZEC recipients. Joint Appendix for Appellant Coalition of Competitive Electricity et al. at A-220 (Oct. 13, 2017). The PSC explained that the emissions factor could change in later years of the program, if the average emissions in the NYISO market declined. *Id.* at A-221. The PSC then subtracted from the ZEC price an estimate of the price of allowances in the RGGI cap-and-trade program – in other words, benefits that carbon-free resources already receive by virtue of generating carbon-free energy. *Id.* at A-220. And, finally, the PSC allowed for the ZEC value to be reduced beginning in the third year of

the program if futures prices for energy and capacity exceed a certain level. *Id.* at A-223.

In short, ZEC recipients receive no more than their contribution to reducing CO_2 emissions as valued by the best available science. The ZEC program does not guarantee that the ZEC recipients' bids will clear the market or that they will make a profit. It simply ensures that their decisions of how much to bid and whether to remain in operation are influenced by the social cost of the pollution they displace.

Plaintiffs claim that that the ZEC program "intrudes" into and "distorts" the wholesale markets, as if to suggest that wholesale energy and capacity markets are free from the effect of policies aimed at environmental impacts. But as we explain above, many state and federal programs affect generator bidding behavior in energy and capacity markets. These policies have developed over decades without objection from FERC.[7] The ZEC program is fundamentally no different

[7] For instance, FERC has considered "[c]ompensation for environmental externalities through RECs," and concluded that "RECs are separate commodities from the capacity and energy produced . . . . If a state chooses to create these separate commodities, they are not compensation for capacity and energy." *Cal. Pub. Util. Comm'n et al*, 133 FERC ¶ 61,059, P.31 n.62 (2010).

in the way it affects the wholesale market. Indeed, the ZEC value of $17.48/MWh is lower than the out-of-market benefits paid to other zero-carbon resources that receive both federal tax credits and RECs. For example, the most recent large-scale public sale of RECs in New York was at a price of $21.16/MWh.[8]

Unable to distinguish the effect of ZECs from the effect of RECs and other policies, Plaintiffs make much of the forecast reference price adjustment – the program feature that phases out the ZEC's value when a mix of futures prices for energy and capacity reach a certain level. It is clear, however, that this aspect of the ZEC program does not "distort" wholesale markets. As compared to a hypothetical version of the ZEC program without it, the forecast reference price adjustment would tend to *reduce* the impact of the ZEC program on wholesale markets because it would lower the ZEC price and, under some circumstances, eliminate it entirely.

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[8] *See* NEW YORK STATE ENERGY RESEARCH AND DEVELOPMENT AGENCY, at https://www.nyserda.ny.gov/All-Programs/Programs/Clean-Energy-Standard/REC-and-ZEC-Purchasers.

III. Putting a Value on Carbon-Free Electricity Improves Economic Efficiency

Plaintiffs' assertion that the ZEC program will "distort" market prices ignores the important economic rationale underlying policies that put a monetary value on environmental attributes. In economics lingo, a necessary condition for markets to produce efficient outcomes is that the price of a good equals the marginal cost of producing it. Negative externalities are costs that result from an economic transaction and are borne by third parties. Absent intervention, negative externalities produce inefficient market outcomes because they result in transactions for which the true cost of producing a good (which includes both the producer's cost and the harm to third parties) exceeds the marginal consumer's willingness to pay for it.

Pollution is the paradigmatic negative externality. To illustrate, the IWG estimated the social cost of carbon dioxide emissions at $42 per ton.[9] A typical natural gas-fired power plant emits roughly a half a ton

[9] This figure assumes a 3% discount rate, as did the New York PSC. Joint Appendix at A-219. The IWG produced figures for every five years; this is the figure for 2020.

of carbon dioxide per MWh. In an efficient market, the natural gas-fired generator would have to take account of both its private costs and the social cost of the pollution it emits ($21 per MWh). For instance, if a natural gas plant's marginal cost of generating is $25/MWh, it would only be efficient for the plant to run when the price of electricity exceeds $46/MWh – the sum of its private costs and the social costs.[10] But, absent intervention requiring the plant to "internalize" the cost of its pollution, the plant would be willing to run at prices between $25/MWh and $46/MWh. Running in that price range would reduce economic efficiency because the cost to society would be greater than the benefit to the marginal consumer.

Economists generally agree that the best way to address this negative externality would be to impose an economy-wide price on CO_2 emissions through a carbon tax or cap-and-trade program. In such a program, the price on carbon should be set to approximate the incremental harm to society of each unit of emissions. In the absence of

[10] Note, this figure would be higher if it included the social cost of other pollutants – SO_2, NO_x, etc., which have been left out for simplicity.

such a policy,[11] the ZEC program takes a step to address the problem by ensuring that qualifying nuclear generators are compensated for the value of their carbon-free electricity, perhaps approximating the competitive benefit these resources would enjoy from a sector-wide price on carbon. Far from "distorting" the wholesale market, the ZEC program is better thought of as a small step toward correcting the larger distortion that comes from the absence of a carbon price.

Amici energy economists attempt to raise doubt as to whether the ZEC program will improve efficiency and even whether the program is likely to reduce carbon emissions. They invoke the "theory of the second best," which holds that, in the absence of an ideal solution to a

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[11] As noted above, New York is part of RGGI, a regional cap-and-trade program. In past years, however, the emissions "cap" and allowance-price ceiling imposed by RGGI were set at levels that resulted in a carbon price well below the social cost of carbon. *See* U.S. ENERGY INFORMATION ADMINISTRATION, *Regional Greenhouse Gas Initiative auction prices are the lowest since 2014*, *at* http://www.eia.gov/todayinenergy/detail.php?id=31432. While the RGGI states have recently re-committed to lowering the regional cap, New York has set more ambitious targets over a longer time period. And, the RGGI states have proposed an allowance price ceiling starting in 2021 ($13 per ton) that is well below the social cost of carbon. As the New York PSC correctly observed, New York has no unilateral ability to control the RGGI carbon price. Joint Appendix at A-217. Therefore, additional state policies such as the Clean Energy Standard are necessary to achieve the State's goals.

problem, it is impossible to determine *a priori* whether second-best or partial solutions improve social welfare. Say, for example, that you are a legislator deciding whether the drinking age should be 18 or 21. Evidence demonstrating that alcohol harms the brain at that stage of development might immediately convince you that 21 is the better drinking age. But, the theory of the second best would prompt you first to look carefully at other imperfections in the policy arena in which you are legislating. For example, if drugs are available, might an older drinking age cause some young people to experiment with them? Or, recognizing that enforcement of the drinking age is imperfect, might the older drinking age cause more dangerous patterns of drinking outside adult supervision? In the end, the prudent legislator might nonetheless conclude that 21 is the better drinking age. But she could not make this decision *a priori*. She could do so only after reviewing the balance of the evidence and making real-world judgments about the likelihood of unintended consequences materializing.

Amici energy economists raise the theory of the second best to argue that the ZEC program *might* not improve social welfare and *might* not reduce carbon emissions, which is to say that the effects of

the policy cannot be determined *a priori*. Notably, they invoke the theory of the second best without explaining what they believe the "first-best" policy to be and why. We presume they share the consensus view among economists that an economy-wide price on carbon is the first-best policy. They breeze past this critical point, however, because acknowledging that wholesale markets are skewed by the lack of a carbon price would undermine, fatally, their claim that the ZEC program "distorts" otherwise efficient market prices and patterns of investment.

Amici energy economists are not wrong to raise the theory of the second best. But they are wrong to suggest that it counsels for inaction here. Policymakers often must choose among second best options and make judgments about what outcomes are most likely. What is required is consideration of the broader context in which the policy is applied and whether there could be unintended consequences that would frustrate its objectives.

In this case, the New York PSC had a strong basis for concluding that awarding ZECs to nuclear generators would improve efficiency and lower emissions. The PSC concluded that the zero-emission resources

receiving ZECs would displace 0.53836 tons of carbon dioxide per MWh generated. Joint Appendix at A-220. This number was based on an analysis of NYISO data identifying the resources that are on the margin economically, and thus are most likely to be "avoided by the preservation of zero-emissions attributes." *Id.* The avoided emissions rate closely approximates the average emissions rate of natural gas-fired power plants because such power plants, in addition to being the single greatest source of electric generation in New York State, are also the most like to be on the margin economically. *See* DAVID B. PATTON, PH.D. ET AL, POTOMAC ECONOMICS, 2016 STATE OF THE MARKET REPORT FOR THE NEW YORK ISO MARKETS 17 – 18 (May 2017).[12]

Amici energy economists raise the possibility that nuclear generators receiving ZECs might, over the long run, crowd out other sources of carbon-free energy that could more cost-effectively reduce emissions. We might share that concern if other sources of carbon-free energy received no support and nuclear generators were given a

[12] *Available at* http://www.nyiso.com/public/webdocs/markets_operations/documents/Studies_and_Reports/Reports/Market_Monitoring_Unit_Reports/2016/NYISO_2016_SOM_Report_5-10-2017.pdf.

demonstrable advantage. But that is not the case. The ZEC program is just one part of the overall Clean Energy Standard that will substantially increase the quantity of renewable energy in the state. The overall state goal is to reach a target of 50% renewable energy by 2030 from a base of roughly 25% in 2016. The CES Order sets initial goals for 2017 through 2021 that will require substantial procurements of RECs in the coming years. Joint Appendix at A-98 – A-101.

CONCLUSION

The ZEC program does not intrude into or distort wholesale energy and capacity markets. These markets already bear a deep influence of state (and federal) environmental policies. Moreover, state programs that value carbon-free electricity, such as the ZEC program, do not distort wholesale markets. Rather, they seek to address a market failure that inevitably arises when the producers of pollution are not required to take account of its cost to society.

The district court's decision granting defendants' motion to dismiss should be affirmed.

Dated: November 22, 2017

Respectfully submitted,

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CERTIFICATE OF COMPLIANCE

I certify that this brief complies with the type-volume limitation of Local Rule 29.1(c), the typeface requirements of Federal Rule of Appellate Procedure 32(a)(5)(A), and the type-style requirements of Federal Rule of Appellate Procedure 32(a)(6). This brief was prepared using a proportionally spaced typeface (14 point Century Schoolbook font for the main text and 14 point Century Schoolbook font for footnotes). Exclusive of the portions exempted by Federal Rule of Appellate Procedure 32(f), this brief contains 5,668 words. This certificate was prepared in reliance on the word-count function of the word processing system (Microsoft Word 2016) used to prepare this brief.

Dated: November 22, 2017

/s/ Samuel T. Walsh
Samuel T. Walsh

APPENDIX

List of *Amici Curiae**

Dallas Burtraw is the Darius Gaskins Senior Fellow at Resources for the Future. Mr. Burtraw previously served on the National Academy of Sciences Board on Environmental Studies and Toxicology and on the U.S. Environmental Protection Agency's Advisory Council on Clean Air Compliance Analysis. Mr. Burtraw received a Ph.D. in economics from the University of Michigan, an M.P.P. in public policy from the University of Michigan, and a B.S. from the University of California at Davis.

Howard Gruenspecht is a Senior Energy Economist at the MIT Energy Initiative. He previously served as Deputy Administrator of the U.S. Energy Information Administration and as Director of the Office of Economic, Electricity, and Natural Gas Analysis at the U.S Department of Energy. Mr. Gruenspecht holds a Ph.D. in Economics from Yale University and a B.A. from McGill University.

Christopher Knittel is the George P. Shultz Professor of Applied Economics at the Massachusetts Institute of Technology. He is Director of MIT's Center for Energy and Environmental Policy Research and Co-Director of MIT's Electric Power Systems Low Carbon Energy Center. Prof. Knittel holds a Ph.D. in economics from the University of California at Berkeley, a M.A. in economics from the University of California, Davis and a B.A. from the California State University, Stanislaus.

Joshua Linn is a Senior Fellow at Resources for the Future. Mr. Linn previously served on the White House Council of Economic Advisors. Prior to joining Resources for the Future, Mr. Linn was Assistant Professor of Economics at the University of Illinois at Chicago. Mr.

Linn holds a Ph.D. in economics from the Massachusetts Institute of Technology and a B.A. from Yale University.

Gilbert Metcalf is Professor of Economics at Tufts University. Prof. Metcalf previously served as Deputy Assistant Secretary for Environment and Energy at the U.S. Department of Treasury. Prof. Metcalf received a Ph.D. in Economics from Harvard University, an M.S. in Agricultural and Resource Economics from the University of Massachusetts Amherst, and a B.A. from Amherst College.

Billy Pizer is a professor in the Sanford School of Public Policy and a faculty fellow at the Nicholas Institute for Environmental Policy Solutions at Duke University. Prof. Pizer previously served as Deputy Assistant Secretary for Environment and Energy at the U.S. Department of the Treasury. He holds a Ph.D. in economics from Harvard University and a B.A. from the University of North Carolina at Chapel Hill.

Susan Tierney is a Senior Advisor at Analysis Group. She previously served as the Assistant Secretary for Policy at the U.S. Department of Energy, as Secretary of Environmental Affairs in Massachusetts, and as a commissioner of the Massachusetts Department of Public Utilities. Ms. Tierney received a Ph.D. and Master's degree in regional planning from Cornell University, and a B.A. from Scripps College.

Burcin Unel is the Energy Policy Director at the Institute for Policy Integrity at New York University School of Law. Previously she held faculty positions at the University of Florida and Bogazici University in Turkey. Ms. Unel holds a Ph.D. in economics from the University of Florida and a B.A. from Bogazici University.

* Institutional affiliations provided for informational purposes only.

CERTIFICATE OF SERVICE

I, Samuel T. Walsh, an attorney, hereby certify that on November 22, 2017, I caused the foregoing Brief to be electronically filed with the Clerk of the Court for the United States Court of Appeals for the Second Circuit by using the CM/ECF system. I certify that all participants in this case are registered CM/ECF users and that service will be accomplished by the CM/ECF system.

/s/ Samuel T. Walsh
Samuel T. Walsh