

Of SUPREME COURT OF THE STATE OF NEW YORK  
COUNTY OF ALBANY

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In the Matter of

HUDSON RIVER SLOOP CLEARWATER, INC., GOSHEN GREEN FARMS, LLC, TOWN OF NORTH SALEM, NEW YORK PUBLIC INTEREST RESEARCH GROUP FUND, INC., NUCLEAR INFORMATION AND RESOURCE SERVICE, BEYOND NUCLEAR, INDIAN POINT SAFE ENERGY COALITION, PROMOTING HEALTH AND SUSTAINABLE ENERGY, INC., GREEN EDUCATION AND LEGAL FUND, INC., SAFE ENERGY RIGHTS GROUP, INC., SCOTT CHASE, RICHARD HAMMER, SCOTT CHASE, RICHARD HAMMER, JOYCE HARTSFIELD, JOSEPH J. HEATH, WILLIAM MCKNIGHT, SR., BRUCE ROSEN, GEORGE STADNIK, LYNNE TEPLIN, ELLEN C. BANKS, CARYL BARON, LINDA BELISLE, DANIEL BIRN, MIRIAM BLUESTONE, J. ALLISON CROCKETT, LAURA DEL GAUDIO, ALLEGRA DENGLER, MICHELLE FREEDMAN, DEAN GALLEA, VALERIE GILBERT, ALLAN GOLDHAMMER, CARLTON GORDON, JENNIFER GORMAN, STEVEN L. GOULDEN, CATHY A. HAFT, RICHARD HAMMER, BRIAN HOBERMAN, OBIE HUNT, ROBERT V. JACOBSON, VICKEY KAISER, ALVIN KONIGSBERG, JUDITH A. LASKO, SUSAN D. LEIFER, MIKHAELA MARICICH, FREDERICK MARTIN, III, PATRICIA MATTESON, JANE MAYER, JANET MCBRIDE, VALERIE NIEDERHOFFER, TERESA OLANDER, VICTOR PALIA, CAROLINE PAULSON, GAIL PAYNE, THOMAS RIPPOLON, ROSEMARIE SANTIESTEBAN, CHERYL SCHNEIDER, CAROL SKRYM, MELVYN T. STEVENS, STEVEN STUART, MONICA WEISS, ERIC WESSMAN, TODD D. WOLGAMUTH, JUDITH M. ZINGHER,

Petitioners-Plaintiffs,

For a Judgment pursuant to Article 78 of the CPLR,

-against-

Index No. 07242-16

**PETITIONERS' REPLY TO  
MOTION OF PROPOSED  
AMICI SUBMITTED BY  
ENVIRONMENTAL  
DEFENSE FUND ("EDF")  
AND PACE ENERGY AND  
CLIMATE CENTER  
("PECC")**

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NEW YORK STATE PUBLIC SERVICE COMMISSION,  
along with KATHLEEN BURGESS in her official capacity as  
Secretary, AUDREY ZIBLEMAN in her official capacity as  
Chair, PATRICIA L. ACAMPORA, GREGG C. SAYRE, and  
DIANE X. BURMAN, in their official capacities as  
Commissioners,

Respondents-Defendants,

-and

CONSTELLATION ENERGY NUCLEAR GROUP, LLC,  
with Subsidiaries and affiliates EXELON GENERATION  
COMPANY, LLC, R.E. GINNA NUCLEAR POWER PLANT,  
LLC, NINE MILE POINT NUCLEAR STATION, LLC,  
ENTERGY NUCLEAR FITZPATRICK, LLC, ENTERGY  
NUCLEAR INDIAN POINT 2, LLC, and ENTERGY  
NUCLEAR INDIAN POINT 3, LLC.

Nominal Respondents-Defendants.

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**AMICI CURIAE FILED BY ENVIRONMENTAL DEFENSE FUND ("EDF")  
AND PACE ENERGY AND CLIMATE CENTER ("PECC")  
DO NOT MEET CRITERIA FOR ACCEPTANCE**

This case is a challenge to Tier 3 of the Public Service Commission's August 1,  
2016 Order Adopting a Clean Energy Standard (Order) which sets forth a scheme to  
transfer billions of public money for twelve (12) years to out-of-state corporate

operator(s) of old, commercially uneconomic and polluting nuclear reactors in New York. Parties interested in assisting the Court as Friends of the Court or *Amicus Curiae* must add something to the arguments, either on the law or the facts, to assist the Court by further clarify critical issues. In this case, the question is whether the law, the facts, and the record, support the Commission's action to ostensibly create a valid Clean Energy Standard with the goal of rapidly transition New York to a clean energy economy.

Proposed *Amicus Curiae* briefs were submitted to the Court by the Environmental Defense Fund (“EDF”) and the Pace Energy and Climate Center (“PECC”). Despite the well-meaning intentions of the Amici, neither organization submission further clarifies the record, as the issues they raise are not in dispute. They provide no additional information or evidence. There is no dispute that there is a need to curb carbon emissions (the focus of EDF’s brief) or the validity of the Social Cost of Carbon metric to represent the externality of carbon emissions (the focus of the PECC brief).

The proposed *Amici* do not raise issues that are in dispute, yet may serve to cloud or complicate issues that are on the record. Nor do they proffer law or argument which might escape the Court’s consideration since the issues raised are central to Petitioners’ challenge. This matter is not about the goal of the Clean Energy Standard, but how the Commission, the importance of combating climate change, the need to reduce greenhouse emissions, or the validity of the Social Cost of Carbon metric. This case is about the improper flawed promulgation, adopted and construct of the Tier 3 scheme.

**THERE IS NO DISPUTE OVER THE REALITY THAT GREENHOUSE GASE  
EMISSIONS CONTRIBUTE TO CLIMATE CHANGE**

The proposed EDF *Amicus Curiae* brief does not bring any specialized knowledge to assist the Court regarding the climate implications of the Clean Energy Standard

beyond generalized assertions about carbon emissions from fossil fuels. This point is not in contest. Petitioners agree that greenhouse gas emissions are contributors to climate change, and aver that other emissions (e.g. thermal) can exacerbate climate change.

Petitioners have provided expert testimony showing scientific proof of the existence of emissions: greenhouse gas, thermal and radioactive, from nuclear energy generation. *See Affidavit of David Lochbaum, sworn to on March 6 2017, attached to the Affirmation of Susan Shapiro as Exhibit 5.*

No expert testimony or evidence was put before the Court by the Amici that contests the statements of nuclear expert David Lochbaum on this important point that nuclear's greenhouse gas emissions from every stage of its fuel and operations cycle contribute to climate change <sup>1</sup>Thus, the confusion sowed by the Amici on this point is manifest.

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<sup>1</sup> : These stages include: Uranium mining; Milling; Enrichment; Fuel fabrication; Transport; Construction and maintenance of the massive industrial structures (such as replacement of the multi-ton transformers); Emissions of new man-created carbon (in BWR reactors) and methane (in PWR reactors) during the nuclear fission process; remediation of closed mines, reactors plants and associated facilities; disposal and burial of voluminous amounts of so-called "low-level" nuclear waste (all the structures and components and materials which are radioactive or contaminated, but not themselves spent fuel); Long-term on-site containment of high-level nuclear waste (spent fuel); Permanent disposal of high-level nuclear waste, including the construction and maintenance of all waste depositories for centuries to come.

With regard to the mining component of the fuel cycle, it is noteworthy that uranium ore is a finite resource, which is energy intensive to obtain. The fissile form of uranium – U-235 – is found in less than 1% of natural ore.

Even more significantly, while industry documents and industry-funded fuel cycle analyses acknowledge nuclear's greenhouse gas emissions, all studies (including the very few independent scientific studies) rely entirely on nuclear industry estimations or assessments of nuclear greenhouse gas emissions. The Nuclear Regulatory Commission does not require continuous monitoring and results publication of nuclear greenhouse gas emissions at the stack. There has been no government funding or push for such monitoring. And, utterly unanalyzed is the gas effluent composition created by recent (and increasing) use of high burnup nuclear fuel which is hotter and far more radioactive than traditional fuel. Thus, common sense would dictate the industry assessments are grossly underestimated. In any event, the PSC's adoption of the "zero-emissions" verbiage put forth by the nuclear operator beneficiaries of the Tier 3 ZEC scheme is arbitrary and unsupportable.

**THERE IS NO DISPUTE THAT THE SOCIAL COST OF CARBON IS A VALID METRIC FOR QUANTIFYING THE INCREMENTAL COST TO THE GLOBE OF CARBON EMISSIONS RELEASE INTO THE ATOSPHERE**

Petitioners do not contest the point the proposed *Amici* present to the Court about the Social Cost of Carbon. It is undisputed that Social Cost of Carbon is a valid metric. Petitioners do not disagree with the PECC argument that the Social Cost of Carbon metric is a reasonable and appropriate way to internalize the environmental costs associated with carbon emissions. The EDF amicus argues that the need to curb carbon emissions is vital, scientifically based, and urgent. This point is not in contention. Nor is the validity of the federal Social Cost of Carbon (SCC) as a metric to represent the externality of carbon emissions. It is agreed by the Petitioners' that the Social Cost of Carbon represents is a framework for estimating the monetized, global damages caused by releasing an additional ton of CO<sub>2</sub> into the atmosphere. . "It is intended to include (but is not limited to) changes in net agricultural productivity, human health, property damages from increased flood risk, and the value of ecosystem services due to climate change."<sup>2</sup>

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While burning of fossil fuels releases *sequestered* carbon, nuclear fission creates *new carbon* – carbon that never existed in nature and which actually alters the carbon balance of the Earth. Radioactive Carbon-14 (C-14) has a half-life of 5,700±30 years. "Carbon-14 is produced in power reactor by reactions with oxygen-17 in oxide fuels and in moderators and coolants, by reactions with nitrogen-14, in fuels, moderators and coolants as an impurity" (*Organization for Economic Co-Operation and Development, Nuclear Energy Agency (NEA) Radiological Significance and Management of Tritium, Carbon-14, Krypton-85, Iodine-129 Arising from the Nuclear Fuel Cycle, Report by an Group of Experts, April 1980*). Carbon-14 produced in the power reactor is emitted primarily as CO<sub>2</sub>. Carbon-14 is produced in "all reactor types except PWR carbon-14 is emitted mainly, as CO<sub>2</sub>." (*Proposed nuclear power plants in UK-, potential radiological implications for Ireland , Radiological Protection Institute of Ireland, May 2013 ://www.epa.ie/pubs/reports/radiation/RPII\_Proposed\_Nuc\_Power\_Plants\_UK\_13.pdf, p.130*).<sup>2</sup> Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866, Interagency Working Group on Social Cost of Greenhouse Gases, United states Government, Aug 2016. [https://www.epa.gov/sites/production/files/2016-12/documents/sc\\_co2\\_tsd\\_august\\_2016.pdf](https://www.epa.gov/sites/production/files/2016-12/documents/sc_co2_tsd_august_2016.pdf). See also Testimony of Howard Shelanski, Administrator for the Office of Management and Budget

Petitioners agree with the Amici that there is a need to internalize the costs of environmental, climate, public health and security externalities and is a key point made by several of the Petitioners in the underlying proceeding.<sup>3</sup> Climate change is a major imperative for moving away from dirty polluting baseload power plants, such as nuclear and fossil fuels. The proposed Amici disregard the negative impacts of nuclear upon the climate, water resources and ecosystems runs counter to the objective of the Social Cost of Carbon. Nuclear emissions are particularly pernicious with respect to one of the climate change conditions of utmost concern: water stress.<sup>4</sup> Nuclear is unquestionably

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Before the House Committee on Oversight and Government Reform Subcommittee on Energy Policy Healthcare and Entitlements, United States House of Representatives, Jul 18 2013. <https://oversight.house.gov/wp-content/uploads/2013/07/Shelanski-OIRA-Testimony-SCC-7-18.pdf>.

<sup>3</sup> See, e.g., Supplemental Multi-Party Comments of the Council on Intelligent Energy & Conservation Policy, Promoting Health and Sustainable Energy; Manhattan Project for a Nuclear-Free World; and the Indian Point Safe Energy Coalition dated July 22, 2016 and the appendices thereto, especially Appendix C.

<sup>4</sup> See Rogers J, Averyt K, Clemmer S, Davis M, Florex-Lopez F, Kenney D, Macknick J, Madden N, Meldrum J, Sattler S, Spanger-Siegfried E, Yates, Frumhoff P, Hornberger G, Jackson R, Newmark R, Overpeck J, Udall B, and Webber M, Water-Smart Power: Strengthening the U.S. Electricity System in a Warming World, Freshwater Use by U.S. Power Plants Electricity's Thirst For a Precious Resource, Report of the Energy and Water in a Warming World Initiative, Jul 2013 (p 13). The Energy and Water in a Warming World Initiative (EW3) is a collaborative effort between the Union of Concerned Scientists and a team of independent experts from the University of Colorado, Boulder; Stockholm Environment Institute; National Renewable Energy Laboratory; National Center for Atmospheric Research; Vanderbilt University; Duke University; University of Arizona, Tucson; and University of Texas. The report is an effort to build and synthesize policy-relevant research on the water demands of energy production in the context of climate change. More than 40% of US freshwater withdrawals are used for power plant cooling. These plants also lose several billion gallons of freshwater every day through evaporation. Low water levels and high water temperatures can cause power plants to cut their electricity output to avoid overheating or harming local water bodies. "Power plants that need cooling water will be at risk over their long lifetimes from declining water availability and rising water temperatures stemming from climate change, extreme weather events, and competition from other users. And power plants, in turn, will exacerbate the water risks of other users." (p 13) Electricity mixes that emphasize nuclear power could worsen rather than lessen the sector's effects on water. (p 19). "The harmful effects of power plants on water temperatures in lakes and rivers might continue unabated, or even worsen." (p 19). The authors conclude that: "Renewables and efficiency can be a winning combination." (p 19) A pathway focused on renewable energy and energy efficiency could deeply cut both carbon emissions and water effects from the power sector. Under a scenario with strong investments in these renewables and

the largest user of water among all the available forms of power. This is why Nuclear thermal emissions into the Great Lakes is of particular concern because these are crucial sources of drinking water and the Great Lakes have been identified as being among the most climate-impacted freshwater bodies on the globe.<sup>5</sup>

To clarify, Petitioners do not contest the validity of the Social-Cost of Carbon, but contest the Commission's:

- 1) Application of Social Cost of Carbon to nuclear generation based on the premise that nuclear generation is “zero emissions”. It is not.
- 2) Reliance on Social Cost of Carbon alone, not as one factor in a rational cost benefit analysis, which necessarily must consider the additional environmental and economic costs of cumulative increased production of nuclear generations greenhouse gas, radioactive, thermal emissions, and nuclear waste for forty-eight (48) to seventy-two (72)<sup>6</sup> additional nuclear reactor years of operation.

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efficiency, water withdrawals would drop by 97% by 2050, with most of that drop within the next 20 years. This approach would also cut carbon emissions 90% percent from current levels, mostly in the near term. “This scenario could also provide the lowest costs to consumers, with consumer electricity bills almost one-third lower than business as usual.” (p 19) “Water-dependent stakeholders – cities, farmers, ecosystem and wildlife groups –also have clear reason to push electricity planning and decision making in low-carbon, water-smart directions.” (p 36)

<sup>5</sup> See Raptis CE, Boucher JM, and Pfister S, Assessing the environmental impacts of freshwater thermal pollution from global power generation in LCA, *Science of The Total Environment* (2017); 580: 1014-1026. <http://www.sciencedirect.com/science/article/pii/S0048969716327425>, assessing the Great Lakes as “among the most thermally impacted watersheds globally receiving heat emissions from predominantly coal-fuelled and nuclear power plants” and observing, globally, over 80% of the global annual freshwater-stressing heat emissions come from power plants constructed during or before the 1980s. See also State of the Climate in 2015, National Oceanic and Atmospheric Administration Report, Eds. Blunden J and Arndt DS, *Bulletin of the American Meteorological Society* (2016) 97 (8): S1 S275. [http://www.ametsoc.net/sotc/StateoftheClimate2015\\_hires.pdf](http://www.ametsoc.net/sotc/StateoftheClimate2015_hires.pdf), The researchers further found that US and Canada Great Lakes have warmed faster than surface air temperature over recent decades . . . with the average warming rate for the Great Lakes ~0.05°C yr<sup>-1</sup> (1979-2015). (p S17).

<sup>6</sup> Depending on whether or when Indian Point is provided ZECs.

3) Prejudicial application of Social Cost of Carbon exclusively to Tier 3 for nuclear funding, but not to Tier 1 and Tier 2 for renewables. Renewables and efficiencies with very low or no carbon emissions are not valued for their Social Cost of Carbon benefits. This grossly uncompetitive application of Social Cost of Carbon results in the Commission granting over twice the amount of subsidies to aging, uneconomical nuclear generation, as allocated to all renewable sources combined. The Renewable Energy Credit (“REC”) programs used in Tier 1 and Tier 2 are market-based, whereas the Zero-Emissions Credit (“ZEC”) program is not market-based. (See attached as Exhibit “A” *Amicus Curiae Brief of Pat Wood, III and Peter A. Bradford*).<sup>7</sup>

The Commission’s use of the Social Cost of Carbon metric for only nuclear subsidization, but not for renewables and efficiencies which have an even smaller carbon footprint, undermines the stated purpose of the Clean Energy Standard to transition to a clean energy economy, upends the State’s deregulated electricity market scheme, and will most likely slow New York’s transformation of energy systems. Tier 3 artificially subsidizes one carbon emitting energy sector for twelve (12) years at the cost of using funds for far more competitive non-emitting renewable sources advanced in Tier 1 and Tier 2.

While the Petitioners and the Amici agree that the Social Cost of Carbon makes sense on its own terms, the proposed *amicus curiae brief* of PECC does not provide any

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<sup>7</sup> Pat Wood, III, chairman of FERC from 2001 to 2005, chairman of Public Utility Commission of Texas 1995-2001, Chairman of the Board of Directors of Dynegy, Inc. and Peter A. Bradford chairman of the New York State Public Service Commission 1987-1995, chairman of the Maine Public Service Commission in the 1970s and 80’s, and chairman of the Nuclear Regulatory Commission 1977-1982.

new information or assistance to the Court. The Amici fail to address the main point with regard to the Commission's application of Social Cost of Carbon, which is not whether Social Cost of Carbon is a metric, but whether the Commission applied this metric unequally to nuclear vs. renewables and efficiencies.

Most problematic, and confusing the proposed Amici ignore the significance of the New York State Independent Service Operator (NYISO) Generator Deactivation Assessment/ James A. FitzPatrick Nuclear Generating Facility, revised April 22, 2016 April 22, 2016 NYISO report. ("Assessment") *See Exhibit 4 of Petitioners' Amended Verified Petition*. Instead of presenting the "relative" amount of nuclear energy that may be needed for electricity in New York by looking at the Report, the Amici and Respondents concludes that all of it is necessary. Specifically, the NYISO April 2016 report concluded that closure of both Ginna and Fitzpartick would not cause any electricity reliability issues. Simply put, these two (2) reactors are not needed for the lights to stay on.

Furthermore, the Amici's claim that there is just "not enough large-scale and customer-sited renewable resources currently available, or anticipated to come on-line in the near term (PECC amici at 6) is belied by Assessment (see *NYSIO April 22, 2016 Assessment, p2 FN3*), which utilized "[t]he updated draft 2016 Gold Book baseline summer peak load forecast with a comparable treatment for solar photovoltaic represents an 843 MW decrease in statewide peak load in 2020." Reliability does not rely on increased use of fossil fuels in the event of nuclear generator closure, but rather increased, already installed, solar generation.

Since there is no need for replacement power for four nuclear reactors for a full twelve (12) years, the arguments in EDF's *amicus curiae* brief ring hollow and confuse the issues before the Court, as it takes an absolutist approach to the argument. It is not a zero sum game. Nuclear is not a zero-emission industrial activity. (See Lochbam Aff. at ¶5-7). Loss of nuclear generation does not necessarily translate into either an increase in net greenhouse gas emissions, first because there is no need to replace the electricity currently being sold by nuclear generators with fossil fuels or any other kind of electricity. The confusion injected into the record by the EDF and PECC proposed *amicus curiae* briefs do assist the Court and do not serve the interest of the Court in deciding the issues set forth in the Petition.<sup>8</sup>

### CONCLUSION

The briefs of the *Amici* do not present nor identify facts or laws to the Court that are in dispute or arguments that were not already raised. The proposed *Amici* briefs do not assist the Court, but instead they sow confusion by raising arguments that are not being contested in this matter.

Dated: April 10, 2017  
Nanuet, New York

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Susan Shapiro  
John Parker  
Victorine Froehlich  
*Attorneys for Petitioners*

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<sup>8</sup> On the continuum of greenhouse gases emitted by each source of power generators, from zero for wind power to the maximum amount for coal, nuclear reactors fall in the middle as a source of carbon emissions. See *Lochbaum Aff. At ¶ 27, Figure 4.*

# **EXHIBIT A**