You Say You Want a REV Solution: Considering New York's Marquee Energy Initiative as Climate Change Policy

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LIST OF DEFINED TERMS

BCA — Benefit Cost Analysis
CES — Clean Energy Standard
CHP — Combined Heat and Power
CO_2 — Carbon Dioxide
CO_2e — Carbon Dioxide Equivalent
Commission — New York State Public Service Commission
D — Total cost avoidance or reductions to the distribution system achieved by using Distributed Energy Resources
DSP — Distributed System Platform
DER — Distributed Energy Resources
EPA — United States Environmental Protection Agency
GEIS — Generic Environmental Impact Statement
GHG — Greenhouse Gas
LMP — Location-based Marginal Pricing
LMP+D — Location-based Marginal Pricing Plus Distribution System Value
LSE — Load Serving Entity
LSR — Large Scale Renewables
NOx — Nitrogen Oxides
NYSDPS — New York State Department of Public Service
NYISO — New York Independent System Operator
NYSERDA — New York State Energy Research and Development Authority
Prosumer —Energy customer that both consumes electricity from and sells electricity into the grid
PV — Solar Photovoltaics
RECs — Renewable Energy Credits
REV — Reforming the Energy Vision
RGGI — Regional Greenhouse Gas Initiative
SOx — Sulfur Oxides
State Energy Plan — New York State Energy Plan (2015)

> Current projections estimate that sea levels will rise one to four feet by 2100. If that is true, New York State would be devastated. It's that simple. Even at a fraction of that rise, Manhattan as we know it would be gone, not to mention millions of people along the East Coast would be misplaced, with hundreds of billions of dollars of real estate value disappeared.
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> Climate change is a reality and not to address it is gross negligence by government and irresponsible as citizens.
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> —Governor Andrew Cuomo, October 8, 2015[1]

This past fall, in a pair of remarkable speeches at New York University and Columbia University, Governor Cuomo issued forceful, groundbreaking statements and demonstrated real leadership on climate change. He bluntly articulated the problem, and asserted its reality in direct, unequivocal terms.

At the Columbia event, and elsewhere, New York's Reforming the Energy Vision ("REV") has been highlighted as the key pillar of the State's climate change policy, the vehicle via which the State's ambitious greenhouse gas ("GHG") emissions reduction goals—forty percent reduction from 1990 levels by 2030, eighty percent reduction by 2050[2]—would be achieved. This Article considers the REV from the standpoint of whether this initiative is likely to deliver on this promise.[3]

1. Governor Andrew Cuomo, Governor Cuomo Announces New Actions to Reduce Greenhouse Gas Emissions and Lead Nation on Climate Change (Oct. 8, 2015), https://www.governor.ny.gov/news/rush-transcript-governor-cuomo-announces-new-actions-reduce-greenhouse-gas-emissions-and-lead [https://perma.cc/NZM2-24J7].

2. *See* N.Y. STATE ENERGY PLANNING BD., THE ENERGY TO LEAD: 2015 NEW YORK STATE ENERGY PLAN (2015), overview at 2 [hereinafter STATE ENERGY PLAN]; Cuomo, *supra* note 1; *see also* Exec. Order No. 24, 9 CRR-NY 7.24 (2009).

3. This Article focuses primarily on the "four corners" of the REV, as set forth in N.Y DEP'T OF PUB. SERV., CASE 14-M-0101, STAFF WHITE PAPER ON RATEMAKING AND UTILITY BUSINESS MODELS (2015) [hereinafter RATEMAKING WHITE PAPER]; N.Y DEP'T PUB. SERV. COMM'N, CASE 14-M-0101, ORDER ADOPTING REGULATORY POLICY FRAMEWORK AND IMPLEMENTATION PLAN (2015) [hereinafter FRAMEWORK ORDER]; N.Y DEP'T PUB. SERV. COMM'N, CASE 14-M-0101, ORDER ESTABLISHING THE BENEFIT COST ANALYSIS FRAMEWORK (2016) [hereinafter BCA ORDER], which express the key electric pricing theory of the REV. Sometimes the term "REV" is used loosely to refer to the full scope of energy subsidies and other programs offered by the State of New York. For the purposes of weighing the REV against its emissions reductions claims, this Article considers the REV's central pricing and market-making features as articulated in these official documents.

I. SUMMARY

The New York State Public Service Commission (the "Commission") has identified reduction of carbon emissions[4] as one of six policy objectives associated with the REV.[5] Yet, climate goals, to the extent identified in the current formulation of the REV, appear to be of second-order importance, unconnected to any binding commitments or actual, enforceable mechanism for achieving emissions reductions. This is cause for great concern, particularly considering the centrality of the REV in the State's GHG emissions reduction strategy.[6] The REV itself[7] contains

4. As reflected in the language of the State Energy Plan, a comprehensive climate change-focused emissions reductions policy must address GHG emissions of any type, not just CO_2, that induce an atmospheric greenhouse effect. *See* STATE ENERGY PLAN, *supra* note 2. Although "carbon emissions" is a commonly used shorthand, it is inaccurate if understood as describing the sole locus of necessary emissions policy measures. Typically the nomenclature "CO_2e," carbon dioxide equivalent, is used to denote the comparative greenhouse effect of different emissions types. In this Article, I use the term "GHG emissions" to signal that greenhouse gas emissions generally (at least the principal gases, and not just CO_2) must be the object of the State's climate change policy.

5. *See, e.g.*, N.Y DEP'T PUB. SERV. COMM'N, CASE 14-M-0101, NOTICE OF PUBLIC STATEMENT HEARINGS 1 (2015) [hereinafter NOTICE]; FRAMEWORK ORDER, *supra* note 3, at 4. By contrast, the BCA Order articulates the narrower goal of meeting fifty percent of the State's electrical consumption with renewable resources by 2030. BCA ORDER, *supra* note 3, at 7.

6. *See* STATE ENERGY PLAN, *supra* note 2, overview at 2 (asserting that REV "will put New York State on a path to achieving" forty percent GHG reduction from 1990 levels by 2030 and "reaching the longer term goal of decreasing total carbon emissions 80% by 2050"); *About the Initiative*, N.Y. DEP'T PUB. SERV., http://www3.dps.ny.gov/W/PSCWeb.nsf/All/CC4F2EFA3A23551585257DEA007DCFE2?OpenDocument [https://perma.cc/T489-TH5N] (last updated Jan. 28, 2016); *see also* N.Y DEP'T OF PUB. SERV., CASE 14-M-0101, REFORMING THE ENERGY VISION: NYS DEPARTMENT OF PUBLIC SERVICE STAFF REPORT AND PROPOSAL 8, 17 (2014) [hereinafter REV PROPOSAL] (contending that distributed grid architecture offers emissions benefits); N.Y DEP'T OF PUB. SERV., CASE 14-M-0101, DEVELOPING THE REV MARKET IN NEW YORK: DPS STAFF STRAW PROPOSAL ON TRACK ONE ISSUES 50 (2014) [hereinafter STRAW PROPOSAL] (stating that REV will support fifty percent [sic] carbon emissions reduction by 2030, eighty percent by 2050); Press Release, N.Y. Pub. Serv. Comm'n, Public Service Commission Approves Restructuring of Utility Regulations to Combat Climate Change & Achieve Nation-Leading Clean Energy Goals (May 19, 2016), https://www3.dps.ny.gov/pscweb/WebFileRoom.nsf/Web/9B4FB5513905CB5985257FB8006DAD48/$File/pr16028.pdf?OpenElement [https://perma.cc/CX4W-SFQW] ("REV is ensuring New York State reduces statewide greenhouse gas emissions 40 percent by 2030 and . . . 80 percent by 2050.").

7. The REV has many features and "Tracks," including the Large Scale Renewables ("LSR") Track. *See, e.g.*, *infra* note 13. My focus here is the core REV concept, i.e., the use of the distributed system platform ("DSP") to promote consumer choice and elevate opportunities for the use of distributed energy resources ("DER"). In this respect, this Article's focus on "core REV" is similar to the General Environmental Impact Statement ("GEIS") that was prepared for the state to assess the potential impacts of the REV. *See, e.g.*,

neither mandates nor a price signal adequate to significantly drive down combustion of fossil fuels in New York. The lack of such a price signal is particularly important considering the steep decline in the price of fossil fuels over the last twenty-four months. In fact, the REV has never been meaningfully assessed with respect to its impact on GHG emissions, and therefore little if any basis exists for crediting its emissions reduction claims.[8]

If addressing climate change is the fundamental policy goal—and the Governor's recent statements should leave no doubt that it must be[9]—then the REV, especially if it is suggested to be the primary means to achieve emissions goals, should squarely address GHG emissions as its primary objective. However, the REV does not read that way. Rather, the REV, as currently articulated, is directed primarily to issues of market reform, utility business model change, and decentralization.[10] These are factors that certainly may facilitate the adoption of renewable energy, particularly distributed generation of renewable energy, but do not by themselves offer certainty about New York's future energy mix or GHG emissions, as examined further below.

Even assuming that the REV in and of itself contained the necessary drivers or mechanisms to achieve New York's ambitious emissions goals, there would still be grounds for serious concerns

N.Y DEP'T PUB. SERV. COMM'N, FINAL GENERIC ENVIRONMENTAL IMPACT STATEMENT IN CASE 14-M-0101 – REFORMING THE ENERGY VISION AND CASE 14-M-0094 – CLEAN ENERGY FUND 4-2 (2015) [hereinafter GEIS] (indicating that among the "diverse portfolio of actions and strategies . . . the GEIS focuses on the central vision of the REV, i.e., increasing the use and coordination of distributed energy resources"); *see also* STRAW PROPOSAL, *supra* note 6, at 76 (declaring that the "central vision of REV" is "increasing the use and coordination of DER via markets operated through a Distributed System Platform").

8. *See infra* note 45.

9. *See* also BCA ORDER, *supra* note 3, at 7 ("Given Governor Cuomo's recognition of the threat the damages attending climate change pose to New York's economic and environmental health, the achievement of the targets is of paramount importance.").

10. *See, e.g.*, STRAW PROPOSAL, *supra* note 6, at 7 (making the case for REV based on "higher commodity electricity prices" driven by "energy price spikes during peak hours"); *id.* at 65 (discussing offsetting transmission and distribution investment "with DER resource alternatives"); *id.* at 75 ("Transparent distribution system data access will uncover where and when DER can provide the most economic benefit to the grid."); *id.* app. A at 7 ("A core intention of REV is the development of an animated market where the DSP would offer basic and value added regional distribution system market based products by facilitating retail transactions for which there is no current market, and create opportunities to aggregate retail to wholesale transactions."); *see also* REV PROPOSAL, *supra* note 6, at 47 (asserting that the regulatory reform objective is planning that "optimizes investments and leads to lower customer bills").

about relying on the REV as the primary policy vehicle for reaching these ends. Consider:

- Nothing like the REV has ever been done before. As such, its success, even as a deregulatory measure, must be considered contingent and uncertain. That is only good planning.
- The first electric deregulation efforts in New York, starting in the mid 1990s under Governor Pataki, also featured assurances about consumer choice, cost, and environmental benefits. Considering the record of that prior effort held up against these goals, an observer can be excused for having some reservations about the current round's ability to deliver on similar policy promises.
- The REV has been called, even by its advocates, "devilishly complex" and similar; it promises to be a highly bureaucratic endeavor. Indeed, even among many people who should know—such as key industry participants and environmental advocates—it is hard to find individuals who profess truly to understand the REV.[11] Given that lack of understanding, how can we, whether as citizens or policy makers, really be sure that the REV will deliver on its generalized emissions reduction promises?
- There is no timeframe—not even an aspirational one—offered for implementation of the REV. On the other hand, the pace of emissions growth and climate change is well understood. In this respect alone, there seems to be an important misalignment between means and objectives. Moreover, we cannot be certain that a successor will pursue the REV if not implemented before the Governor's term ends. The long, uncertain, and contingent timeframe for implementation of the REV is not consistent with the timeframe for action required on climate change.

11. *See, e.g.*, *infra* note 46.

In sum, the REV is a highly ambitious project aimed at no less than a total restructuring of an enormous, century-old sector of the economy. However worthy that project may be, it seems fair to question whether attaining climate goals—already fraught and difficult enough, to say the least—should be further conditioned upon the eventual success of the current de-regulation effort. Instead, it would be more logical and effective to develop and implement a policy squarely focused on reducing emissions—a policy that will work whatever the business model of the power sector. Decoupling these initiatives and promises—emissions reduction from regulatory reform—the REV can then proceed on its own merits and, when ultimately implemented, complement a climate policy already in place.[12]

Two other apparent limitations of the REV deserve attention. First, even under best case assumptions—that the REV reduces GHG emissions and does so in a timely way—it will remain a policy of limited scope. That is to say, the REV, by its own terms, addresses emissions only from electric generation, and of those, only those emissions that can be displaced by distributed energy resources ("DER").[13] That leaves fossil fuel combustion in the transportation, residential, commercial, and industrial sectors outside of its realm. This limitation is at odds with the State Energy Plan, which calls for GHG emissions reductions from industry, buildings, transportation, as well as power generation.[14] In New York, this shortcoming is especially significant, where electric generation accounts for only twenty-percent of the State's carbon emissions; New York's transportation sector emissions alone outstrip those from electric generation.[15]

12. Alternatively, the REV itself could contain a substantive emissions reduction mechanism. However, such an approach would add yet more complexity to the REV even as its scope would by definition remain limited to the electric sector.

13. Centralized utility scale generation falls within the scope of the LSR Track and the recently announced Clean Energy Standard ("CES"). *See* Letter from Governor Andrew Cuomo to Audrey Zibelman, CEO, N.Y. Dep't Pub. Serv. (Dec. 2, 2015), https://www.governor.ny.gov/sites/governor.ny.gov/files/atoms/files/Renewable_Energy_Letter.pdf [https://perma.cc/QW87-YE9D]. The CES proceeding has been merged into the LSR Track. *See* N.Y DEP'T OF PUB. SERV., CASE 15-E-0302, STAFF WHITE PAPER ON CLEAN ENERGY STANDARD 1 (2016) [hereinafter CES WHITE PAPER].

14. STATE ENERGY PLAN, *supra* note 2, vol. 1 at 45.

15. STATE ENERGY RESEARCH & DEV. AUTH., N. Y. STATE GREENHOUSE GAS INVENTORY AND FORECAST: INVENTORY 1990–2011 AND FORECAST 2012–2030 S-2 (Apr. 2014, rev. June 2015), http://www.nyserda.ny.gov/-/media/Files/EDPPP/Energy-Prices/Energy-Statistics/

Second, there is the question of New York's service as a national model, something widely hailed during the remarks at NYU, Columbia, and elsewhere.[16] One would think that the most valuable GHG reduction strategy would be one that could be exported to other states regardless of the prevailing utility business model, whether they rely on centralized or decentralized generation. Even if the REV were to drive down emissions as advertised, the prospect of the other forty-nine states following suit and adopting their own REV-like reforms is necessarily even longer term and more contingent than the uncertain timeframe for New York itself.[17]

For all of these reasons, in this Article I recommend that, separate and apart from (although informing and intersecting with) the REV, New York adopt a policy that: (1) is squarely addressed at GHG emissions; (2) can be quickly implemented; 3) is simple in concept; (4) is relatively un-bureaucratic in execution, and fosters and relies on market processes as opposed to government programs; (5) is rooted in enforceable drivers; (6) would be transparent and create market certainty; (7) is not contingent on the success of an unprecedented effort to reshape a major industry; (8) would apply to all sources of electric generation as well as nonelectric sector emissions; (9) can deliver on emissions reduction goals even in a cheap fossil fuels environment; and (10) can serve as a national model, regardless of the utility model prevailing in other states. As argued below, the REV process does not stack up well against these criteria. At the same time, a policy imposing a price on GHG emissions across the board would stack up very well.[18]

greenhouse-gas-inventory.pdf [https://perma.cc/4X4V-J9D7] [hereinafter N.Y. STATE GREENHOUSE GAS INVENTORY AND FORECAST].

16. *See, e.g.*, Cuomo, *supra* note 1; *see also* David Roberts, *New York's Revolutionary Plan to Remake Its Power Utilities*, VOX (Oct. 5, 2015), http://www.vox.com/2015/10/5/9453131/new-york-utilities-rev [https://perma.cc/BNH6-JY4N].

17. Indeed, during the prior round, deregulation reached only about twenty states. *See, e.g.*, Roberts, *supra* note 16. As a matter of planning, it does not seem prudent to assume that this round will achieve further penetration in the near term.

18. That price could be introduced either via a carbon tax or a cap and trade system. *See, e.g.*, WILLIAM NORDHAUS, THE CLIMATE CASINO: RISK, UNCERTAINTY, AND ECONOMICS FOR A WARMING WORLD 234–56 (2013). Note that, like the term "carbon emissions," "carbon tax" is a shorthand that in fact must pull within its scope all or at least all primary GHG emissions in order to be effective. Because the term "carbon tax" is in wide use, I continue with that usage but define the term to cover other important GHG emissions, especially methane.

A price on carbon applicable to all sources of fossil fuel emissions would have one additional aspect that should be of great interest to REV proponents: it would also support the selection of low- or no-carbon DER in the market that the REV seeks to develop and would thereby support the REV in achieving the State's climate goals.[19] A carbon price would not work at cross-purposes with the REV. Rather, instead of giving a large portion of the fossil-fueled DER fleet a free pass,[20] it would prompt energy customers to avoid purchasing or producing fossil-fueled distributed generation, such as behind-the-meter or microgrid diesel or natural gas-combusting systems—a possible outcome, especially in the low fossil fuel price environment currently prevailing.

In addition to recommending the introduction of a CO_2e price applicable to the general marketplace,[21] this Article includes analysis of key REV features, particularly location-based marginal pricing plus distribution system value ("LMP+D"), the critical energy resource pricing formula set out in the REV.[22]

II. DETAILED DISCUSSION

A. Direct Targeting of GHG Emissions

There appears to be a wide gap between the GHG reduction aspirations of New York State policy and implementation as represented by the REV. Stated plainly, the REV does not contain an action-forcing mechanism for reducing emissions and therefore does not squarely support the State's emissions reductions goals.[23] This is not to say that the REV is necessarily antithetical to or at

19. A price on carbon-based fuels would also have the important effect of extending the disincentive to use fossil fuels "behind the meter" to customers who do not participate in the REV marketplace but rather consume fuels and produce energy only for their own use. *See infra* notes 83, 91 and accompanying text.

20. While the data are largely unavailable, it seems a reasonable assumption that most small-scale fossil fuel generation currently occurs behind the meter and beyond the reach of REV market incentives, including the recent action in the BCA Order to impose a price signal on *utility-procured* DER. *See infra* note 87 and accompanying text.

21. As discussed *infra* note 87 and accompanying text, the REV by its nature does not reach all sources of leakage. Even the BCA GHG externality adder on utility-procured DER leaves behind-the-meter and customer-procured DER outside of its scope.

22. *See infra* Sections II.I.1–2 (discussing the Ratemaking White Paper's section IV, Rate Design and Compensation, and section IV.E, Determining the System Value of DER).

23. *See, e.g.*, GEIS, *supra* note 7, at 5-2 (explaining that quantitative assessment of potential environmental impacts of REV not undertaken because REV "[does] not prescribe or set in motion certain actions, standards or targets").

cross purposes with emissions reductions. It need not be.[24] In fact, many features of the REV, such as enabling DER, could be complementary to an emissions reductions policy. But it would be a mistake to consider the REV to be the embodiment of such a policy in and of itself.

Indeed, New York State Department of Public Service ("NYSDPS") Staff have crafted the REV's essential thrust much more narrowly. For example, in the Ratemaking White Paper, which is where one would expect to find development of a user-facing price signal to direct demand away from GHG-emitting resources, Staff defined "[t]he scope of this White Paper [as] limited to ratemaking issues, including the utility business model and earning opportunities, the ratemaking process, and rate design."[25] Even within the confines of ratemaking issues, particularly the structure of LMP+D,[26] the REV could be substantially strengthened as an instrument of policy to deliver GHG emissions reductions, a role that the Ratemaking White Paper itself acknowledges that the REV should serve,[27] but does not develop.

The true innovation in the REV is focused on market dynamics; as often described, the central idea of the REV is to use a "distributed system platform" ("DSP") to make consumer energy choices analogous to selection of music on an iPod or through an app.[28] While such a result might indeed be a beneficial development for the electric consumer, the state of play on climate change issues has moved well beyond the framework of "consumer choice": while consumer choice can be a good thing, the imperative of climate change policy is to drive down GHG emissions. Of course, consumer choice may under certain circumstances result in reduced GHG emissions, but under other circumstances it may not, for example, in the current low-price

24. The REV potentially could be counterproductive to GHG emissions reduction efforts absent a robust price signal. *See infra* notes 79, 83, 91.

25. RATEMAKING WHITE PAPER, *supra* note 3, at 4–5.

26. For further discussion, see *infra* Section II.I.2

27. RATEMAKING WHITE PAPER, *supra* note 3, at 8 ("[R]atemaking principles and changes proposed here reflect the public policy objectives that surround power delivery, including . . . actions to support attainment of the State's environmental goals."); *see also* FRAMEWORK ORDER, *supra* note 3, at 1 (identifying carbon emissions reductions as one of REV's key objectives); *id.* at 24 ("Climate change poses several different types of challenges to the electric industry. First, and most obvious, is the need to reduce carbon emissions.").

28. *See, e.g.*, Roberts, *supra* note 16.

environment for fossil fuels, a major factor that apparently has received almost no consideration in any publicly available REV documents or analyses.[29] Without a broad-based and adequate price signal there is no reason to assume that consumer choice will *equate* to reduced GHG emissions, an unanalyzed assumption prevalent in much of the discussion of the REV in the Ratemaking White Paper and elsewhere. It is far from clear why customers would elect low- and no-carbon generation options in sufficient numbers to meaningfully reduce GHG emissions in the timeframe required absent a mechanism to drive their energy choices.

In contrast to the REV's focus on consumer choice, decentralization, use of the DSP platform, etc., the Ratemaking White Paper is largely devoid of meaningful discussion of climate policy and certainly does not center ratemaking strategy around attaining GHG emissions reductions as a prime objective. Instead, any such discussion is at the margins,[30] is narrowly drawn, or misapprehends the real risks and challenges presented by climate change.[31] For example, the Ratemaking White Paper cites

29. The Straw Proposal, in the context of discussing large-scale renewables, contains a passing mention to low natural gas prices and their potential to drive up costs for centralized renewable energy. STRAW PROPOSAL, *supra* note 6, at 52. However, the Straw Proposal was prepared and issued well before the collapse of liquid fossil fuel prices, which are more directly relevant to fossil-fueled small-scale generation. Indeed, NYSDPS Staff's concern at the time was focused on avoiding *high* fossil fuel prices. *Id.* at 7–8 ("Price volatility risks are exacerbated by increased dependence on natural gas, as illustrated by the experience during the winter of 2014."); *id.* at 10 ("[I]ncreasing fuel diversity will make customers less vulnerable to price spikes.").

30. For example, while carbon reduction is proposed as a metric for *monitoring* utility-sponsored generation, this approach is concededly dependent on the LSR proceeding, which is wholly separate from the scope of the Framework Order. *See* RATEMAKING WHITE PAPER, *supra* note 3, at 65. Any GHG emissions reductions resulting from the LSR (and CES) proceeding will be attained independently of the deployment of DER and the DSP approach central to the REV.

31. Although the Ratemaking White Paper mentions carbon emissions and climate change issues sporadically, inclusion of climate change goals is often missing in the various statements of REV policy objectives. *See, e.g.*, *id.* at 5 (noting the purpose and scope of Ratemaking White Paper, but not mentioning climate change or GHG emissions); *id.* at 7–8 (failing to mention climate change or GHG emissions in the "Principles and Framework" discussion in the summary of proposals, while catch-all principle of achieving "public policy objectives" vaguely references "environmental goals" and "clean energy" but does not identify reduction of GHG emissions); *id.* at 16 (omitting to mention climate change or environmental goals in list of regulatory priorities or even among "other policy objectives"); *id.* at 31–33 (omitting climate and environmental issues generally from discussion of policy objectives served by market-based earnings); *id.* at 44–51 (omitting in discussion of public policy achievement consideration of climate change or GHG emissions reduction as an objective or being among "other policy goals"; stating at the very end of this discussion that

"Superstorm Sandy and other major climate events that New York has experienced over the last several years" as demonstrating "the growing need for reliable, resilient, affordable and clean energy."[32] The thrust of this comment appears to be that climate change dictates that New York's energy infrastructure must be strengthened to resist climate events. While true, the statement gives short shrift to what should be the primary focus of energy policy: to significantly reduce future GHG emissions. One does not read the Ratemaking White Paper or other "core REV" documents and perceive GHG reductions as the major policy goal as described by Governor Cuomo at NYU, Columbia, and elsewhere.[33] In fact, the distributed generation purposes of the REV do not necessarily align with reduction of GHG emissions.[34]

State Energy Plan goals and federal carbon reduction requirement "will inform all of these processes," but with no apparent consideration of how this will actually be the case); *id.* at 95 (discussing seven rate design principles without mention of GHG emissions reductions, although unspecified "reduced environmental impacts in a technology neutral manner" is one of several listed desired policy outcomes, albeit with no mechanism for attainment suggested). Likewise, in the Ratemaking White Paper's "Summary of Proposals," strategies and mechanisms for GHG emissions reduction are wholly absent (carbon reduction and conversion of fossil-fueled end-uses are listed as "scorecard measures" (Proposal 10) aimed at monitoring the REV, yet such actions are nowhere among the substantive action forcing proposals, most notably Proposal 14, calculating the value of DER). *See id.* at 107–09. Similarly, the BCA Order cites the State Energy Plan goal of meeting fifty percent of the State's electric consumption with renewables, but omits the ultimately more important State Energy Plan target of reducing GHG emissions eighty percent by 2050. *See* BCA ORDER, *supra* note 3, at 7 n.4. While these omissions can be thought of as merely a rhetorical concern, they also subtly, or not so subtly, communicate that climate issues are of second-order importance, which, to the extent mentioned, appear to be appendages to an a priori interest in de-regulation for its own sake. Such a de-emphasis can communicate powerfully to implementers which are and which are not the core policy issues that the REV is intended to address.

32. RATEMAKING WHITE PAPER, *supra* note 3, at 8.

33. Even the BCA Order, the REV document most directed to consideration of climate change issues, relegates achievement of GHG reductions to sixth in a list of six performance measures, preceded by concerns with energy costs, equity among customer classes, capital and operating efficiencies, business model and service innovation, and infrastructure and grid modernization. *See* BCA ORDER, *supra* note 3, at 8–9.

34. *See, e.g.*, GEIS, *supra* note 7, at 4-5 (observing that centralized, utility-scale renewables, although they decrease reliance on fossil-fuel based generation, "contribute less to the distributed energy objectives of the REV"). On the other hand, while fossil-fueled distributed generation "has few of the [emissions reduction] benefits associated with renewable and demand-side resources . . . it does support the REV objective of distributed energy resources. In fact, it may have detrimental effects on air quality and other environmental resources." *Id.* at 4-13.

B. Speed of Implementation

State authorities have made no commitment or even speculation about the timing of the REV's ultimate implementation. Consequently, there is no apparent basis for concluding that the REV would become operational soon enough to make a meaningful near-term impact on New York's GHG emissions or on attainment of the State's ambitious policy goals (forty percent GHG emissions reduction by 2030; eighty percent by 2050), even assuming the REV were adequate to the task of driving the GHG reductions necessary to meet New York State policy. To the contrary, NYSDPS Staff have acknowledged that the "[p]lanned outcomes [of REV] will take time to develop,"[35] time that the pace of climate change may not allow.[36] Uncertainty, even on the part of the Staff, about the REV's implementation schedule is entirely understandable given the complexity of the REV process. That uncertainty suggests that another policy lever is needed to drive down emissions in the required timeframe. In particular, the aspect of REV receiving most attention—customer procurement from the DSP platform—will not, based upon Commission actions to date, occur anytime soon, and there has been no apparent effort to develop price signals for such transactions.[37] Any of that would be part of a "later stage" REV not yet under development.[38]

35. RATEMAKING WHITE PAPER, *supra* note 3, at 8–9; *see also id.* at 4 ("The pace of the comprehensive ratemaking reform discussed in this white paper cannot be predicted at this time."); *id.* at 27 ("Neither the utility business model nor market growth transformations contemplated by REV will occur overnight."); FRAMEWORK ORDER, *supra* note 3, at 132 (requiring each utility to file Distributed System Implementation Plan by December 15, 2015, since extended to June 2016); STRAW PROPOSAL, *supra* note 6, at 78 ("[C]omprehensive, complex, and transformative nature of REV will require years of iterative planning."). By contrast, the pace of CO_2e emissions is readily observed, as is the pace of the resulting climate change. *See infra* note 36.

36. *See, e.g.*, Steven J. Smith et al., *Near-Term Acceleration in the Rate of Temperature Change*, 5 NATURE CLIMATE CHANGE 333 (2015); Bjorn Carey, *Stanford Report, Climate Change on Pace to Occur 10 Times Faster Than Any Change Recorded in Past 65 Million Years, Stanford Scientists Say*, STAN. NEWS (Aug. 1, 2013), http://news.stanford.edu/news/2013/august/climate-change-speed-080113.html [https://perma.cc/M87G-UD2P]; Justin Gillis, *Climate Model Predicts West Antarctic Ice Sheet Could Melt Rapidly*, N.Y. TIMES (Mar. 30, 2016), http://www.nytimes.com/2016/03/31/science/global-warming-antarctica-ice-sheet-sea-level-rise.html [https://perma.cc/3Y6U-VDDT]; Joby Warrick, *CO2 Levels in Atmosphere Rising at Dramatically Faster Rate, U.N. Report Warns*, WASH. POST (Sept. 9, 2014), http://apps.washingtonpost.com/g/page/national/2013-global-greenhouse-gas-report/1297/ [https://perma.cc/WKK2-8SAB].

37. The BCA Order calls for utilization of a carbon price in the limited case of utility-procured DER only. It contains no discussion of customer-procured DER nor whether,

C. Conceptual Complexity

As widely acknowledged, the REV is a highly complex undertaking, both in terms of the new electric generation and delivery system to be designed, and the administrative process of devising and effectuating the transition to such a system. Attempting to change the business model of a major, critical sector of the economy and reshape it in the image of digital consumer services is inherently a complex enterprise, as NYSDPS Staff have readily acknowledged.[39] Execution aside, simply envisioning and understanding what is meant by such elements as the distributed system "platform," market-based earnings, earnings impact mechanism, earnings sharing mechanism, etc., and predicting how in practice these elements will combine to form a new market paradigm is not self-evident to most people nor, I imagine, to many government officials or market actors. Even the REV's ardent champions acknowledge this complexity.

For example, at Columbia, former Vice President Al Gore repeatedly praised the REV but described it as "impenetrably complex," counseling listeners to nonetheless have confidence that the roll-out was in good hands.[40] In particular, he commended the audience to a recent article by Dave Roberts of *Vox*, whom Gore described as the pre-eminent guide, for an explanation of the REV.[41] In that article, however, Roberts did not articulate precisely how the REV would deliver on GHG emissions reductions (but did himself caution that the REV was "devilishly complex").[42] Roberts

when, or how a GHG price signal may be applied to such transactions. BCA ORDER, *supra* note 3, at 1–2.

38. In the Framework Order, the Commission indicated that it would consider unspecified "further mitigation measures if warranted by later REV implementation options." FRAMEWORK ORDER, *supra* note 3, app. B at 23.

39. *See, e.g.*, STRAW PROPOSAL, *supra* note 6, at 78.

40. *Governor Cuomo, Joined by Vice President Gore, Announces New Actions to Reduce Greenhouse Gas Emissions and Lead Nation on Climate Change*, GOVERNOR ANDREW M. CUOMO (Oct. 8, 2015), https://www.governor.ny.gov/news/governor-cuomo-joined-vice-president-gore-announces-new-actions-reduce-greenhouse-gas-emissions [https://perma.cc/AVJ2-N4JQ]; *see also* Jackson Morris, *Fortune Favors the Bold: Gov. Cuomo Commits New York to Serious Climate Action*, NRDC L. BLOG (Oct. 9, 2015), http://switchboard.nrdc.org/blogs/jmorris/fortune_favors_the_bold_gov_cu.html [https://perma.cc/43X8-9YN3].

41. *Governor Cuomo, Joined by Vice President Gore, Announces New Actions to Reduce Greenhouse Gas Emissions and Lead Nation on Climate Change*, *supra* note 40.

42. *See* Roberts, supra note 16. Roberts has since appeared to place greater emphasis on the importance of centralized renewables. *See* David Roberts, *Big Solar is Heading for Boom*

in turn referred readers to an article in another publication, *Utility Dive*, for greater depth ("no one is covering utilities, including NY REV, better than *Utility Dive*").[43] The principle *Utility Dive* article cited by Roberts, however, largely adopted text from the Ratemaking White Paper, but did not attempt to explain how the REV would deliver on GHG emissions reductions.[44] In fact, no analysis to date of the REV's impact on GHG emissions supports placing the REV at the center of New York's climate policy.[45] This

Times in the US, VOX (Mar. 10, 2016), http://www.vox.com/2016/3/10/11192022/big-solar-boom-times [https://perma.cc/FNZ5-8C9S].

43. *See* Roberts, *supra* note 16.

44. *See* Davide Savenije, *NY Regulators Propose Groundbreaking New Utility Models Under Landmark REV Order*, UTILITY DIVE (Jul. 29, 2015), http://www.utilitydive.com/news/ny-regulators-propose-groundbreaking-new-utility-models-under-landmark-rev/403111/ [https://perma.cc/AB5S-P3WQ]; *see also* Davide Savenije, *In New York, Utility of the Future Will Be 'Air Traffic Controller,'* UTILITY DIVE (Mar. 12, 2015), http://www.utilitydive.com/news/in-new-york-utility-of-the-future-will-be-air-traffic-controller/373342/ [https://perma.cc/4QZV-PTWB] (featuring interviews with utility executives). While these articles concern "two-way flows of energy" between customers producing distributed generation and demand management, on the one hand, and the grid on the other, they do not assess or analyze REV's impact on New York's GHG emissions.

45. The only known estimation of the REV's impact on GHG emissions is contained in the GEIS. However, that analysis is highly qualified. *See, e.g.*, GEIS, *supra* note 7, at 5-2 ("[A]mount and type of fossil-fuel based energy generation that may be displaced is all uncertain."); *id.* at 4-6 ("Uncertainty regarding the potential impacts of the REV . . . precludes the feasibility of [capturing emissions profiles differences between unknown system-wide mixes of distributed fossil-fuel based generation and grid-based generation]."); *id.* at B-3 (developing scenarios that achieve desired outcomes such as reduced GHG emissions "would require large amounts of data and information not readily available").

Moreover, the GEIS's conclusion that the REV could achieve two-thirds of the State's GHG reduction goals is hard to square with the fact that the entire electric sector accounts for only twenty percent of New York's GHG emissions; even if electric sector emissions were zeroed out—not remotely claimed or contemplated by the REV—it would result only in a twenty percent reduction in GHG emissions. *See* N.Y. STATE GREENHOUSE GAS INVENTORY AND FORECAST, *supra* note 15, at S-2. The "upper bound" (best case) scenario considered in the GEIS, and later adopted by the Commission, is in fact a twelve percent reduction in electric sector GHGs (but not accounting for fossil-fueled distributed generation); the GEIS offers no explanation as to how it concluded that two-thirds attainment of an eighty percent emissions reduction goal, even with respect to electric sector emissions only, could result from a twelve percent reduction. FRAMEWORK ORDER, *supra* note 3, app. B at 24. For reasons stated above, even this twelve percent reduction of electric sector emissions seems highly uncertain, given the GEIS authors' recognition that it lacked data to perform a quantitative analysis of emissions reductions and could not characterize the mix of generation displaced by DER or of the displacing DER resources themselves. *See* GEIS, *supra* note 7, at 5-2. Nor did the GEIS analysis consider the impact of low fossil fuel prices on fuel selection. Rather, it seems more likely that the emissions reduction estimates were not particularly rigorous and were developed to the extent necessary to satisfy the requirements under the State Environmental Quality Review Act to perform an alternatives analysis. *See generally* N.Y.

is not to suggest that literally "no one" understands the REV. Rather, the point is that even many high profile commentators and others have not demonstrated an actual understanding of any emissions reduction mechanisms within the REV.[46] Not only is this suggestive of great complexity, it is also at odds with the asserted values of the REV itself, which include simplicity and transparency.[47]

D. Bureaucracy

Layered on top of the conceptual complexity of the REV is the opacity of its execution, encompassing both the transition from the old to the new utility business model and the eventual administration of the redesigned market following initial implementation. These processes are highly bureaucratic. With regard to the transition, the process has already involved multiple parallel Commission proceedings, Staff papers, Commission orders, an avalanche of public comment, concurrent timelines, dense acronym- and jargon-laced reasoning, and argumentation that is not likely to be accessible or comprehensible to many market participants, let alone to the average citizen.[48] Following

ENVTL. CONSERV. LAW § 8-0109 (McKinney 2016) (requiring agencies to identify alternatives to proposed agency actions that might impact the environment).

46. Although anecdotal, I have made something of a hobby of asking individuals well-placed to understand the REV—for example, utility executives, government officials, environmental advocates—and it has been difficult to find anyone willing to claim understanding of how the REV actually will deliver on environmental promises, as opposed to understanding the generalized promises themselves, which many do understand.

47. Among the foundational set of rate design principles cited by the Ratemaking White Paper is the concept of simplicity: "[r]ates should be practical: simple, understandable, acceptable to the public, feasible to apply, and free from controversy in their interpretation." RATEMAKING WHITE PAPER, *supra* note 3, at 77. Nonetheless, the Ratemaking White Paper seems to favor greater complexity, which it calls granularity, in rate design, in order to reflect time, location, and other attributes (although not, apparently, GHG emissions) of electric service. *Id.* at 88–89.

48. *See generally DPS – Reforming the Energy Vision: Key Documents*, N.Y. DEP'T PUB. SERV. (Apr. 27, 2016), http://www3.dps.ny.gov/W/PSCWeb.nsf/All/C12C0A18F55877E785257E6F005D533E?OpenDocument [https://perma.cc/FZ52-DPM8] (listing the various Orders, White Papers, Comments, etc. that have been part of the transition to the REV). Although I have strived to write plainly, the dense processes and constructs of the REV have inevitably required detailed discussion utilizing the REV's terminology. We might ask ourselves: is it necessary that critical climate policy be embedded in complexity that makes discussion on the merits so difficult for the citizenry? In such an enterprise, we are essentially being asked to have faith that those who know best are making the correct decisions and properly accounting for contingencies.

implementation, the restructured marketplace will overlay onto the already-complex existing transmission and distribution system its own intricate reliability and grid maintenance issues, including the design and maintenance of complex software systems needed to support the balancing of consumer choices against the offerings and requirements of numerous generators, DER providers, "prosumers,"[49] and other market and regulatory actors, all to be overseen by utility DSP operators, who themselves will be overseen by NYSDPS. All of which gives the State a primary role in market and business model design, typically private sector functions far from the core competency of government. Unlike the apps on an iPad, the market for electricity will necessarily—because of issues ranging from grid reliability, consumer protection, and cyber security to environmental protection—remain highly dependent upon the considerable involvement of governmental bodies, including NYSDPS, the Commission, and potentially the Federal Energy Regulatory Commission,[50] and new processes and roles invented for the purpose of administering the restructured market. It is therefore not accurate to say that the marketplace envisioned will rely on market reforms, as opposed to government programs. In reality, a hybrid government-private sector system is the more likely, indeed, the planned for, result. It seems fair to at least ask whether such complexity runs the risk of creating opportunities for rent-seeking and other gamesmanship, especially considering the participation of non-utility actors not subject to traditional regulation.[51]

E. Enforceable GHG Reduction Features

The REV, particularly in its core DSP aspect, appears to rest on the assumption that promotion of consumer choice will result in power consumers electing DER, which in turn will mean low- or non-emitting generation sources. However, it is not clear why this should be the case. While it is true that the price of solar

49. "Prosumers" are defined as energy customers that both consume electricity from and sell electricity into the grid. RATEMAKING WHITE PAPER, *supra* note 3, at 85.

50. *See, e.g.*, FERC v. Elec. Power Supply Ass'n, 136 S. Ct. 760 (2016) (upholding FERC's authority to regulate demand response markets).

51. "There's opportunity in complexity," says the ad campaign of State Street Global Advisors/SPDR. *See There's Opportunity in Complexity*, TRADEMARKIA, http://trademarkia-notices.com/map/theres-opportunity-in-complexity-86835155.htm [https://perma.cc/7PAK-YB2R] (last visited Apr. 18, 2016).

generation has dropped dramatically in recent years,[52] so, since 2014, has the price of fossil fuels.[53] Moreover, in the case of wind power, a key component of the renewables surge of recent years, it is plain that it is the large, utility-scale systems that have proven most economic and prolific; for this reason, wind is unlikely to be a prevalent DER option.[54]

In the absence of a price gradient clearly favoring renewables across the general marketplace, more is required than simply enabling power consumers to "choose" renewables or other low emission power sources. The REV contains no binding emissions reduction targets nor any analysis of the steps needed to reach the State Energy Plan GHG emissions reduction targets. By contrast, the newly proposed Clean Energy Standard ("CES") contains binding renewable energy generation mandates on utilities targeted to attaining the State Energy Plan goal of fifty percent electric generation by renewables by 2030.[55] The CES's enforceable renewables mandate on utilities,[56] which will bring New York into alignment with other states, is a new departure in New York.[57] It may be considered a tacit recognition of the limitations of seeking to reduce GHG emissions without either a mandate or carbon price signals in place.

52. *See, e.g.*, Jeremy Berke, *Investors Who 'Couldn't Care Less' About Clean Energy Are Giving Money to This Solar Finance Firm*, BUS. INSIDER (June 11, 2016), http://www.businessinsider.com/wunder-capital-solar-investing-2016-6 [https://perma.cc/JP68-3673].

53. *See, e.g.*, Clifford Krauss, *Oil Prices Explained: Signs of a Modest Revival*, N.Y. TIMES (June 2, 2016), http://www.nytimes.com/interactive/2016/business/energy-environment/oil-prices.html?_r=0 [https://perma.cc/G6H6-KR8P].

54. *See infra* note 96.

55. CES WHITE PAPER, *supra* note 13, at 2. The CES is modeled on renewable portfolio standards long operative in neighboring states and is not connected to the core REV vision of increased DER. *Id.* at 5. Indeed, the CES focuses exclusively on renewables gains in centralized utility-scale generation. *Id.* The CES can be implemented independently of whether REV rolls out or not. The emissions profile of centralized generation presumably will improve over time as the CES takes effect. *See, e.g.*, *id.* at 44–45 (setting out annual statewide targets for carbon-free generation). Such an improvement may raise further questions about the REV's assumptions about the environmental benefits of decentralized generation compared to utility-scale generation. These questions are relevant even now, before grid generation responds to the targets to be imposed by CES. *See, e.g.*, GEIS, *supra* note 7, at B-3 (observing that reduction of nonpeak generation is also a potential outcome of REV); *id.* at 4-5 (finding that DER deployed to reduce peak demand may also result in reductions in grid-based generation; this may result in increased emissions).

56. CES WHITE PAPER, *supra* note 13, at 6 (urging the Commission to require compliance from all load-serving entities).

57. *Id.* at 10.

Likewise, the recent adoption of a carbon price signal in the REV's BCA Order[58] in limited circumstances may be a tentative step in furtherance of that recognition. Unfortunately, the carbon price developed in the BCA is of very limited applicability. As currently articulated, it applies only to the relatively limited circumstance of utility-procured DER undertaken to avoid investments in peak load infrastructure.[59] Consequently, the price signal does not extend to customer-procured DER on the eventual DSP platform or fully behind-the-meter DER that may be deployed by customers to avoid peak pricing or otherwise. Therefore, small fossil-fueled generation may operate beyond the reach of the limited carbon price adder envisioned by the BCA Order. The BCA price mechanism may perhaps be viewed as a patch to mitigate the undesirable emissions outcome that could otherwise result from the REV's basic architecture that prioritizes decentralization over emissions reductions. However, such a patch is likely to be only partially effective.[60]

On the other hand, an imposed price on GHG-emitting fuels across the board would constitute an enforceable mechanism for driving consumption toward low-carbon electric generation. Such an approach would discourage fossil fuel consumption in both the enhanced DER market envisioned by the REV and in centralized generation transactions, as well as in purely behind-the-meter usage.[61]

F. Market Certainty

The complexity and density of the REV proceedings coupled with uncertainty about outcome and the timeframe for implementation may cause hesitation among market actors, particularly investors, generators, and service providers. By contrast, one would expect an economy-wide price signal to be readily understood by all market participants, from investors to consumers and everyone in

58. BCA ORDER, *supra* note 3, at 18.

59. *Id.* at 1–2.

60. The carbon price adopted in the BCA Order is discussed further *infra* Section II.I.2.

61. Using a price signal to internalize the costs of GHG emissions is discussed in greater detail *infra* Section II.I.

between, even if they may not know how or why the signal was implemented.[62]

G. Emissions Goals Contingent on Industry Reform

Whatever else its virtues or drawbacks, the REV plainly constitutes a highly ambitious project aimed at no less than a thorough restructuring of an enormous sector of the economy. Like any project of great ambition and complexity, its outcome must be considered contingent and its final shape and impact unknown in many respects, not least because the REV is subject to comments from the public and other stakeholder input that can lead to changes in the ultimate result.

New York's prior electric sector deregulatory initiative featured promises similar to those currently associated with the REV. Proponents predicted lowered electric prices and reduced environmental impacts as part of a nationwide restructuring and reform.[63] As in the past, deregulatory success is not certain. Consumer choice and decentralization are laudable goals; however, dependency on the success of the current, first-of-a-kind deregulation project adds an unnecessary prerequisite to the already challenging goal of reducing GHG emissions.

H. Scope of Emissions Impact

The animating REV policy is to promote decentralized electric energy production.[64] The REV's theory of emissions benefit is based on the assumption that diversion to DER will be environmentally superior to centralized generation. More specifically, the REV is focused on the avoidance of marginal

62. A common feature of carbon tax proposals is planned and transparent escalation over time in order to facilitate market knowledge and adjustment. *See Carbon Tax*, B.C. MINISTRY FIN., http://www.fin.gov.bc.ca/tbs/tp/climate/carbon_tax.htm [https://perma.cc/3SFT-ESNK] (last visited Apr. 18, 2016) ("The initial tax rate was relatively low and has increased gradually to allow families and businesses time to reduce their emissions."); *see also* Tax on Carbon Based Fuels, A.B. 8372, 2015–2016 Reg. Sess. (N.Y. 2015) (proposing to increase tax gradually from $35 to $185 per ton).

63. *See, e.g.*, *Pataki's Message; Excerpts from the Governor's Address in Albany*, N.Y. TIMES (Jan. 4, 1996), http://www.nytimes.com/1996/01/04/nyregion/pataki-s-message-excerpts-from-the-governor-s-address-in-albany.html?pagewanted=all [https://perma.cc/GP5R-QJXS] ("The opening of the electric industry to competition is a major sea change facing our state and facing our nation. . . . We are taking steps to insure that the people of New York and their employers receive efficient and affordable energy.").

64. *See generally infra* Section II. I. 3.

generation traditionally necessitated in response to peak demand.[65] The environmental case for DER is based on the assumption that peak generation is also the most polluting.[66] Thus, the scope of the REV's expected emissions benefit is targeted upon displaced peak generation—assuming that the displacing DER is not based on more polluting small-scale fossil burning units. The REV itself does not address the mix of centralized baseload generation[67] and does not reach the emissions of decentralized generation outside of the REV's pricing mechanisms (such as small-scale customer-sited fossil-generating units). It is also not clear at this juncture how or whether the REV would regulate or price emissions from customer-procured fossil-generation that may become available on the DSP platform.

The much larger issue with respect to the scope of the REV's emissions impact is that no track of the REV applies in any way to the predominant share of GHGs emitted beyond the electric sector. In New York, the electric sector is responsible only for 20% of the State's GHG emissions, while the transportation sector

65. *See, e.g.*, *id.* at ES-8 (discussing the savings that would occur "if the 100 hours of greatest peak demand were flattened").

66. *See, e.g.*, *id.* at ES-4 (noting the focus on peak reduction). When peak generation is supplied by natural-gas fired "peaker units" with required air pollution control equipment, such generation creates the baseline against which displacing DER must be compared from an emissions standpoint. However, even such peaker unit generation has a more highly regulated and superior emissions profile per unit energy when compared to small-scale fossil fuel combustion, even though it loses in comparison to baseload combined cycle natural gas combusting plants, which are capable of high efficiency operation and carry the full complement of capital intensive air pollution control equipment. *See infra* note 95.

The economic case for the REV recognizes that peak demand brings the most expensive generation on line, and also requires the construction and maintenance of distribution and generation infrastructure that may be idle much of the year but is in place when needed to service peak demand. *See* GEIS, *supra* note 7, at 2-16 (observing that dual-fuel power plants can switch to cheaper fuel options during off-peak hours, but must burn oil during peak hours due to "reliability rules"). If that demand can be met by cheaper means, such as demand management, or DER, then peak-driven costs may come down, and rates should follow (and to the extent that the REV succeeds in driving down rates, it should create additional room for introducing a price on GHG emissions).

67. However, to the extent that the REV results in the displacement of baseload generation, it may back down the cleanest sources in the bulk system, including carbon-free sources such as nuclear, hydro, centralized wind and solar, as well as the cleanest and most efficient fossil plants. As noted elsewhere, emissions from centralized generation are governed by existing environmental regulations, *see, e.g.*, *infra* note 95, and pricing systems, such as the RGGI, *infra* note 119, and the newly proposed Clean Energy Standard, CES WHITE PAPER, *supra* note 13—all non-REV processes.

generates 33.9% of the State's GHG emissions.[68] Nationally, where electric generation is the single greatest source of GHG emissions, these sources nonetheless account for less than a third of total emissions (31%).[69] A climate strategy that addresses GHG emissions economy-wide would have much greater impact.

I. Price Signals and Attainment of GHG Emissions Reductions in a Cheap Fossil Fuels Market

1. The Ratemaking White Paper Recognizes the Importance of Price Signals

The Ratemaking White Paper acknowledges the importance of price signals:

> The crux of the issue is that residential and small commercial customers are not provided with information about the true components of cost or the means to effectively respond to the price signals such information can provide. Similarly there is an incomplete understanding of the full value that DERs provide to the system, and thus insufficient information on which to base investment and usage choices. This situation requires us to better determine . . . the benefit that should be provided to the customer in terms of total cost avoidance or reductions to the distribution system by DER, which the Commission has referred to as the "value of D."[70]

Clearly, NYSPDS recognizes the fundamental role of price signals in the electric utility markets—in a basic sense, that's what the Ratemaking White Paper is mostly about. Yet the Ratemaking White Paper does not appear to include a customer-facing cost of carbon in that signal to reflect GHG emissions in the valuation of "DER assets." This omission raises important question about the

68. N.Y. STATE GREENHOUSE GAS INVENTORY AND FORECAST, *supra* note 15, at S-2.

69. *Sources of Greenhouse Gas Emissions*, EPA (Dec. 11, 2015), http://www3.epa.gov/climatechange/ghgemissions/sources.html [https://perma.cc/2VU8-9D5Q].

70. *See* RATEMAKING WHITE PAPER, *supra* note 3, at 75; *see also id.* at 73 ("Rate design sends price and value signals that influence customer actions . . . [and must] take into consideration policy objectives, including New York's policy commitments to energy efficiency and renewable energy."); *id.* at 81 ("Efficient price signals and transparency are hallmarks of a successful market."); *id.* at 86 ("[T]he benefit of a particular rate design . . . [includes] behavioral signals it sends to its customer."); *id.* at 86–87 ("Value signals can be sent via the rates customers are charged for the electricity they use, or via the compensation customers are offered for the service their DERs can provide, or both.").

REV's ability to deliver on emissions reduction goals, especially in a cheap fossil fuels environment.

2. REV's Pricing Formula and GHG Emissions

"LMP+D" is the core pricing construct at the heart of DSP-based market, and therefore central to the REV reforms themselves.[71] "LMP," or location-based marginal pricing, is the actual price power commands on its electricity value alone at a specific location.[72] "D" is a placeholder for positive impacts on the electric distribution system of DER, or "other values" of DER accruing to the distribution system not otherwise reflected in the energy value of the electricity itself.[73] Together, LMP+D is the REV's proposed formula for setting electric rates and lies at the heart of the REV's strategy. "Determining LMP+D is particularly important in the context of REV . . . it is essential to quantify the distribution system value that DERs can provide."[74] In other words, within LMP+D lies the price signal that is intended to guide electric generation and consumption decisions, and, in theory, level the playing field

71. *Id.* at 75.

72. *Id.*

73. These "other values" include load reduction, frequency regulation, reactive power, line loss avoidance, and resilience. *See id.* at 91. As the Ratemaking White Paper acknowledges, "[w]hile the LMP is already well established and transparent, the value of D is not." *Id.* "D" is elsewhere defined as "total cost avoidance or reductions to the distribution system [achieved by using] DER . . . ." *Id.* at 75.

74. *See id.* at 91; *see also id.* at 94 ("[W]here the customer actively participates in a utility's [demand response] program, or through some other means interacts with the grid as an active consumer or prosumer, the full value of the DER should be calculated based on the LMP+D and should inform the level of compensation paid."). Clearly, the focus of REV is on provision of location-based load support; while valuable in its own right, this measure does not capture the benefits of avoided GHG emissions. To the contrary, an on-site diesel or other fossil-fueled generator could potentially yield a price capturing LMP+D support to the same extent as a solar array—perhaps even to a greater extent, considering the grid support available from, say, a diesel generator that is dispatchable at any time of day. Depending on how both "D" and the GHG admissions adder are ultimately valued, the pricing processes of the REV could value fossil DER's dispatchability more highly than the avoided emissions value of non-emitting DER and, despite the BCA analysis, fossil DER potentially could still outcompete renewable DER, especially if intermittent. We cannot know with certainty at this point because the pricing regimes—both for the value of "D" and for avoided carbon emissions—is still in formation. The point, however, is that various formulas in the REV could permit such a result. *See, e.g.*, REV PROPOSAL, *supra* note 6, at 14 (advising that "valuation of different types of DER will depend on a number of factors," including whether source is intermittent or dispatchable, and "response time of a given resource," factors which favor fossil generation over renewables); STRAW PROPOSAL, *supra* note 6, at 35 (noting that the REV platform "will facilitate market dispatch of *controllable* DERs") (emphasis added).

between decentralized (or distributed) and centralized energy resources, to the benefit of DER. Conceptually, the LMP+D construct is the engine that makes the REV run, and gets DER "into the game"; getting D "right" is critical to the REV project.

I do not take issue with this as far as it goes. However, a major deficiency is that the LMP+D formula, as presently conceived, adds nothing new to account for emissions.[75] Therefore, the emissions profiles of competing energy resources will not influence the treatment of DER transactions—i.e., the generation and consumption of electricity provided by DER—under the formula.[76] The only mention of "emissions reduction" in this critical discussion is on a list of several "[o]ther values not directly related to the distribution system,"[77] which presumably are not to be accounted for in ratemaking. Fundamentally, this critical aspect of the REV system appears not to have been devised by authors who

75. The addition of "D" to the LMP pricing formula does not introduce any new factor to account for emissions: the values benefitting the distribution system, as defined, have nothing to do with climate change avoidance and little even with respect to adaptation. On the other hand, emissions costs of sulfur oxides ("SOx") and nitrogen oxides ("NOx") from centralized generation are already reflected in LMP because the cost of obtaining emissions permits for those pollutants and air pollution control expenses are part of the costs that build up the centralized generation price (no different than, say, fuel, rent, and labor and anything else that may go into generating a kilowatt of electricity). *See* BCA ORDER, *supra* note 3, at 15–16 (discussing Congestion Assessment and Resource Integration Study Approach 1). A price on carbon emissions associated with centralized generation is also included in LMP via the RGGI price of carbon, albeit weakly. *See infra* note 119. Eventually, the cost of renewable energy credits ("RECs") obtained for fossil generation under the CES may be included in the LMP price as well. BCA ORDER, *supra* note 3, at 16. The key point, however, is that while LMP reflects at least some of the emissions externalities associated with electric generation from centralized fossil fuel facilities, this is not necessarily the case for DER fossil-based generation, which sits outside of the pricing and emissions control regimes applicable to centralized generation only. If fossil-generated DER does not bear these costs, the REV could have the unintended consequence of driving generation from lower-emitting (per unit energy) centralized facilities toward more leniently regulated DER. The REV's BCA Order has tried to account for this by crediting in utility DER procurement accounting the positive emissions benefits that may be associated with (non-fossil) DER. *See id.* While this impulse is commendable, some of the limitations of this approach are discussed *infra* notes 79–80 and accompanying text.

76. As discussed *infra* note 82 and accompanying text, under the BCA Order, only utility-procured DER transactions will reflect the cost of externalities associated with GHG emissions. Emissions profiles will influence centralized generation transactions no more than they already do today under LMP, i.e., under the pre-REV rubric, which reflects RGGI and other existing air pollution control compliance costs imposed on centralized generation. *See supra* note 75. As noted above, the cost of CES compliance may eventually be added to the cost and price of centralized generation as well. *Id.*

77. *See* RATEMAKING WHITE PAPER, *supra* note 3, at 91.

had climate goals first and foremost in their minds; as in much of the rest of the Ratemaking White Paper, the limited and vague reference to "emissions" appears to be an add-on. In the formulation of the Ratemaking White Paper, it is the impact on the distribution system that is the object of focus, and by design only those values pertaining to the distribution system—the value of "D"—will be reflected in the "[s]oftware to determine distribution-level marginal costs" to be adopted by New York utilities.[78] The failure to devise or even consider a price on GHG emissions in customer-facing energy pricing is the fatal flaw that separates what the REV is doing from the rhetoric and promises around it. There has been no apparent consideration in any REV documents of whether, how, or when price signals capturing the externalities of fossil fuel combustion of the type discussed in the Benefit Cost Analysis ("BCA") Order would be reflected in ratemaking.[79]

The price of carbon developed in the BCA Order, while a step in the right direction, has important limitations. The Commission previously offered assurance that "a BCA will inform the development of tariffs and other transactions to achieve the best

78. *Id.*

79. Where application of the BCA Order analysis leads to an "adder" for the cost of carbon in utility-procured DER selection, this additional cost will presumably not be seen by the customer but will instead be blended into customer-facing rates. *See* BCA ORDER, *supra* note 3, app. C at 16. At least the BCA Order, which is applied to only utility and not customer procurements, has not set out any process for enabling end-users to discriminate based on the cost of competing sources of generation. In fact, in the process envisioned by the BCA Order, which is based on payment of an "adder" for the benefit of the avoided cost of carbon, the utility's payment to generators would be greater for non-emitting generation. *Id.* app. C at 16. If this increment were in fact captured and passed on to the users in a customer-facing price linked to particular generation sources, it would actually make non-emitting sources more expensive to the user. Such an approach of course would produce results backwards from the intended effect. Stated differently, the DER pricing process envisioned by the BCA Order will be either (a) invisible to the customer, with the result that the utility would cross-subsidize non-emitting (and high D value) sources, without any signal being passed on to the customer to steer consumption choices; or (b) visible to the end-user, in which case a perverse incentive would steer users to emitting sources that do not carry an extra price reflecting the value of avoided carbon emissions. On the other hand, if the "bad"—the emissions—were charged, the signals would be correctly aligned. It is only in "later-stage" REV that consumer selection on a platform is envisioned to enable consumers to pick and choose particular sources of electric generation. No REV document to date indicates how customers using such a platform would be incentivized to select low-emitting DER as opposed to contracting for fossil resources. If in such a system fossil generation is doubly cheap because of the low price of fossil fuels and because it does not bear an "adder" paid to non-emitting sources, there can be little doubt of the result.

result for the public."[80] However, the Commission's recently issued BCA Order appears to be much too narrow in application to achieve this result.

As set forth in the BCA Order, the REV's BCA analysis, which will value the cost of avoided carbon emissions at the social cost of carbon developed by the U.S. Environmental Protection Agency ("EPA"),[81] will be applied only to the special case of *utility* expenditures on DER, and will not be visible to end users.[82] That

80. *See* FRAMEWORK ORDER, *supra* note 3, at 125. The BCA process raises concerns of its own. The problem with the BCA Order is not the value assigned to the cost of carbon emissions. The Commission's selection of EPA's social cost of carbon was reasonable and may well be the first instance where that value, currently about thirty-nine dollars per ton, has been applied by a state or federal regulatory body to actual transactions in the United States. *See* BCA ORDER, *supra* note 3, app. C at 4. Rather, the issue is the mechanism and scope of the application of the carbon price. Also of concern is that, instead of directly applying the cost of GHG emissions to prices, the REV envisions development of a "BCA Handbook" for utilities to evaluate different DER resources so they can "accurately assess[] the amount of energy, capacity, and other benefits that these resources provide, and how often, when, and where they will be provided." N.Y. DEP'T OF PUB. SERV., CASE 14-M-0101, STAFF WHITE PAPER ON BENEFIT-COST ANALYSIS IN THE REFORMING ENERGY VISION PROCEEDING 9 (2015) [hereinafter "BENEFIT-COST WHITE PAPER"]. The Staff then proposed a methodology to characterize DER resource profiles, to determine reductions in energy, capacity, and ancillary services needs, as well as synergies between resources, and that "utilities be required to provide an example of how all benefit and cost components will be applied to an illustrative portfolio of alternative resources." *Id.*

Rather than relying on adherence to the discretionary guidance in a BCA Handbook for the success of price signals and resulting emissions reductions, the Commission and the State should instead favor deployment of a negative price mechanism on GHG emissions that would present itself in every transaction at the point of sale. Utilizing an actual price on carbon would be much simpler, more transparent, comprehensive and direct—values lionized elsewhere in the REV proceeding—to the investor, utility, generator, consumer and prosumer, and would avoid creation and reliance upon a necessarily subjective process of applying the BCA Handbook on a case by case basis. As NYSERDA Chair Richard Kauffman has recognized, markets, not programs are key to delivering a clean energy future. Stephen Lacey, *New York's Energy Czar: We Need Clean Energy Markets, Not Programs or Mandates*, GREENTECH MEDIA (Nov. 24, 2014), http://www.greentechmedia.com/articles/read/new-york-energy-czar-we-need-clean-energy-markets-not-programs [https://perma.cc/V33N-EWL6]. Devising and applying tariffs and subsidies is the more bureaucratic alternative. A carbon tax would signal all market participants with a single measure, based on the CO_2e value of each fuel sold and, if applied to all fuels sold in the State, would have the added virtue of capturing GHG emissions beyond the electric sector as well. Markets are the delivery mechanism, but they must be shaped to achieve the policy objective. *See infra* note 103.

81. The EPA's "social cost of carbon" model calculates a carbon price of thirty-nine dollars per ton of carbon emitted in 2015, and forty-six dollars per ton for 2020 emissions (utilizing the three percent discount rate adopted by the Commission). BENEFIT-COST WHITE PAPER, *supra* note 80, app. C at C-7.

82. *See* BCA ORDER, *supra* note 3, at 1–2 (declaring that BCA Analysis will be applied to "utility expenditures" including procurement of DER through competitive selection and

focus omits price signals for GHG externalities from large categories of electric sector energy transactions, including customer-procured fossil DER (via the iPad-like DSP screens), behind the meter installation and operation of fossil-fueled DER,[83] and centralized energy generation,[84] not to mention the eighty percent of New York GHG emissions outside of the energy sector. Although the Ratemaking White Paper and other key REV documents at times emphasize providing price signals to users, that is simply not contemplated in the BCA Order, which applies only to

tariffs, and to assess portfolios rather than individual measures); *id.* at 3 (declaring purpose is to "identify opportunities to avoid traditional utility distribution and investments by calling upon the DER marketplace").

Another drawback is that the BCA Order's approach to pricing carbon emissions is only temporary. *Id.* at 18. Once the CES is implemented, the EPA cost of carbon would be withdrawn and the adder value would be replaced with the value of RECs established under the CES. *Id.* ("After the CES programs are established, those compliance costs would be substituted for the EPA estimates."). But the value of the RECs is based on the cost of meeting the renewables targets imposed, not a calculated value of the cost of carbon. *See* CES WHITE PAPER, *supra* note 13, at 13 (stating that load-serving entities ("LSEs") may "purchase tradable RECs, or if an LSE owned or controlled the RECs from eligible generation, at the LSE's option a portion could be self-supplied"). This is not equivalent to a calculated cost of carbon. Rather, the price of RECs will indicate the scarcity value of renewables resulting from the renewables mandates. That means the value of RECs will depend on the renewables target imposed and the difficulty of reaching the target. Applying the CES RECs price to DER would make the DER adder value consistent with the CES mandate cost applied to centralized generation, but will not reflect the climate change damage caused by emissions.

83. *See, e.g.*, GEIS, *supra* note 7, at B-22 (acknowledging that emissions mitigation measures may not cover small-scale generators participating in REV markets but not expressly entering into transactions to sell services); *id.* at 5-7 ("REV creates the potential for proliferation of small combustion sources which, in the aggregate, could result in more emissions than an energy structure based on centralized sources of fossil fuel generation . . . . [Such risk] arises from the potential of use of backup generators to provide demand response for non-emergency (i.e., economic purposes) [sic]. Moreover, this risk exists even if all facilities are in compliance with applicable codes and regulations."); MATTHEW CHRISTIANSEN & ELIZABETH B. STEIN, THE RISE OF DG: OPTIONS FOR ADDRESSING THE ENVIRONMENTAL CONSEQUENCES OF INCREASED DISTRIBUTED GENERATION 17 (2016), http://guarinicenter.org/wp-content/uploads/2016/02/DG-Policy-Br-Rough-Draft-vFINAL.pdf [https://perma.cc/M6DG-SMKT] ("The principal limitation of this focus on regulating participation in markets or programs (through demand response or otherwise) is that they would not address emissions from fossil-fuel-fired generators that are merely responding to high prices.").

84. As discussed above, *supra* note 82, the CES will require the purchase of RECs, which may act like an adder to the price of fossil-fueled generation. CES WHITE PAPER, *supra* note 13, at 13. However, where the utility has met the renewables target, no RECs will need to be purchased for the remaining fossil generation in the fleet. *Id.* Consequently, such carbon emitting generation would not bear a cost of carbon (other than the low existing RGGI price).

direct utility procurement of DER and is not a customer facing price signal (and therefore does not inform user choice or affect behavior).[85] Such "adders" will reach customers in only an aggregated or blended way (like the RGGI price). Still, the BCA's cost of carbon adder is a step in the right direction—although its limited scope (and interim nature[86]) leaves a large hole in the price signals given to the marketplace, even the limited DER marketplace. While under the BCA Order utility procurement of fossil DER would bear a price to reflect the externality cost of carbon, fossil DER will continue to lack a carbon price in the general marketplace (e.g., behind the meter generation for customer use only, likely the largest component of small scale fossil). Consequently, the potential for "leakage" from higher cost generation—centralized and utility-procured fossil generation bearing a cost of carbon, as well as renewables—in favor of behind the meter[87] and customer-procured fossil DER remains great and has the potential to be an environmentally counterproductive result of the REV, unless a mechanism is put in place to impose a carbon price signal across the general marketplace.

Importantly, the directive to account for the cost of carbon is ultimately contingent and non-binding.[88] The EPA cost of carbon value that emerged from the BCA process is intended to be applied

85. *See* BCA ORDER, *supra* note 3, at 1–2.

86. *See supra* note 82; BENEFIT-COST WHITE PAPER, *supra* note 80, at 18.

87. Apparently, no inventory of New York fossil DER presently exists, although it is generally believed that behind-the-meter fossil units predominate. This makes sense because to date there has been little if any opportunity to sell into the grid by fossil DER: this opportunity will present itself in response to REV. *See* GEIS, *supra* note 7, at B-19 ("[D]ata on the total universe of backup generators used in the State for both emergency and non-emergency purposes is not currently available."); CHRISTIANSEN & STEIN, *supra* note 83, at 13 (stating that policy options would benefit from effort by regulators to develop better information regarding the type, number, location, and hours of operation of fossil-fuel-fired distributed generation units already in operation). *But see* STRAW PROPOSAL, *supra* note 6, at 34 n.24 (reporting that fossil-fueled sources accounted for ninety-three percent of on-site generation used for demand response in neighboring PJM wholesale electric market).

88. *See* BCA ORDER, *supra* note 3, at 3 ("The outcomes of the BCA analysis should allow for judgment and where appropriate for a qualitative assessment of non-quantified benefits."); *id.* at 13 (providing that measure that otherwise would be taken based on factoring GHG avoidance benefit can be rejected based on its impact on customer bills); *id.* at 29 ("Flexibility, however, would be incorporated to allow for recognition of unique project features and regional variations."); *see also* BENEFIT-COST WHITE PAPER, *supra* note 80, at 9–10 ("The Handbooks should apply common analytics and framework . . . [but] staff recognizes that a balance needs to be struck between standardized assumptions that make program-level BCA manageable and transparent, and allowing a limited amount of flexibility to recognize possibly unique aspects of certain projects or resources.").

amidst a welter of complex considerations by utilities as they choose among competing generation resources, subject to judgment calls and "flexibility." The REV's carbon adder is not an immutable "fact of life" price signal, such as a tax.

3. Decentralization v. Emissions Reductions

The architects of the REV appear to have largely conflated decentralized energy sources with low- and no-carbon energy sources.[89] While DERs are often renewable sources such as rooftop solar or demand management measures, that is not always or necessarily the case, as distributed generation can also include small-scale fossil fuel burning units, such as small diesel generators and combined heat and power ("CHP," also called co-generation) units.[90] Fossil-based DER can also include, for instance, back-up generators installed for emergency power after Hurricane Sandy that may see additional use in response to peak pricing.[91] Likewise, while centralized generation often brings to mind large fossil-fuel burning facilities, centralized generation sources also include utility scale wind and solar, nuclear and hydro, all zero-carbon sources of

89. *See, e.g.*, REV PROPOSAL, *supra* note 6, at 1-18 (asserting that decentralized generation will result in greater environmental benefits).

90. GEIS, *supra* note 7, at 5-21 (indicating that customer-sited energy has mostly focused on solar photovoltaics, but can also include solar thermal, fuel cells, anaerobic digesters, microturbines, fossil-fuel distributed generation, and on-site wind energy). CHP units have best-case efficiencies that can effectively compete with centralized fossil generating units on an emissions per unit output basis, with two caveats. First, the centralized fleet includes zero-emissions sources, and that will increasingly be the case under the CES. *Id.* at 2-17 (describing how New York's generation fleet "is shifting as older facilities are retired and new renewable sources are developed"). CHP will always have greater emissions than such sources. Second, while CHP units can attain eighty percent energy efficiency in ideal circumstances, in practice efficiencies may be less. *See* Kurt Scheuermann et al., *Actual Performance of CHP DG Systems Installed for Industrial Applications in California*, *in* ACEEE SUMMER STUDY ON ENERGY EFFICIENCY IN INDUSTRY (2009), http://aceee.org/files/proceedings/2009/data/papers/1_44.pdf [https://perma.cc/5M9R-N85F] (reporting field efficiency rates ranging from forty-four percent to eighty percent); Tim Dwyer, *Application of Small-Scale Combined Heat and Power*, CIBSE J. (June 2013), http://www.cibsejournal.com/cpd/modules/2013-06/ [https://perma.cc/24MH-RH4R] ("[S]easonal efficiencies will be dependent on the matching of the year-round local thermal load to the heat produced by the CHP."); *see also* GEIS, *supra* note 7, at 4-6 n.307 (discussing considerations in assessing net environmental impact of CHP units).

91. CHRISTIANSEN & STEIN, *supra* note 83, at 17 (regulating participation in markets through demand-response or otherwise would not address emissions from fossil-fuel-fired generators operated by owners who are merely responding to high prices to reduce their own demand, as opposed to seeking a tariff providing compensation for the use of distributed generation).

generation.[92] In addition to leveling the playing field for DER, more importantly, State policy should level the playing field for all sources of low- and no-carbon generation by including a negative price signal, whether apart from or as part of the REV, directly applied to all sources of GHG emissions, in order to internalize the costs of GHG emissions.

The Framework Order itself recognizes that "distributed generation is not inherently lower in emissions, or greater in efficiency, than centralized generation. . . ."[93] Confusingly, following this acknowledgment, the Framework Order nonetheless asserts that "a system steeply biased toward centralized generation prevents the cleanest and most efficient mix of generation from being developed."[94] There is no evidence offered for this assertion; in fact, it is manifestly incorrect with respect to centralized generation sources such as hydro, nuclear, and utility scale wind and solar photovoltaics ("PV").[95] Thus, while the Commission

92. The proportion of zero-emitting sources generating electricity as part of the centralized bulk power system will increase once the CES takes effect and imposes a target of fifty percent renewable generation by 2030. CES WHITE PAPER, *supra* note 13, at 2.

93. FRAMEWORK ORDER, *supra* note 3, at 26.

94. *Id.*; *see also id.* at 26–27 ("[D]ynamic load management contemplated by REV will also make it functionally feasible to operate a very-low carbon generation system."). The Framework Order thus confuses the potential to ease the reliability challenges of intermittent (such as wind and solar) and distributed generation—valuable contributions to be sure—with actual reduction of carbon emissions. True, the REV's "dynamic load management" could facilitate the distribution system's accommodation of greater DER than might otherwise be feasible, but it begs the question of what, absent a price signal, is going to drive the transition to decentralized non-utility procured renewables in the first place, even before we get to the question of whether maximum levels can be "enabled." In addition, it is unclear why the Ratemaking White Paper considers there to be a bias favoring centralized generation, which carries compliance obligations with respect to conventional pollutants and allowance prices with regard to NOx, SOx, and, to a lesser extent, CO_2 under RGGI. To the contrary, the real risk is that lightly regulated fossil-based DER will out-compete centralized generation, despite its likely more harmful environmental profile (per unit energy).

95. Moreover, with respect to fossil fuels, one would expect that centralized generation, with its economies of scale, can achieve the greatest efficiencies and pollution control. For example, a state of the art H-Frame generator in a combined-cycle configuration can attain sixty percent or greater efficiency. *See Gas Turbine SGT5-8000H, World's Most Powerful 50-Hz Gas Turbines with a Capacity of 400 MW*, SIEMENS, http://www.energy.siemens.com/hq/en/fossil-power-generation/gas-turbines/sgt5-8000h.htm [https://perma.cc/92E5-NFFQ] (last visited Apr. 19, 2016); *Power Generation: 9HA.01/.02 Gas Turbine (50 Hz)*, GEN. ELECTRIC, https://powergen.gepower.com/products/heavy-duty-gas-turbines/9ha-gas-turbine.html [https://perma.cc/3DDA-5KBR] (last visited Apr. 19, 2016). This is far more efficient and cleaner than small scale back-up generators. *See, e.g.*, William Pentland, *Backup Generators Are the Bad and Ugly of Decentralized Energy*, FORBES (Apr. 15, 2013), http://www.forbes.com/sites/williampentland/2013/04/15/backup-generators-are-the-bad-and-ugly-of-

observes that "[i]ncreased PV, wind, fuel cells, geothermal systems, and energy efficiency will reduce emissions," it does not in the Framework Order appear to recognize that many such systems may be best developed at utility scale, including PV and especially wind.[96] Since DERs per se do not necessarily deliver on GHG

decentralized-energy [https://perma.cc/WCV3-Y782?type=image]. Decentralized, smaller scale facilities will tend not to support, nor be obligated to install, the advanced, capital intensive air pollution control measures deployed at utility-scale. *See, e.g.*, GEIS, *supra* note 7, at 5-7 n.355 and accompanying text.

Although Staff was directed by the Commission to "cooperate with [the Department of Environmental Conservation] to develop rules that avoid or mitigate the potential for harmful local emissions" from DER, FRAMEWORK ORDER, *supra* note 3, at 44, that focus, on local toxicity, simply omits GHGs, which are harmful only by virtue of their aggregate emissions into the global atmosphere. Moreover, the proposed New York DER emissions rules are more lenient with respect to conventional pollutants than the standards applied to centralized generation. *Compare, e.g.*, Standards for Particulate Matter (PM), 40 C.F.R. § 60.42Da(e)(1)(i)(A) ("11 ng/J (0.090 lb/MWh) gross energy output"), *with Proposed 6 NYCRR Part 222, Distributed Generation Sources Express Terms*, N.Y. DEP'T ENVTL. CONSERVATION, http://www.dec.ny.gov/regulations/104274.html [https://perma.cc/L7GW-PNV4] (last visited June 7, 2016) (setting a particulate matter emission limit of "0.30 grams per brake horsepower-hour"—three orders of magnitude more emissions per unit energy; applies to diesel generation only). Plainly, emissions from decentralized sources are much harder to regulate. *See also* Elizabeth Stein, *New York's REV Proceeding Envisions a New Clean Energy Marketplace—But How Clean Is It?*, ENVTL. DEF. FUND: ENERGY EXCHANGE (Mar. 19, 2015), http://blogs.edf.org/energyexchange/2015/03/19/ new-yorks-rev-proceeding-envisions-a-new-clean-energy-marketplace-but-how-clean-is-it [https://perma.cc/W66A-627U] (stating that without adequate rules in place, risk that "REV itself becomes a driver of [localized] emissions . . . [and] the risk that REV won't drive environmental benefits—or that it will actually cause environmental harm—will persist until the new marketplace actually shows that it is able to drive widespread adoption of clean energy"). In addition, the State's proposed Part 222 does not address the full range of hazardous and other air pollutants regulated for large-scale generation units. *See, e.g.*, GEIS, *supra* note 7, at 6-6; CHRISTIANSEN & STEIN, *supra* note 83, at 5 nn.16–17 and accompanying text (discussing air pollutants emitted by diesel-fired backup generators). By contrast, proposed Part 222 would regulate particulate matter only and, in some cases, NOx. *See Proposed 6 NYCRR Part 222, Distributed Generation Sources Express Terms*, *supra*.

96. *See* FRAMEWORK ORDER, *supra* note 3, at 26. Indeed, critical to the growth of wind energy has been the development of turbine and tower size on a scale that is plainly beyond the reach of "prosumers." *See, e.g.*, N.Y. INDEP. SYS. OPERATOR, 2016–2020 STRATEGIC PLAN 2 (2015), http://www.nyiso.com/public/webdocs/company/strategic_plan/2016-20_Strategic Plan_final.pdf [https://perma.cc/D6VN-CGAA] ("Transmission investments will be necessary to optimize flow of electricity from clean energy sources, which are predominantly located far from downstate New York load centers where they're needed most."); William Opalka, *New NYISO Head: New York a 'Fantastic Opportunity,'* RTO INSIDER (Dec. 7, 2015), http://www.rtoinsider.com/nyiso-brad-jones-20256/ [https://perma.cc/YX8Q-TMV4] (quoting New York Independent System Operator CEO Bradley Jones discussing transmission proposals to access large scale wind resources in northern New York to help state meet renewable electricity goals); *see also* Roberts, *Big Solar Is Heading for Boom Times in the US*, *supra* note 42.

emissions reductions goals, we should not assume that they will. Rather, promotion of DER will reliably foster low-carbon choices only in the context of an appropriate and adequate price signal.

The basic architecture of the REV places an overarching priority on encouraging decentralized generation, regardless of the emissions profile of a source.[97] The LMP+D ratemaking formula incentivizes distributed generation even if it relies on fossil fuel combustion; attempting to rebalance this basic feature with BCA counterincentives creates a convoluted system. A better and clearer approach would be to impose an explicit, nonnegotiable system-wide price signal on GHG emissions. For other regulatory reasons, such as avoiding peak-driven investment costs, the Commission also desires to promote DER in its own right;[98] however, this objective should be subordinated to attaining GHG reductions. That can be accomplished, as suggested throughout, by imposing the externality cost of carbon emissions on all fossil fuel combustion in the general marketplace. In addition, in order to avoid subsidizing fossil fuel generation of any type, the "value of D" pricing benefits should be withdrawn altogether for fossil-fueled DER as a matter of policy.

From a climate change standpoint, then, the key question is not whether generation is centralized or decentralized, but the extent of its GHG emissions.[99] By focusing predominantly on centralization versus decentralization, the REV addresses the wrong question (at least from an environmental standpoint).[100] For it remains an open question as to whether low-carbon sources can best be organized on a centralized or decentralized basis. As the Ratemaking White Paper recognizes, optimizing rates also "is important even for customers who do not employ DER," since centralized station generation will certainly be around for a long time to come owing to the need for reliability as well as inertia,

97. GEIS, *supra* note 7, at 1-18.

98. REV PROPOSAL, *supra* note 6, at 3–4.

99. *See, e.g.*, GEIS, *supra* note 7, at 2-5 (recognizing that utility-scale renewable energy resources support the objective of decreasing reliance on fossil-fuel based generation, while distributed generation resources may result in an increase in emissions); *id.* at 4-6 (observing that for fossil fuel distributed generation, the reduction in grid-supplied electricity does not contribute to emissions reductions, and concluding that uncertainty regarding potential impact of REV precludes feasibility of assessing effect on emissions from displacing centralized generation with fossil-fueled DER).

100. *See generally* REV PROPOSAL, *supra* note 6, at 3.

stranded investments, etc.[101] A carbon price would assure that purchase, generation, and investment decisions, whether regarding centralized or decentralized generation, would reflect the cost of GHG emissions. DER is not a proxy for low-carbon generation, although the Framework Order's discussion treats it like it is. We need to decarbonize whether consumers ultimately choose DER or not.

4. Assumptions About GHG-Reducing Behavior Absent Price Signals

The Ratemaking White Paper implicitly assumes that unleashing the marketplace—by reducing barriers to entry, creating pricing transparency, etc.—will be sufficient to deliver on environmental goals, including the reduction of GHG emissions. It is worth asking, however, what such unleashing is likely to yield in a low-price fossil fuel environment.[102] Missing from the REV is the critical element that would shape the market to deliver the right policy outcome in terms of GHG emissions.[103]

Oddly enough, the Ratemaking White Paper does recognize that "a number of important public policies must be balanced and considered in establishing rate levels and designs," including "environmental protection."[104] The problem, however, is that such discussion as there is—albeit of a most general and limited nature—about reflecting environmental costs in rate design (i.e., pricing) seems confused. For example, the Ratemaking White Paper refers to affording customers an "*opportunity* to . . . reduce environmental impact" as one of the critical variables in rate

101. The Framework Order considers the shift toward greater reliance on natural gas to have been a "first-stage carbon reduction measure," but one that "poses a challenge to meeting long-term carbon goals." FRAMEWORK ORDER, *supra* note 3, at 24. Although combustion of natural gas yields less CO_2 per British Thermal Unit than coal, for a true picture of the GHG impact of natural gas, it is necessary to consider the entire natural gas life cycle, including, especially, fugitive methane emissions, as methane is a much more potent GHG than CO_2, molecule for molecule. For this reason, life cycle methane emissions should be reflected in developing a CO_2e value for natural gas.

102. Interestingly, no NYSDPS analysis available in the public record appears to have considered the impact of low fossil fuel prices on energy choices. *See infra* notes 29, 45; *see generally DPS – Reforming the Energy Vision: Key Documents*, *supra* note 48.

103. *See, e.g.*, NORDHAUS, *supra* note 18, at 233 ("[M]arkets alone will not solve [global warming]. There is no genuine 'free-market solution' to global warming . . . mechanisms can use the market, but they must be legislated and enforced by governments.").

104. RATEMAKING WHITE PAPER, *supra* note 3, at 77–78.

design.[105] However, environmental impact, and more specifically, reducing GHG emissions, is not fundamentally an issue of consumer choice (e.g., a preference on the part of some to reduce GHG emissions, while others may be indifferent or even prefer to use fossil fuels). Rather, as Governor Cuomo has made unmistakably clear, reducing GHG emissions, in New York and nationally, is more than that: it is a paramount question of public policy.[106] Energy pricing should reflect the State's fundamental interest in driving that policy.

Even if one presumes an important GHG emissions benefit from DER, the approach taken by the REV to foster that benefit seems unnecessarily difficult, for it attempts to positively value DER as opposed to simply negatively valuing GHG emissions (by taxing or imposing some other negative price signal on them).[107] After all, if DERs are going to sell electricity (or demand management) into the grid and be compensated at a higher rate, that would also tend to increase the cost to buyers (other consumers who are not generators), rendering the cost of fossil-generated electricity relatively more attractive, opposite the desired effect.[108]

The Ratemaking White Paper recognizes that a "large amount of investment will be made in the electric system in the coming years, by utilities and increasingly by third parties, DER providers, and end use customers."[109] Consequently, it is critical to have the correct price signal in place before this investment takes place so that the externalities of GHG emissions are reflected in the costs of various investment choices, including behind the meter

105. *See id.* at 86 (emphasis added); *see also* NOTICE, *supra* note 5, at 1 ("[P]rovide a market in which customers are able to optimize *their* priorities with respect to reliability, cost and sustainability.") (emphasis added); REV PROPOSAL, *supra* note 6, at 9 (stating the REV vision to allow customers to "optimize *their* individual priorities with respect to" factors including "sustainability") (emphasis added); *id.* at 31 (noting the need for REV to "develop products that appeal to the different motivations" of various customers); STRAW PROPOSAL, *supra* note 6, at 27 ("One objective of REV is to create consumer choices.").

106. *See* Cuomo, *supra* note 2.

107. *See infra* note 118. This approach is carried into the BCA analysis. *See* BCA ORDER, *supra* note 3, at 16 (emission-free DER to receive adder based on net marginal costs of CO_2 emissions).

108. On the other hand, if an enhanced DER price is utility-facing only, which seems to be the case, at least at the current stage of the REV's development, and invisible to consumers, then the utility is effectively being asked to cross-subsidize DER. In the case of fossil-fueled DER, payment of an enhanced price would work at cross purposes with intended GHG reduction policy.

109. RATEMAKING WHITE PAPER, *supra* note 3, at 74.

investments that will not participate in REV markets. Such an approach not only would send the right signal to consumers, but would steer private capital as well.

J. Service as a National Emissions Reduction Model

For the same reasons that the REV should not be relied upon as the principal engine of climate policy for New York, it also should not be considered the primary model for national efforts to reduce emissions: its prospects are too contingent and its ultimate effectiveness as an emissions reduction tool is too uncertain. If the timeline for adoption in New York is, according to NYSDPS Staff, unknown, then the timeline for eventual adoption by the rest of the country presumably could stretch for decades. Even amenable states predictably will want to observe REV's fortunes in New York before embarking on their own efforts. It is worth remembering that the previous deregulatory effort stalled out after approximately twenty states.[110] A better "model" for a GHG emissions strategy, therefore, is one that can work with whatever utility business model prevails in a given state.

None of the foregoing is intended to argue that the REV should not be adopted; rather, it should be considered on its own merits as a de-regulatory, decentralized generation and consumer-focused project. At the same time, though, we should not labor under the illusion that the REV, in its current form, in and of itself constitutes a climate change plan, and certainly not one robust enough to reach, or be the keystone of, New York's ambitious GHG reduction goals.

III. RECOMMENDATION: A PRICE ON CARBON

The Commission has expressed receptivity to consideration of "options for assessing the costs and benefits of renewable and other resources" proposed by Staff.[111] Notably, however, the most obvious and direct means of reflecting the environmental costs of GHG emissions—applying an explicit customer (or user)-facing price on CO_2e, which would be consistent with the Staff's proposed rate design principle that "[i]ncentives should be explicit and

110. *See, e.g.*, Roberts, *supra* note 16.
111. NOTICE, *supra* note 5, at 1.

transparent, and should support state policy goals"[112]—has not been entertained as part of the REV's ratemaking construct.

Nonetheless, the Commission itself recently issued a cogent statement lending support to the principles behind the introduction of a price on carbon. As the Commission recognized:

> [T]oo much of a public good, such as air or water that is free from pollution or a climate that is relatively stable, can be consumed when producers and consumers are able to disregard the effects of their action on the public good. Because of the effect of these externalities, public goods are not priced at the marginal cost that their use causes, in that the commodity market price is missing some or all of the "marginal damage costs" related to these externalities. Those marginal damage costs can be internalized through means such as taxes, command and control regulation, Cap and Trade (C&T) programs and other environmental permitting or restriction regulations.[113]

The Commission's first steps in this direction, as outlined in its BCA Order,[114] have been quite limited in scope, but suggest an intriguing precedent. The same logic that supports the carbon price in the BCA for utility-procured DER applies with equal force to all resources sold throughout the electric sector, and economy-wide as well.

Indeed, the Commission has expressly recognized that a price signal, introduced via a tariff or "markets that fairly price and value these [distributed generation] resources," is critical to "optimizing" DER development.[115] While apparently under continuing consideration, the Commission until now has been inclined toward reliance on a positive tariff, i.e., a guaranteed price for DER development, "informed by policy judgment," as the vehicle for reflecting "societal factors" such as environmental impacts.[116]

112. RATEMAKING WHITE PAPER, *supra* note 3, at 95.

113. BCA ORDER, *supra* note 3, at 14.

114. *See id.* at 15.

115. *See* FRAMEWORK ORDER, *supra* note 3, at 26; *see also id.* at 124–25 ("Accounting for environmental factors in analyzing investment decisions, and internalizing them into market transactions, are priorities of REV . . . . The manner in which this is accomplished, however, is open to debate.").

116. *Id.* at 124. The Commission's commitment to preserving "policy judgment" over specific transactions after a price signal has been established perhaps suggests a lack of confidence in the functioning of the market that it and the Staff elsewhere heralds. *See, e.g.*,

Here, though, the Commission hedges, stating that "taking environmental factors into account does not necessarily entail an 'externality adder' in every transaction."[117] It is axiomatic, however, that it is preferable to price a negative externality (or "bad") than to use policy judgment to attempt to identify and subsidize every alternative "good."[118] Yet nothing introduced by the REV, as currently formulated, actually would deliver a customer-facing price signal of any sort on emissions.[119] If the reasoning and logic

RATEMAKING WHITE PAPER, *supra* note 3, at 15 n.20 (citing ALFRED E. KAHN, THE ECONOMICS OF REGULATION: PRINCIPLES AND INSTITUTIONS (John Wiley & Sons 1970)).

117. FRAMEWORK ORDER, *supra* note 3, at 125.

118. *See, e.g.*, NORDHAUS, *supra* note 18, at 279 ("So in the end, it is much more effective to penalize carbon emissions than to subsidize everything else."); *see also* CARBON TAX CTR., DESIGN OF ECONOMIC INSTRUMENTS FOR REDUCING U.S. CARBON EMISSIONS 3 (2014) (asserting that no subsidies regime or system of rules and regulations "can elicit the billions of carbon-reducing decisions and behaviors that a swift full-scale transition requires"); ARIK LEVINSON, TAX POLICY CTR., THE TAX POLICY BRIEFING BOOK: A CITIZENS' GUIDE FOR THE 2012 ELECTION AND BEYOND, TAXES AND THE ENVIRONMENT II-11-1 (2007), http://tpcprod.urban.org/upload/Elements/II-11KEYELEMENTS_TAXESANDthe Environment.final.pdf [https://perma.cc/K24Q-KLT4] ("Economic theory suggests that taxes on polluting emissions will reduce environmental harm in the least costly manner."); Sakari Uimonen, *Emission Taxes vs. Financial Subsidies in Pollution Control*, 60 J. ECON. 281, 281 (1994) ("[S]ubsidies to a residual abating input do not necessarily lead to a reduction in the emission into the environment, whereas the emission taxes do."). Indeed, much of the promotion of renewables in the State Energy Plan revolves around one form of subsidy or another. *See* STATE ENERGY PLAN, *supra* note 2, vol. 1 at 26–41.

119. Some will point out that a price of carbon is already applied to electric generation under RGGI. However, even the recent record clearing price of carbon under RGGI, $7.50 per ton in the most recent auction, POTOMAC ECONOMICS, MARKET MONITOR REPORT FOR AUCTION 30, at 3 (2015), http://www.rggi.org/docs/Auctions/30/Auction_30_Market_Monitor_Report.pdf [https://perma.cc/Y3P6-FHPW], is almost universally acknowledged to be far below the level needed to internalize externalities and induce a meaningful effect on investment and consumption choices. *See, e.g.*, *The Social Cost of Carbon*, EPA, http://www3.epa.gov/climatechange/EPAactivities/economics/scc.html [https://perma.cc/E536-ADSA] (last updated Dec. 11, 2015) (estimating thirty-six dollars per ton for 2015, using three percent discount rate); *see also* Bob Litterman, *What Is the Right Price for Carbon Emissions?*, REGULATION, Summer 2013, at 38, http://object.cato.org/sites/cato.org/files/serials/files/regulation/2013/6/regulation-v36n2-1-1.pdf [https://perma.cc/6ZZD-NUHC] (reporting views ranging from $5 to $100 per ton); Ker Than, *Estimated Social Cost of Climate Change not Accurate, Stanford Scientists Say*, STAN. REP. (Jan. 12, 2015), http://news.stanford.edu/news/2015/january/emissions-social-costs-011215.html [https://perma.cc/3A7P-DXSW] (suggesting $220 per ton); John Wihbey, *Understanding the Social Cost of Carbon – and Connecting It to Our Lives*, YALE CLIMATE CONNECTIONS (Feb. 12, 2015), http://www.yaleclimateconnections.org/2015/02/understanding-the-social-cost-of-carbon-and-connecting-it-to-our-lives/ [https://perma.cc/7NZ7-6GSW] (reporting estimates of $37 to $266 per ton). Interestingly, the BCA Order's adoption of the EPA externality price for carbon emissions ($39 per ton for 2015 emissions) implicitly acknowledges that the RGGI price of carbon is too low. *See* BCA ORDER, *supra* note 3, app. C at 4. In fact, the Commission recognized that reflecting externalities through existing air emissions control

of the BCA externalities pricing analysis were applied more broadly—to the full suite of small-scale fossil usage, centralized energy generation, and beyond the electric sector itself—by placing a price signal directly on fossil fuel use throughout the State economy, New York would be in possession of a first-class precedent setting initiative. Indeed, the precedential value of the BCA analysis ordered, as opposed to its actual impact, should not be underestimated. In sum, New York has taken an important step analytically—it may be the first pricing regime in the United States to apply EPA's social cost of carbon to actual transactions. The key is to extend the same logic to all energy transactions. There is no analytical reason not to.

With a fixed, legally imposed price of carbon imposed on all fossil fuels, we would not need to rely on regulators' or utilities' "policy judgments" that evaluate each particular energy alternative that may seek to sell into the grid, or later, through the DSP platform. Rather, once the high-level policy judgment has been made to disincentivize consumption of carbon-based energy sources, the carbon price imposed on competing fuels can be determined technically based on respective CO_2e values.[120] Thereafter, the only remaining "judgment" necessary will concern price discrimination, which consumers and investors are perfectly competent to administer on their own.

The point for climate policy, in contrast to the discussion in the Framework Order, is not to "fairly" price DER against centralized generation;[121] "fair" pricing is of interest from a climate change standpoint only if that means that the externalized environmental cost of emissions will be captured and reflected in market prices. Because there is no apparent customer-facing mechanism in the core REV that would accomplish this, at least as of yet, there is no basis to expect that the envisioned pricing structure would sufficiently favor low-emissions generation per se, especially when compared to behind the meter fossil. A carbon tax, on the other

programs, including RGGI, "may not recognize the full marginal damage costs" associated with GHG emissions. *See id.* at 16.

120. The Ratemaking White Paper professes to favor a "technology-agnostic rate design." RATEMAKING WHITE PAPER, *supra* note 3, at 82, 102. However, agnosticism between GHG-emitting and non-emitting resources is not consistent with climate policy. We can be agnostic as between particular low- or no-carbon technologies once the general principle disfavoring GHG emissions is securely established via a price signal.

121. FRAMEWORK ORDER, *supra* note 3, at 26.

hand, would be explicit and transparent, would apply equally to DER and centralized generation, and more broadly across the State's economy, and would drive attainment of the State's ambitious GHG reduction goals articulated by the Governor.[122]

A carbon tax would be superior to the REV's LMP+D rate structure, and the associated administrative processes around it, as a primary mechanism for reducing GHG emissions. A carbon tax:

- Would squarely address GHGs.
- Can be quickly implemented.
- Is simple in concept, and less bureaucratic in administration than the process envisioned by the REV or the current system of subsidies.
- Is rooted in enforceable drivers.
- Would be transparent and create market certainty.
- Is not contingent on an untested effort to reshape or invent a business model for a major industry; rather, administering a carbon tax falls within the State's core competency.[123]
- Could easily be designed to apply to all sources of GHG emissions, not just those emitted within the electric sector or selling through the REV.

122. Carbon taxes have been successfully introduced elsewhere at the sub-national level. *See Carbon Tax*, *supra* note 62. The best known example is the Canadian province of British Columbia. *Id.* More recently, the province of Alberta adopted a carbon tax that will take effect in 2017. *Carbon Levy and Rebates*, ALTA. GOV'T, http://www.alberta.ca/climate-carbon-pricing.cfm [https://perma.cc/8NFJ-EASW] (last visited June 23, 2016). U.S. states currently considering a carbon tax include Massachusetts, Vermont, Rhode Island, Oregon, and Washington. *See States*, CARBON TAX CTR., http://www.carbontax.org/states/ (last visited Apr. 26, 2016) [https://perma.cc/UN9N-AWWF]. States recently raising or considering raising their gasoline taxes include Alabama, Alaska, California, Georgia, Hawaii, Indiana, Idaho, Iowa, Maryland, Michigan, Mississippi, Nebraska, New Jersey, Rhode Island, South Carolina, South Dakota, Utah, and Vermont, New Jersey being especially significant for New York because it would tend to even the playing field between the states and lessen undesirable leakage effects. *See* Carl Davis, *2016 State Tax Policy Trends: Nine States Seriously Considering Gas Tax Increases*, TAX JUSTICE BLOG (Feb. 17, 2016), http://www.taxjustice blog.org/archive/2016/02/2016_state_tax_policy_trends_n.php#.VwWUh_lVhBc [https://perma.cc/4JZX-E4PP]; Russell Berman, *How Red States Learned to Love the Gas Tax*, ATLANTIC (Mar. 31, 2015), http://www.theatlantic.com/politics/archive/ 2015/03/how-red-states-learned-to-love-the-gas-tax/389084/ [https://perma.cc/7GL9-3L5E].

123. There is hardly a more core governmental function than taxation. N.Y. CONST. art. III, § 22; N.Y. CONST. art. XVI, § 1; *see also* U.S. CONST. art. I, § 8, cl. 1 (taxing and spending clause).

- Can deliver on emissions reductions goals even in a cheap fossil fuel environment.
- Would send a price signal to investors, generators, prosumers, and consumers, even within the context of the DSP model being developed by the REV and thereby help the REV contribute to the State's emissions reduction goals. That is, a carbon tax would not work at cross purposes to the REV; rather, it can mesh with the DSP model to drive selection of low-carbon DER, and, unlike the REV, behind the meter as well.[124]
- Could be designed to be revenue neutral, if proceeds of the tax were returned to taxpayers as dividends or otherwise offset by tax cuts elsewhere.[125]
- Can serve as a national model regardless of the utility business model prevailing in other states. As Governor Cuomo declared at Columbia: "Our role is leadership, not just for the State of New York but on progressive issues to show the way for the rest of the nation."[126]

The REV, at least in aspiration, seeks to set rates to reflect environmental attributes.[127] The best, most simple and direct way to accomplish that is to price the negative environmental attributes of fossil-based energy, throughout the marketplace, as countless economists have opined.[128]

It is worth pausing to observe some projected budgetary and economic effects of a carbon tax in New York. New York's total fossil fuel expenditure in 2013 (petroleum derivatives, natural gas,

124. If REV succeeds in driving down peak-driven electric rates, additional room will be created for introducing a price on GHG emissions. *See supra* note 66.

125. For example, in New York a carbon tax could offset taxes on property, personal income, and business. *See* Andrew Ratzkin, *New York Needs Another Tax. No, Really*, CRAIN'S N.Y. BUS. (July 31, 2015), http://www.crainsnewyork.com/article/20150731/OPINION/150739983/new-york-needs-another-tax-no-really [https://perma.cc/A26Z-9H25].

126. Cuomo, *supra* note 1.

127. *See supra* notes 27, 104 and accompanying text.

128. *See, e.g.*, *Rogoff Joins the Pigou Club*, GREG MANKIW'S BLOG (Sept. 16, 2006), http://gregmankiw.blogspot.com/2006/09/rogoff-joins-pigou-club.html [https://perma.cc/H5TX-SS4N]; *see also Conservatives*, CARBON TAX CTR., http://www.carbontax.org/conservatives/ [https://perma.cc/3TQD-4TXF] (last visited Apr. 14, 2016); *Carbon Tax Bill Introduced into Assembly*, PR NEWSWIRE (Aug. 28, 2015), http://www.prnewswire.com/news-releases/carbon-tax-bill-introduced-into-assembly-300134771.html [https://perma.cc/F9KE-HPVM] (listing New York economists supporting a New York carbon tax).

and coal), was approximately $45 billion,[129] about $2300 per capita. A tax amounting to, say, ten percent of that total would yield approximately $4.5 billion in revenue. If these proceeds were to be collected on a revenue neutral basis, they could be used, for example, to offset New York's property or income tax collections by approximately ten percent,[130] and potentially more at the lower tax brackets if rebates were concentrated there to avoid regressivity.[131]

A carbon tax of thirty five dollars per ton, very close to the EPA 2015 valuation of the externality cost of carbon adopted by the Commission in the BCA Order, would translate to an increase of approximately thirty-one cents per gallon at the pump.[132] Even if the price of carbon later escalated to $180 per ton, the result some proposals seek, that amount would translate into a price increase of $1.58 per gallon at the pump.[133] For perspective, the average price of gasoline in New York State fell from $3.86 per gallon in June 2014 to $1.94 as of February 2016,[134] a drop that well exceeds the price impact of even the high-end projection of a carbon tax.

129. *See New York State Profile and Energy Estimate*, U.S. ENERGY INFO. ADMIN., http://www.eia.gov/state/data.cfm?sid=NY [https://perma.cc/FZ5L-EMGE].

130. Net personal income tax collections were approximately $43 billion for 2014. N.Y. DEP'T OF TAXATION & FIN., 2013–2014 NEW YORK STATE TAX COLLECTIONS: STATISTICAL SUMMARIES AND HISTORICAL TABLES 11 (2014), https://www.tax.ny.gov/pdf/stats/stat_fy/2013_14_annual_statistical_report_of_ny_state_tax_collections.pdf [https://perma.cc/2TZA-Y4TJ]. In 2009, property tax collections in New York State were approximately $44 billion ($29.97 billion outside of New York City plus $14.3 billion levied in New York City (2008 data)). *Property Taxes*, N.Y. DEP'T OF TAXATION & FIN., https://www.tax.ny.gov/pit/property/learn/proptax.htm [https://perma.cc/97MS-5E69]; Rosemary Scanlon & Hope Cohen, *Assessing New York City's Property Tax—Yet Again*, MANHATTAN INST., March/April 2009.

131. While concerns that a carbon tax could be anti-competitive are understandable, a carbon tax offset by reductions in other taxes depressive of economic activity could fairly be considered to be economically beneficial, or at least netutral. New York could further protect itself by adopting a carbon tax on a conditional basis so that it would take effect only after, say, two out of New York's five bordering states adopted similar legislation.

132. Calculation of the author based on formula contained in Sara Hsu, *A Carbon Tax for New York State* 1, 12, http://gelfny.org/wp-content/uploads/2015/12/NYSCarbonTax WhitePaper.pdf [https://perma.cc/ZL37-C2DB].

133. *Id.* at 1, 12. Tax on Carbon Based Fuels, A.B. 8372, 2015–2016 Reg. Sess. (N.Y. 2015) (proposing to increase tax gradually from $35 to $185 per ton).

134. *See Monthly Average Motor Gasoline Prices*, N.Y. ENERGY RESEARCH & DEV. AUTHORITY, http://www.nyserda.ny.gov/Cleantech-and-Innovation/Energy-Prices/Motor-Gasoline/Monthly-Average-Motor-Gasoline-Prices [https://perma.cc/36LW-8V96] (last visited Apr. 14, 2016).

IV. CONCLUSION

The Governor has declared: "[W]e can address climate change. We know how to do it, we can do it. We must just have the political will and the leadership to do it and we must take the first step and the first step is always deciding to do it and committing ourselves as a body politic to do it."[135]

The REV, in its basic architecture, animating policy objectives and rhetorical emphasis, is by all appearances more deregulatory-driven than climate driven. While the REV's market goals are worthy objectives, its core primarily concerns developing a "platform"-driven business model and displacement of expensive peak resources, more so than attaining an environmental result. Yet the REV is not being advertised as merely a free market exercise aimed at enabling consumer preferences and new supplier entry into the electric marketplace, but rather as the main route to a policy outcome—reduction of GHG emissions—acknowledged to be critical by the Governor on down. Unless the REV itself will be fundamentally changed to include an enforceable mechanism to drive emissions reductions, a stand-alone policy tool will be needed to achieve the State's climate goals. The REV's key flaw, at least in its current articulation, is the absence of such a forcing mechanism.

Imposing a price on GHG emissions, whatever their source, will be a more effective and efficient and less bureaucratic way to shape the market and achieve emissions goals than reliance on the processes spelled out in the REV's central vision. Former Vice President Gore observed at Columbia that "some of the most dramatic progress that is actually pushing the nations along . . . is coming from the state level and the provincial level."[136] Creating such a price signal would go a long way toward making New York a showcase for effective state-led action to combat climate change. To the extent that the Administration is seeking to exert national leadership on climate change, it should lead by example with a policy tool that can be replicated whatever the electric generation and delivery business model used in a given state.

135. *See* Cuomo, *supra* note 1.

136. Will Bredderman, *'We Are Winning': Al Gore Hails New York Greehouse Gas Initiative*, OBSERVER (Oct. 8, 2015), http://observer.com/2015/10/we-are-winning-al-gore-hails-new-york-greenhouse-gas-initiative/ [https://perma.cc/LM4H-HB4C]; *see also* Morris, *supra* note 40.

The REV should and will continue to develop, but we should not labor under the illusion that it by itself, in its current formulation, is the primary policy instrument that will deliver on the State's GHG emissions reductions goals, even less so in a timeframe commensurate with the climate challenge at hand.[137] And since it is not, New York should ask itself: what can be such an instrument? The REV may be necessary to achieve various ends—such as avoiding a utility death spiral caused by DER-driven exit from the utility system, meeting peak demand without over-constructing new infrastructure, managing a multi-nodal grid, and more efficiently allowing distributed generation—but these are second order issues. The REV as presently constituted is not sufficient to deliver on the State's GHG reduction goals because decentralized distributed generation can be more polluting than centralized generation, and because, especially in a low-price fossil fuel environment, the price gradient needed to drive the mass adoption of renewables may not exist, even as the price of solar continues to fall. Even though core REV documents appear at times philosophically to support using rate design to attain environmental objectives, the absence of a price signal on most sources of GHG emissions, both within the electricity sector and beyond it, is at the heart of the concern that the REV will fall short. A price signal to internalize into the price of fuel the environmental costs of emitting GHGs, is a much simpler and more transparent, effective and comprehensive way to go than the processes envisioned to date.

137. As the President has said, we do not have all the time in the world. *See* President Barack Obama, Remarks at the First Session of COP21 (Nov. 30, 2015), https://www.whitehouse.gov/the-press-office/2015/11/30/remarks-president-obama-first-session-cop21 [https://perma.cc/GJ47-3KV8] ("[T]here is such a thing as being too late.") (quoting Martin Luther King, Jr.).