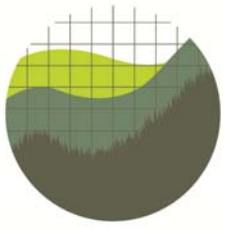

Institute *for*
Policy Integrity
NEW YORK UNIVERSITY SCHOOL OF LAW

April 22, 2016
Hon. Kathleen H. Burgess, Secretary
New York State Public Service Commission
Three Empire State Plaza
Albany, New York 12223-1350

VIA ELECTRONIC SUBMISSION

Attn: Case No. 15-E-0302, Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard
Subject: Party Comments on New York State Department of Public Service, Staff White Paper on Clean Energy Standard, Docket No. 81(January 25, 2016)

Dear Secretary Burgess:

The Institute for Policy Integrity at New York University School of Law[1] ("Policy Integrity") respectfully submits the following comments[2] on the New York State Department of Public Service's Staff White Paper on Clean Energy Standard. Policy Integrity is a non-partisan think tank dedicated to improving the quality of government decisionmaking through advocacy and scholarship in the fields of administrative law, economics, and public policy. Policy Integrity has extensive experience advising stakeholders and government decisionmakers on the rational, balanced use of benefit-cost analysis, both in federal practice and in New York.

We are grateful for the Commission's consideration of these comments.

Sincerely,

Denise A. Grab
Senior Attorney
grabd@exchange.law.nyu.edu

Burcin Unel, Ph.D.
Senior Economist
burcin.unel@nyu.edu

Nathan M. P. Taylor

[1] No part of this document purports to present New York University School of Law's views, if any.
[2] These comments incorporate by reference into the record all of the documents cited herein.

INTRODUCTION

The 2015 New York State Energy Plan set one of the most ambitious clean energy targets in the nation: 50 percent of all electricity used in the state should be generated by renewable energy sources.[3] At the Commission's request, the Department of Public Service Staff ("Staff") compiled its extensively researched White Paper on Clean Energy Standard ("White Paper"), with recommendations on how to achieve this ambitious goal.[4] Staff has now submitted this White Paper for further public comment, including input on a number of specific questions. Staff has done an excellent job researching and analyzing many of the important issues surrounding the design of a policy that can increase renewable electricity supply, support construction of new renewable generation in New York State, prevent premature closure of upstate nuclear facilities, and promote the progress of REV market objectives.[5]

Staff and the Commission can take certain steps to ensure that the Clean Energy Standard ("CES") can be designed to successfully achieve New York State's clean energy goals. In particular, Staff and the Commission should:

- Carefully review different design elements of CES such as the use of tiers, multipliers, banking/borrowing, and alternative compliance payments to ensure the CES is not excessively costly and is effective in achieving all the policy goals;
- Develop an alternative compliance payment that will not undermine the CES policy objectives; and
- Base the Tier 3 alternative compliance payment on the true value of the environmental attributes of energy resources rather than relying on market revenues and operating expenses.

As requested by Staff, the remainder of these comments will follow the outline structure of the White Paper. The document will list all of Staff's topic headings in order for clarity, but will add detailed comments only as applicable.

I. INTRODUCTION, OBJECTIVES, AND SUMMARY OF PROPOSAL
   A. Introduction
   B. Objectives
      1. Manage Energy Costs
      2. Protect Consumers and Ensure No Consumer Class Is Left Behind

[3] NEW YORK STATE ENERGY PLANNING BOARD, 1 NEW YORK STATE ENERGY PLAN STATE ENERGY PLAN 112 (2015).
[4] Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard., PSC Case No. 15-E-0302 (Jan. 25, 2016) [hereinafter White Paper].
[5] *Id.* at 2-3.

3. Promote Capital and Operating Efficiencies
4. Drive Business Model and Service Innovation
5. Assure Timely and Appropriate Investment in Infrastructure and Grid Modernization
6. **Achieve Greenhouse Gas Reductions**

As the Institute for Policy Integrity previously noted in comments to the Reforming the Energy Vision proceeding,[6] the first-best public policy tool to promote clean energy resources and achieve greenhouse gas reductions is to use a carbon price that would lead the power generators that use dirtier energy resources to internalize the externalities caused by greenhouse gas emissions fully. Using a carbon price to achieve greenhouse gas reductions would be the least-cost way of achieving carbon emission reductions compared to other alternatives.[7] Further, policies such as the CES may not be effective in achieving greenhouse gas reductions if the targets or alternative compliance payments are not set optimally. Therefore, objectives (1) and (6) can best be achieved by using an already existing carbon pricing tool, the Regional Greenhouse Gas Initiative ("RGGI"), and modifying its cap to ensure the full value of external damage caused by emissions can be internalized. Currently RGGI prices[8] are lower than the Social Cost of Carbon ("SCC"),[9] which is the best available estimate of the marginal external damage of carbon emissions. Modifying RGGI cap to ensure that the SCC is fully internalized would allow the environmental attributes of all clean energy resources to be more accurately valued, and eliminate the Commission's concern about undervaluing all carbon-free resources, including nuclear energy, for their clean energy benefits.

Additional subsidies provided by the CES may indeed help achieving objectives (2) through (5). However, in designing the CES, the Commission should carefully consider all aspects of program design including the use of tiers, multipliers, and alternative compliance mechanisms, and should evaluate the effectiveness of each design option to

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[6] Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision, Case 14-M-0101 Filing No. 447, Institute for Policy Integrity Comments on the Staff White Paper on Benefit Cost Analysis 17 (Aug. 21, 2015) at 17.

[7] Erik Paul Johnson, *The Cost Of Carbon Dioxide Abatement From State Renewable Portfolio Standards*, 36 RES. ENERGY ECON. 332, 349–50 (2014); Karen Palmer & Dallas Burtraw, *Cost-Effectiveness Of Renewable Electricity Policies*, 27 ENERGY ECON. 873, 893 (2005); Carolyn Fischer, Richard G. Newell, *Environmental And Technology Policies For Climate Migration*, 55 J. OF ENVTL. ECON. MGMT. 142, 160 (2008) (finding that lowest cost emissions reductions come from a combination of an emissions price with a small ''learning subsidy'').

[8] *Allowance prices and Volumes (by Auction)*, Regional Greenhouse Gas Initiative, http://www.rggi.org/market/co2_auctions/results (last visited April 22, 2016).

[9] INTERAGENCY WORKING GROUP ON SOCIAL COST OF CARBON, UNITED STATES GOVERNMENT, TECHNICAL SUPPORT DOCUMENT: SOCIAL COST OF CARBON FOR REGULATORY IMPACT ANALYSIS UNDER EXECUTIVE ORDER 12866 at 23 (2010), *available at* http://www.epa.gov/oms/climate/ regulations/scc-tsd.pdf.

achieve New York State's policy goals. Both the Commission and Staff are clearly making an effort to learn from the experiences of other states by reviewing the reports and organizing technical conferences. A similar effort toward reviewing academic literature to ensure the effectiveness of policy designs would be valuable in preventing an excessively costly or ineffective policy.

While most of the recent academic literature focuses exclusively on Renewable Portfolio Standards ("RPS"), the insights from these studies would be applicable to the CES. The evidence on the effectiveness of RPS in driving renewable energy investment is mixed, and depends on whether the metric for success is determined by new generation capacity or increases in renewable sales.[10] Further, a recent study shows that other design aspects in addition to the stringency of the goal such as fines, alternative compliance payments, and the restrictions on the geographic origin of resources significantly affect the success of the policy.[11] Given this existing body of research, the Commission should carefully review different design aspects to ensure that the resulting policy puts New York in the best position to achieve its goals at the lowest possible cost to the rate-payers. A design that would be ineffective to drive additional renewable energy capacity, or that would lead to additional payments for new capacity that would have been installed anyway without the CES would be a costly policy outcome.[12]

C. Summary of Proposal

II. DISCUSSION AND PROPOSALS

A. Renewable energy

1. 50 by 30 Goal, Obligation, and Compliance Mechanism

Calculating the 50 by 30 Mandate

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[10] *See* Magali A. Delmas & Maria J. Montes-Sancho, *U.S. State Policies For Renewable Energy: Context And Effectiveness*, 39 ENERGY POLICY 2273, 2274 (2011); Gireesh Shrimali & Joshua Kniefel, *Are Government Policies Effective In Promoting Deployment Of Renewable Electricity Resources*, 39 ENERGY POLICY 4726, 4738 (2011). *See also*, Fredric C. Menz, *Green Electricity Policies in the United States: Case Study,* 33 ENERGY POLICY 2398 (2009); *See also, generally* Sanya Carley, *State Renewable Energy Electricity Policies: An Empirical Evaluation Of Effectiveness*, 37 ENERGY POLICY 3071 (2009); Haitao Yin & Nicholas Powers, *Do State Renewable Portfolio Standards Promote In-State Renewable Generation*? 38 ENERGY POLICY 1140 (2010) (renewable generation in states).

[11] Miriam Fischlein & Timothy M. Smith, *Revisiting Renewable Portfolio Standard Effectiveness*, 46 POLICY SCI. 277, 303–04 (2013).

[12] For example, a recent report suggests that over half of new utility-scale solar installed capacity in 2016 will be not driven by renewable energy mandates. *See* Herman K. Trabish, *As RPS Importance Declines, 3 Factors Help Drive Growth For Utility-Scale Solar*, UTILITYDIVE (Apr. 5, 2016), http://www.utilitydive.com/news/as-rps-importance-declines-3-factors-help-drive-growth-for-utility-scale-s/416300/.

Alternative Compliance Payment Mechanism

The CES mandate requires load serving entities ("LSEs") to purchase supply for which there is a price premium. Therefore an increase in cost to ratepayers is a necessary element of the policy. However, this incremental expense to ratepayers can be best managed by choosing appropriate and achievable renewable energy targets, and flexible trading mechanisms to achieve least cost compliance outcomes. Because even a carefully designed standard involves some uncertainty about its costs, most states include consumer protection backstop mechanisms to limit the cost of their renewable energy mandates.[13]

The most commonly used consumer protection mechanism is an alternative compliance payment ("ACP"). The ACP is essentially a price cap for the renewable energy credit ("REC") market, because a rational utility will prefer to pay the ACP rather than purchase RECs whenever the price in the REC market exceeds the ACP.[14] States therefore set the ACP at the highest price they are willing to require consumers to pay to achieve their policy objectives. If the REC prices go above the ACP, the costs will be contained but states will fail to achieve their renewable energy goals.[15] Therefore, setting the level of the ACP correctly is crucial to the success of the CES. How often the ACP is reviewed and updated, and how ACP funds are used are equally important design elements of a successful CES mandate.

a. Setting the Alternative Compliance Payment Level

As a consumer protection feature, an ACP should ideally be set to match the value that the policies are expected to deliver to the state, so that cost of the CES does not exceed its benefits. If the ACP is set too high, consumers may pay more for renewable energy than is justified, because the ACP will not serve its cost containment function.[16] If the ACP is set too

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[13] Gabriella Stockmayer et al., *Limiting the Costs of Renewable Portfolio Standards: A Review and Critique of Current Methods*, 42 ENERGY POLICY 155, 156 (2012); *see also generally* BRENDAN PIERPOINT, CLIMATE POLICY INITIATIVE, LIMITING THE COST OF RENEWABLES: LESSONS FOR CALIFORNIA (June 2012) http://climatepolicyinitiative.org/wp-content/uploads/2012/06/Limiting-the-Cost-of-Renewables-Lessons-for-California.pdf.

[14] *Id.* at 160.

[15] While some states use the revenue raised from ACPs to subsidize renewable generation projects, these states are few in number, and the fact that the market could not supply RECs at a price lower than the ACPs likely indicates this revenue would not supply enough renewable energy to meet state goals in any case.

[16] WARREN LEON, CLEAN ENERGY STATES ALLIANCE, DESIGNING THE RIGHT RPS 46 (2012) http://www.cesa.org/assets/2012-Files/RPS/CESA-RPS-Goals-and-Program-Design-Report-March-2012.pdf.

low, suppliers will be able to comply with the clean energy standard without actually acquiring new clean energy supply, undermining the state's renewable energy goals.[17]

In order to adequately set the ACP, then, it is important for the state to establish clear goals for the CES, explain how the policy contributes to those goals, and attempt to establish what costs are justified in meeting those goals. Some of these goals, like economic development from new renewable energy industry in the state, may be relatively easy to value. Others, such as fostering renewable energy technology and process innovation may be more difficult to monetize. It will be important to ensure that benefits that may result from multiple state policies are not attributed solely to the CES, or that projects that would have happened anyway do not get unnecessarily subsidized. It would be inappropriate, for example, to attribute emissions reductions required under the RGGI to the CES.

Other States' Considerations

Other states that have implemented RPS programs have also grappled with how to design alternative compliance mechanisms that will not hinder policy success. At least 13 states with restructured energy markets allow LSEs to meet RPS obligations through a fixed ACP in lieu of RECs,[18] similar to the mechanism proposed in the Staff White Paper.[19] Most states with ACPs have set them in the $40 to $60 per MWh range for the main tier.[20] However, states that use tiered mandates with set-asides for solar or distributed generation, must use a separate ACP for the more expensive set-aside, or the ACP will likely prevent any of the more expensive technology from being built. Solar set-aside ACPs have been set as low as $55 in New Hampshire, but are usually much higher, in the $350 to $600 range,[21] with New Jersey's set as high as $700.[22] Some states combine an ACP with other cost containment strategies, such as an overall cap on either the annual cost of the mandate, or in the case of Illinois, overall impact on consumer electricity rates, [23] while still others cap a

[17] *Id.*
[18] *Id.*; J. HEETER ET AL., NATIONAL RENEWABLE ENERGY LABORATORY, NREL/TP-6A20-61042, A SURVEY OF STATE-LEVEL COST AND BENEFIT ESTIMATES OF RENEWABLE PORTFOLIO STANDARDS 45 (May 2014).
[19] White Paper, *supra* note 4 at App'x D.
[20] HEETER ET AL., *supra* note 18 at 26. (Listing 2010-2012 main tier ACP per MWh for Connecticut ($55), D.C. ($50), Delaware ($25-$80), Illinois ($4-$14), Massachusetts ($60.9-$64), Maryland ($40), Maine ($60.9-$64), New Hampshire ($55-$60.9), New Jersey ($50), Ohio ($45-$47.6), Pennsylvania ($45), Rhode Island ($60.9-$64), and Texas ($50)).
[21] *Id.*; see also Ryan Wiser et al., *Supporting Solar Power in Renewables Portfolio Standards: Experience from the United States*, 39 ENERGY POLICY 3894, 3900 tbl 3 (2011).
[22] HEETER ET AL., *supra* note 18 at 26.
[23] Stockmayer et al., *supra* note 13 at 157, see also, *id*. at 156 tbl. 1 listing Ohio, Oregon, Maryland, and Delaware as using both ACPs and an overall cost cap.

required per-customer bill surcharge for their renewable energy mandate. Montana caps the price premium for individual energy supply contracts.[24]

In designing their ACPs, states have considered several factors including the actual cost of acquiring qualifying electricity, potential for technological innovation, regional market conditions, as well as the value of the benefits to the state to achieve CES policy goals, each of which is discussed in turn.

Cost of acquiring qualifying electricity. The cost of securing additional renewable energy supply relative to traditional alternatives is perhaps the most important determinant of whether the CES will actually incentivize new renewable generation, or whether the LSEs will choose to pay the ACP to comply with the CES.

Under the Oregon RPS statute, for example, the ACP is set administratively for each individual energy company based on a statutory listing of factors, including: the "cost of qualifying electricity, contracts that the electric company or electricity service supplier has acquired for future delivery of qualifying electricity and the number of unbundled renewable energy certificates that the company or supplier anticipates using in the compliance year to meet the renewable portfolio standard applicable to the company or supplier"[25] In practice, the Oregon Public Utility Commission canvasses a number of different government and ISO forecasts of renewable energy cost, and sets the ACP at the "lowest rate needed to incent electric companies and electricity service suppliers to purchase or generate qualifying electricity."[26] Notwithstanding the regulatory and statutory direction to set ACPs individually for each energy company, the same ACP has generally been used for "Portland General Electric, PacifiCorp and all electricity service suppliers."

Technological innovation. As renewable generation technology improves, the cost of acquiring new incremental renewable generation may decline. This decline could justify a lower ACP in the future, as ratepayer expectations incorporate new information about renewable energy costs, or could justify raising renewable energy targets. An example of this consideration in practice is the ACP in Maryland, set by statute through 2023. While the ACP for the main tier is fixed at $40 per year, the ACP for solar was set to $400 with

[24] HEETER ET AL., *supra* note 18 at 48.
[25] OR. REV. STAT. § 469A.180.
[26] *See, e.g.*, Staff Report, Establish the Alternative Compliance Payment Rate for 2014 at 2, OREGON P.U.C. (September 17, 2012) http://www.puc.state.or.us/meetings/pmemos/2012/092512/reg3.pdf.

periodic reductions to reflect legislators' expectation that solar will become less expensive over time.[27]

Regional market conditions. If RECs can be bought and sold across state lines, then in-state generation would highly depend on the ACP levels of neighboring states. If the ACP levels in a neighboring state are significantly higher, then it could distort the REC market by signaling a tolerance for higher prices in that state. This effect can be compounded if a state limits RECs to only those generated in state while the neighboring states do not. If in-state renewable generators have the opportunity to do so, they will sell their RECs to the neighboring state that offers higher REC prices, shrink eligible supply for meeting the in-state CES goals, and therefore drive the REC prices in the state toward its (low) ACP.[28] This would lead the state falling short of achieving its goals for in-state renewable energy generation.

Several states have acknowledged the importance of considering regional REC markets when setting ACPs. In Connecticut, for example, the Department of Energy and Environmental Protection has suggested that, since Maine, Massachusetts, and Rhode Island each have higher ACPs than Connecticut's fixed statutory $55 per mWh, "Connecticut may be the last to receive multi-state qualified RECs such as solar and wind when there are shortages. An actual shortfall would also occur in Connecticut a bit sooner than other states since Class I eligible projects would be more inclined to sell their RECs in states with a higher ACP."[29]

New Hampshire had to reduce its RPS target, acknowledging a shortage of Class III RECs from methane and biomass facilities.[30] The Commission acknowledged comments from stakeholders explaining that a major contributor to the shortage was the state's low ACP relative to neighboring states.[31] Because neighboring states' REC prices were allowed to rise higher than in New Hampshire, facilities generating Class III RECs were selling into those states, leaving few RECs for compliance by New Hampshire LSEs. The PUC suggested

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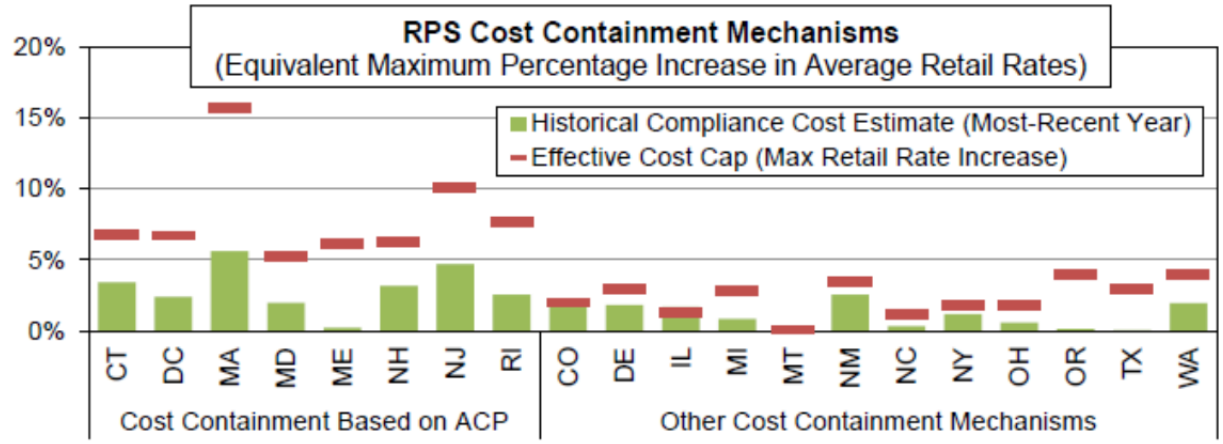
[27] MD. PUB. UTIL. COS. §7-705(b). In 2010 the state legislature acted to both increase the solar requirement generally, and increase the ACP for solar in later years, to reflect the higher potential marginal solar cost from a more ambitious target. 2010 MD. LAWS 3425–31.
[28] *See*, *e.g.*, Order Reducing Class III Requirements for 2013 to 0.5% of Retail Sales, N.H. PUC Order No. 25,674 (June 03, 2014) *available at* http://www.puc.nh.gov/Regulatory/Orders/2014orders/25674e.pdf.
[29] CT. DEPT. OF ENERGY AND ENVTL. PROTECTION, RESTRUCTURING CONNECTICUT'S RENEWABLE PORTFOLIO STANDARD 5 (Apr. 26, 2013) http://www.ct.gov/deep/lib/deep/energy/rps/rps_final.pdf.
[30] Order Reducing Class III Requirements for 2013 to 0.5% of Retail Sales 8–10, N.H. PUC Order No. 25,674 (June 03, 2014) *available at* http://www.puc.nh.gov/Regulatory/Orders/2014orders/25674e.pdf.
[31] *Id.*

a legislative change to "synchroniz[e] the Class III ACP price with those of Connecticut and Massachusetts.[32]

Similarly, the Oregon Public Utility Commission wanted to avoid a scenario whereby "Oregon having an ACP less than Washington's and California's penalty rates could force Oregon electric companies and electricity service suppliers to make an ACP instead of buying unbundled RECs" when setting the state's ACP.[33] The commission ultimately set its ACP at the level of California's penalty rate, in part to avoid this outcome.[34]

Value to the state and ratepayers' risk tolerance. While the ACP levels set in neighboring states have implications on achieving in-state renewable generation policy, New York's ACP levels should not be set at a certain level *just because* that is the level set by neighboring states. The ACP should still reflect the value of CES to New York State's ratepayers, and ratepayers' risk tolerance for unforeseen price spikes.

Other states' ACP levels generally reflect a willingness to allow energy prices to reflect between a 5 and 10 percent premium over the baseline scenario, with Massachusetts and New Jersey's allowing higher prices to enable larger solar set-asides.[35] However, as of 2014, no state that used an ACP had a renewable generation mandate compliance cost exceeding a 5% increase in average retail rates.



Notes: For states with multiple cost containment mechanisms, the cap shown here is based on the most-binding mechanism. MA does not have a single terminal year for its RPS; the calculated cost cap shown is based on RPS targets and ACP rates for 2020. "Other cost containment mechanisms" include: rate impact/revenue requirement caps (DE, IL, NM, OH, OR, WA), surcharge caps (CO, MI, NC), renewable energy contract price cap (MT), renewable energy fund cap (NY), and financial penalty (TX). Excluded from the chart are those states currently without any mechanism to cap total incremental RPS costs (AZ, CA, IA, HI, KS, MN, MO, NV, PA, WI), though many of those states have other kinds of mechanisms or regulatory processes to limit RPS costs.

Source: GALEN BARBOSE, LAWRENCE BERKELEY NATIONAL LABORATORY, U.S. RENEWABLES PORTFOLIO STANDARDS: OVERVIEW OF STATUS AND KEY TRENDS 21 (Nov. 5, 2015)

[32] *Id.*
[33] Staff Report, Establish the Alternative Compliance Payment Rate for 2011, Oregon P.U.C. (July 1, 2009) http://www.puc.state.or.us/meetings/pmemos/2009/060209/reg1.pdf.
[34] *Id.* at 4–5.
[35] HEETER ET AL., *supra* note 18 at 46–47.

b. Review Frequency

While too frequent review of ACP levels would lead to regulatory uncertainty and can be detrimental to new investment, frequent enough review of ACPs is necessary to adjust to the changing market conditions. This is essential in ensuring that the CES is not excessively costly.

Maine's RPS statute requires that the Maine Public Utility Commission consider "prevailing market prices, standard-offer service prices for electricity, reliance on alternative compliance payments to meet [RPS] requirements . . . and investment in new renewable capacity resources in the State during the previous calendar year."[36] The initial RPS proposed that the ACP level be reconsidered each year based on the statutory factors.[37] However, to provide some regulatory certainty, the public utility commission chose to adopt a set ACP for the first year, and thereafter adjust it for inflation, similar to some of its neighboring states.

In Oregon, the Public Utility Commission is directed by statute to use those factors to "provide adequate incentive for the electric company . . . to purchase or generate qualifying electricity in lieu of using alternative compliance payments."[38] Regulations implementing the statute require the PUC to update the ACP for each utility *every two years*.[39]

Alternatively, a predetermined formula such as "X times the expected long-term REC premium" as suggested by Staff[40] can provide regulatory certainty, while ensuring that the effective ACP can vary with changing market conditions.

c. Use of ACP funds

If the LSEs are choosing to pay the ACP instead of buying RECs from eligible generators, that means the CES is not achieving its targets for renewable energy generation. Many states attempt to compensate for this effect by devoting any ACP payments to public benefit funds supporting additional renewable development.[41] This approach can also

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[36] See MAINE P.U.C., ANNUAL REPORT ON NEW RENEWABLE RESOURCE PORTFOLIO REQUIREMENT: REPORT FOR 2012 ACTIVITY 4 (Mar. 31, 2014) http://www.maine.gov/tools/whatsnew/attach.php?id=617510&an=1.

[37] Order Adopting Rule and Statement of Factual and Policy Basis 7, Me. P.U.C. Docket No. 2007-391 (Oct. 22, 2007) https://mpuc-cms.maine.gov/CQM.Public.WebUI/Common/ViewDoc.aspx?DocRefId={2CD0B5D3-0515-4B80-9F7E-0B559B3B7C2D}&DocExt=DOC.

[38] OR. REV. STAT. § 469A.180.

[39] OR. ADMIN. REV. 860-083-0500.

[40] White Paper, *supra* note 4, App'x D at 1.

[41] Stockmayer et al., *supra* note 13 at 160–61.

reduce the need for compliance through ACP in future years by helping bring new supply in future years, and hence reduce REC prices back below the ACP.[42]

However, the Commission should balance this need for increased renewable energy generation in-state against the welfare loss due to the increased ratepayer cost, and consider redistributing part of the collected ACP to the ratepayers who are adversely affected, especially the vulnerable low-income customers. Connecticut, for example, once devoted ACPs to renewable energy development, using its ACP to reinforce renewable energy goals, but has since amended the program to increase renewable energy targets, but return funds from ACPs to consumers.[43]

i. Eligibility and Tiers

The Commission should consider the use of multipliers to ensure that the REC markets are liquid, and that the CES targets can be met in a least-cost manner while achieving resource diversity.

The most economically efficient way to achieve the maximum quantity of renewable generation in the least time using a CES is a technology-neutral policy that would allow markets maximum flexibility in supplying the mandated generation.[44] Targets in a technology-neutral policy would generally be met by the lowest-cost renewable energy source. A technology-neutral CES would therefore allow a smaller investment to create a large supply of a particular type of renewable energy, and hence would not support resource diversity.[45]

However, different renewable energy resources have different levels of grid value, growth potential, and environmental desirability. Therefore, some amount of technology-specific support may be desired to support new technologies.[46] Thus, many states have adopted

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[42] *Id.*

[43] *Connecticut Renewables Portfolio Standard*, DATABASE OF STATE INCENTIVES FOR RENEWABLES & EFFICIENCY (June 17, 2015) http://programs.dsireusa.org/system/program/detail/195.

[44] Joshua Novacheck et al., *The Environmental and Cost Implications Of Solar Energy Preferences in Renewable Portfolio Standards*, 86 ENERGY POLICY 250–51 (2015).

[45] Wiser et al., *supra* note 21 at 3895 (Technology neutral RPS "may not support the diversity of renewable energy technologies and applications that may ultimately be necessary in the long term if even-higher levels of renewable energy deployment are to be attained").

[46] JÜRGEN WEISS & PEDRO L. MARIN, THE BRATTLE GROUP, REFORMING RENEWABLE SUPPORT IN THE UNITED STATES 4 (2012) ("[E]ven though technology neutrality is an appealing concept, evidence from successful efforts to support renewable energy development as well as economic theory on market imperfections related to the creation and dissemination of knowledge suggests that some amount of technology-specific support will be required in order to allow newer, less developed technologies to compete with more established technologies, even if this results in an initially higher effort.").

policies to achieve supply diversity, sometimes at the expense of program cost or total generation.[47]

Here, Staff, with similar goals in mind, proposed an approach with separate tiers, for different technologies in the White Paper.[48] However, the Commission should note that, while a tiered approach may drive development of new generation technologies, it is also costlier. Restricting a portion of the CES to be met only by a certain supply type the market would not otherwise provide—whether for reasons of technology price, geographic location, or otherwise—necessarily raises the overall program cost.[49]

Furthermore, when set-asides are met, demand for the set-aside REC plummets, leading to a boom and bust cycle if ex ante predictions about the ability of the market to supply the requirement are not correct.[50] These predictions are more difficult and less resilient in small markets with less established technologies. An example of this threat can be found in the experience of New Jersey, which met its goal for solar installations pursuant to its Solar REC ("SREC") tier years ahead of schedule.[51] SREC prices then plummeted, threatening investors with significant losses. New Jersey ultimately chose to adopt a more ambitious solar goal in order to rescue the SREC market (SREC II).[52] It also applied a multiplier within the SREC II tier to further advantage distributed solar.

The cost of such a tiered CES approach might be even higher if the target level for each tier is not set optimally. An overly ambitious target may require excessive investment, while a

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[47] CENTER FOR CLIMATE AND ENERGY SOLUTIONS & REGULATORY ASSISTANCE PROJECT, CLEAN ENERGY STANDARDS: STATE AND FEDERAL POLICY OPTIONS AND IMPLICATIONS 31 (2011); Tae-hyeong Kwon, *Rent And Rent-Seeking In Renewable Energy Support Policies: Feed-In Tariff vs. Renewable Portfolio Standard*, 44 RENEWABLE AND SUSTAINABLE ENERGY REV. 676, 678 (2015) ("One drawback to RPS is that mature technologies with low costs receive rents, whereas immature technologies with high costs are forced out of the market even if they have the potential to reduce production costs in the long run. That is, non-marginal RES-E producers earn rents, which entail excess profits persisting in the long run.")

[48] White Paper, *supra* note 4 at 15–19.

[49] Novacheck et al., *supra* note 44 at 257.

[50] Greg Buckman, *The Effectiveness of Renewable Portfolio Standard Banding and Carve-Outs in Supporting High-Cost Types of Renewable Electricity* 39 ENERGY POLICY 4105, 4113–15 (2011); *see also* PLATTS SPECIAL REPORT, RENEWABLE ENERGY CERTIFICATES 10 (Apr. 2012) https://www.platts.com/IM.Platts.Content/InsightAnalysis/IndustrySolutionPapers/RECSpecialReport1112.pdf ("[I]n 2011 record-high capacity figures indicated the market would face an oversupply for the first time. New Jersey vintage 2011-12 SREC prices tumbled, causing pressure on state lawmakers to increase solar demand targets.").

[51] Eric Wesoff, *Gov. Christie Signs New Jersey's Solar "Resurrection Bill,"* GREENTECHMEDIA (July 23, 2012) http://www.greentechmedia.com/articles/read/New-Jerseys-Solar-Resurrection-Bill-Passes.

[52] NEW ENGLAND STATES COMMITTEE ON ELECTRICITY, MECHANISMS TO SUPPORT PUBLIC POLICY RESOURCES IN THE NEW ENGLAND STATES 21 (Dec. 18, 2015) http://nescoe.com/wp-content/uploads/2015/12/PublicPolicyMechanisms_December2015.pdf.

low target may not induce enough technological innovation that would lower development costs. Given the uncertainty about the benefits and costs of future deployment of different energy resources, even setting a single target level optimally can be challenging. Yet, the Commission has the ambitious task of setting four different CES targets optimally for each year until 2030, making it increasingly difficult to ensure continued cost-effectiveness of the policy.

In addition, a CES with small tiers can lead to greater price volatility, as trading volume for the specialty RECs will be lower than if RECs were interchangeable.[53] Using different tiers for different resources and different vintages – new or existing plants – would overly fragment the market, and raise liquidity concerns. The discussion during the Clean Energy Standard Workshop held by the DPS shows that the Commission is also concerned about market liquidity.[54] To address such liquidity concerns, the Commission should consider the use of multipliers for different types and vintages of resources to achieve goals of promoting resource diversity, while continuing to ensure market liquidity and compliance flexibility.

In order to deal with liquidity concerns, some states issue only a single "tier" of RECs, but apply a multiplier so that favored forms of generation receive more RECs for the same amount of generation than their less favored peers.[55] In Michigan, for example, one MWh of solar generation is worth the equivalent of three MWh from other renewable sources.[56] Similar to a tiered approach, a REC multiplier provides additional incentives for construction of a favored type of renewable technology. However, it avoids the problem of overly fragmented REC markets, as the single market covers all CES eligible technologies. Thus, the use of such multipliers would ensure that there would be a single big and liquid REC market, while allowing the Commission to provide differential incentives to different resources.

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[53] Buckman, *supra* note 50 at 4113; *see also* Galen Barbose, *U.S. Renewables Portfolio Standards: Overview of Status and Key Trends* 17, NAT'L SUMMIT ON RPS (Nov. 5, 2015) *available at* http://www.cesa.org/assets/2015-Files/RPS-Summit/Galen-Barbose-11.5.15.pdf (showing that SREC price is highly state-specific, ranging from less than $100 in states with low targets, to nearly $500.); *id*. at 19 (showing that the "main tier" represents the bulk of the cost for RPS in most states, but that set-asides for solar and DG represent the majority of the cost in D.D., New Jersey, and New York).

[54] Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard., Workshop – Panel 1 at 9, 17, PSC Case No. 15-E-0302 (February 26, 2016) (comment of PSC Chair Audrey Zibelman: "[O]ne of the things that we did talk about when we set out the Clean Energy Standard is we're looking for deep liquidity in the markets.").

[55] Wiser et al., *supra* note 21 at 3897; DATABASE OF STATE INCENTIVES FOR RENEWABLES & EFFICIENCY (June 17, 2015) http://programs.dsireusa.org/

[56] Novacheck et al., *supra* note 44 at 251

The use of multipliers, however, also includes some policy trade-offs. While it resolves market liquidity concerns, it creates resource uncertainty as it reduces the technology-forcing character of the RPS policy.[57] Additionally, using multipliers can reduce the amount of incremental renewable generation by allowing a single unit of power from preferred sources to satisfy multiple units of renewable requirements.[58] Therefore, if a multiplier approach is used, the targets have to be adjusted accordingly.

To ensure the CES policy objectives can be achieved in a least-cost manner, the Commission should consider the use of multipliers. At a minimum, the Commission should provide a better justification of why they have chosen the tiered approach as opposed to a multiplier approach, clarifying that they have considered potential liquidity problems in such fragmented markets, and the likely resulting higher cost to the ratepayers.

ii. Cost Management

Banking and Borrowing

The Commission should allow banking to increase flexibility, but should either not allow or strictly limit borrowing.

Allowing banking of credits would provide LSEs additional compliance flexibility, and thus, help lower compliance costs. As Staff points out, it essentially provides LSEs the ability to insure themselves against future shortages and high prices.[59] Further, allowing banking provides incentives for early investment in eligible facilities.

However, it should be noted that the efficacy of borrowing in achieving continued investment in clean energy resources relies on setting the CES targets optimally. If the standard proves to be less stringent than optimal in the early years, it would create an opportunity to bank a significant number of credits, reducing the demand for credits in future years.[60]

While borrowing would provide flexibility, it may also hinder the policy goals of the CES. First, borrowing defers clean energy investment to future years. Second, borrowing could undermine the clean energy goals if an LSE defaults. This possibility is exacerbated by the strong perverse incentives that having the ability to borrow creates for LSEs that are at financial risk. If LSEs either have or expect to have financial difficulty, having ability to

[57] Buckman, *supra* note 50 at 4113.
[58] Novacheck et al., *supra* note 44 at 254–56.
[59] White Paper, *supra* note 4 at 26.
[60] KEVIN KENNEDY ET AL., WORLD RESOURCE INSTITUTE, SUBMISSION TO THE US SENATE COMMITTEE ON ENERGY AND NATURAL RESOURCES, RESPONSE TO COMMITTEE'S WHITE PAPER ON CLEAN ENERGY STANDARD 25 (Apr. 11, 2011) http://pdf.wri.org/wri_response_clean_energy_standard.pdf.

borrow would lead them to borrow RECs at a large scale, defer their compliance obligations, and then avoid them completely if they default.

The ability to trade RECs already provides built-in flexibility to the CES. Allowing borrowing and having a well-designed alternative compliance payments will provide further compliance flexibility. Therefore, allowing borrowing is not necessary and would likely provide only minimal cost containment benefits. If borrowing is allowed, the Commission should impose strict time and quantity limits to ensure that it does not undercut the goals of the CES.

b. Nuclear Facilities
    i. Nuclear Market Conditions
    ii. Nuclear Tier
    iii. Nuclear Zero Emission Credits (ZECs)
    iv. Nuclear Eligibility
    v. Tier 3 ACP

The Commission should directly calculate the value of environmental attributes of energy resources based on the monetized value of avoided emissions.

Both the White Paper and the discussion during the Workshop emphasized the Staff and Commission's desire to compensate nuclear plants for attributes other than energy generation, such as clean energy. That goal can be best achieved by calculating the actual value of that attribute, and using that calculation as the basis for the ACP. The value of this attribute, however, cannot be calculated by looking at either the operating costs of the eligible plants or the revenue eligible plants would get in the wholesale energy markets, as Staff suggests.

The proposed ACP for zero emission credits ("ZECs") is the difference between the anticipated operating costs of each nuclear facility and the forecasted wholesale price. Essentially, Staff is proposing to subsidize each eligible plant to ensure that it can recover its variable costs—which is required for a plant to continue its operations in the short run—and therefore does not shut down.[61] While this upper limit may ensure that the subsidies given to the nuclear plants are not high enough to provide them unjustified profits at the ratepayers' expense, it does not ensure that the subsidy eligible plants receive are commensurate with the true value of the attributes they provide.

By definition, the cost or the benefit of an externality is not borne by an acting party, and hence valuations of externalities cannot depend on the value created by the market

[61] PAUL KRUGMAN & ROBIN WELLS, MICROECONOMICS 341-342 (2nd ed. 2009) ("A firm will cease production in the short run if the market price falls below the shut-down price, which is equal to the minimum average variable cost.").

transactions of private actors in the energy markets. The correct value of the avoided carbon emissions, for example, is the monetized value of the external benefit that nuclear plants provide by avoiding the carbon emissions that would have been emitted if the power they provide was generated by another generator. And, this value does not depend on a plant's cost or revenue. It can only be calculated by looking at the value of the avoided external damage.

The Commission has recently recognized that the SCC values developed by the Interagency Working Group are the best available valuations of the marginal external damage of carbon dioxide emissions in its Benefit Cost Analysis Framework Order ("BCA Framework Order").[62] The Commission should use the methodology they adopted in the BCA Order to set an appropriate value for the benefits nuclear plants provide through avoided carbon emissions. The value of any other attribute that the Commission would like to recognize, such as reliability, should similarly be calculated based on the actual value of the attribute, as described in the Commission's BCA Framework Order, and not based on the anticipated operating costs or revenues of a particular plant.

The Commission should put in safeguards to reevaluate the benefits of nuclear plants periodically, allow this tier to continue only to the extent that nuclear plants continue to provide incremental benefits that are not properly valued by energy markets, and ensure that it is the best use of rate-payer funds.

It is important that the Commission ensure that the total amount of subsidy given to the nuclear plants do not exceed the external benefits they provide, and is the best use of rate-payers' funds. Zero-emission attributes of nuclear energy may be valued more accurately in the near future if the RGGI cap becomes more stringent, or if incremental clean energy benefits of nuclear plants decrease as the generation mix in NYS becomes cleaner when more large scale renewable energy resources are deployed.

Conversely, the subsidy provided by the CES may not be enough to ensure that some of the eligible nuclear plants do not close.[63] In light of this, the Commission should carefully consider the next-best use of ratepayer funds that would be used to support a plant that

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[62] Order Adopting Establishing the Benefit Cost Analysis Framework at 16, PSC Case 14-M-0101 (Jan. 21, 2016)

[63] Robert Harding Entergy: NY's rescue plan won't change decision to close FitzPatrick nuclear plant, CITIZEN (Feb. 24, 2016) http://auburnpub.com/blogs/eye_on_ny/entergy-ny-s-rescue-plan-won-t-change-decision-to/article_e810d6c6-da98-11e5-8152-e359319ad450.html; Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard., Technical Conference Workshop at 26, PSC Case No. 15-E-0302 (Mar. 9, 2016) (Comment of Mike Twomey for Entergy Nuclear Vermont: "We did not indicate that – that FitzPatrick was on -- under some financial difficulties. We went much further than that and announced the closure of the unit. . . [T]his proceeding is not going to produce anything that will change the outcome for FitzPatrick.")

would close anyway. In a recent order, the Commission proposed that "[i]n no event shall such support be any more than the level otherwise required to encourage new renewable facilities" referring to the financial support to be provided to nuclear plants to ensure their viability. The Commission should follow a similar approach in setting the Tier 3 ACP to ensure the best use of ratepayer funds.

c. The role of Long-Term Contracting Mechanisms
    i. The LSR Options Report
    ii. Consideration of the LSR Options Report in the Context of a CES
    iii. Use of Central Procurement
    iv. Utility Ownership and Self-Initiated Market Development
d. Targets for Each Tier Through 2020
e. Program Implementation

CONCLUSION

The Staff and the Commission are making great strides in considering policies that could help achieve New York State's clean energy goals. The White Paper takes steps in this direction, but the CES design could be improved further by carefully reviewing alternate policy design options such as the use of tiers to ensure that the final policy is indeed cost-effective, and developing alternative compliance payments that would not undermine the policy goals while reflecting the true value of the benefits different clean energy resources provide.