May 30, 2014

VIA EMAIL

NYSERDA
17 Columbia Circle
Albany, New York 12203-6399

Re: Comments of the Pace Energy and Climate Center on the Draft State Energy Plan

To the State Energy Planning Board:

Attached are the comments of the Pace Energy and Climate Center (Pace) on the Draft State Energy Plan (Draft Plan). Pace appreciates the opportunity to comment. This documents supplements our oral remarks delivered at the State Energy Plan hearing on February 18 at the Albany College of Nanoscale Science and Engineering.

Pace's comments are supported by Renewable Energy Long Island. And Pace endorses the comments of the Natural Resources Defense Council.

We look forward to working with the State Energy Planning Board to finalize the Energy Plan later this year. Any questions regarding the attached comments should be directed to me at (518) 487-1744 or at dgahl@law.pace.edu.

Sincerely yours,

David Gahl
Director of Strategic Engagement

cc: Karl Rabago
Tom Bourgeois
Andrea Cerbin

Attachment

COMMENTS OF THE
PACE ENERGY AND CLIMATE CENTER
ON THE
2014 DRAFT STATE ENERGY PLAN

May 30, 214

The Pace Energy and Climate Center (Pace) is a clean energy think tank located within Pace University's School of Law. We are lawyers, economists and policy analysts committed to finding solutions to today's complex energy and climate challenges. Pace is pleased to submit the following comments on the Draft State Energy Plan (Draft Plan).

Pace has a long history of participating in State Energy Planning efforts and has commented on and helped influence many past plans. In the context of the 2014 Draft Plan, Pace delivered oral remarks at the State Energy Plan hearing at the Albany College of Nanoscale Science and Engineering on February 18, 2014.

From 2010 to the present, Pace attended many meetings of the State Energy Planning Board. Pace submitted comments on the Plan's Draft Scope in April 2011. We also submitted comments on the draft regulations released that year. Further, Pace played a key role in ensuring passage of Chapter 433 of the Laws of 2009, which created the State Energy Planning Board under Article 6 of the Energy Law.

OVERVIEW

We applaud Governor Cuomo and the State Energy Planning Board for including aggressive greenhouse gas reduction goals in the Draft Plan. Governor Cuomo commits to reducing New York State greenhouse gas (GHG) emissions by 80 percent by mid-century.

These GHG reductions are consistent with scientific recommendations for helping mankind avoid the worst effects of climate change. With the recent publication of the United Nations Intergovernmental Panel on Climate Change's (IPCC) report on the dire impacts of climate change, Pace is pleased to see Governor Cuomo responding to the challenge.[1]

We also applaud NYSERDA's staff on drafting a document that is accessible to the general public. Though this has been largely overlooked in the discourse on the Draft Plan so far, NYSERDA staff has successfully presented complex energy concepts and energy data in an easy-to-understand way. This is a significant accomplishment.

[1] *Climate Change 2014: Impacts, Adaptation, and Vulnerability*, United Nations Intergovernmental Panel on Climate Change,

While the Draft Plan is a solid foundation, we offer the following comments for its improvement. In general, the Draft Plan falls somewhat short as a set of specific action items for guiding energy policy and achieving the established greenhouse gas reduction goals. While the 15 initiatives listed in Volume I help sketch the future New York energy policy, it is much less clear what the specific actions of the Cuomo Administration will be.

Pace recommends that the Final Plan build a more detailed policy case around a theme. In our view, the State Energy Planning Board should focus its attention on GHG reductions and decarbonizing our energy system as the Plan's organizing principle. Most of the case material is already included in the Draft Plan. But the Final Plan should also include the detailed modeling and policy cases to support specific actions.

The focus on GHG is consistent with the language of the New York Energy Planning Law which specifically says the plan should "minimiz[e] public health and environmental impacts, in particular, environmental impacts related to climate change."[2] "Greenhouse gas emission mitigation" was also listed as a *priority* for the plan as established by the Chapter's supporting documents.[3]

We offer the following five recommendations. To improve the Final Plan, drafters should:

1) establish near-term, mid-term and long-term GHG reduction targets in straight tonnage terms, but also require GHG reporting in intensity terms;
2) establish aggressive statewide energy efficiency savings targets and renewable energy deployment targets as a way to meet the GHG reduction goals;
3) include more specific action items related to updating building codes, including setting training and outreach goals;
4) establish a statewide transportation emissions reduction goal, and eliminate barriers to electric vehicle deployment to help reduce GHG emissions; and
5) follow through on updating energy-related cost benefit analyses and begin development a real lifecycle carbon accounting system to inform future decisions.

Attention to all of these items will help establish a better roadmap for reducing GHGs, protect New Yorker's from the dangers posed by climate change, build a clean energy future, and create jobs in the clean energy sector.

1) NEW YORK MUST ESTABLISH A NEAR-TERM AND MID-TERM GREENHOUSE GAS REDUCTION TARGETs TO PUT IT ON THE PATH TO MEETING THE 80 X 2050 GHG REDUCTION GOAL.

Pace supports Governor Cuomo's goal of reducing New York's total GHG emissions 80 percent by 2050. It is ambitious, achievable and necessary. Across economic sectors, New York's energy use must be restructured, and working towards the attainment of this long-term target will make the state a leader in the clean energy field.

[2] 6-102 New York State Energy Law
[3] A5877B, MoA Cahill Sponsor's memo.

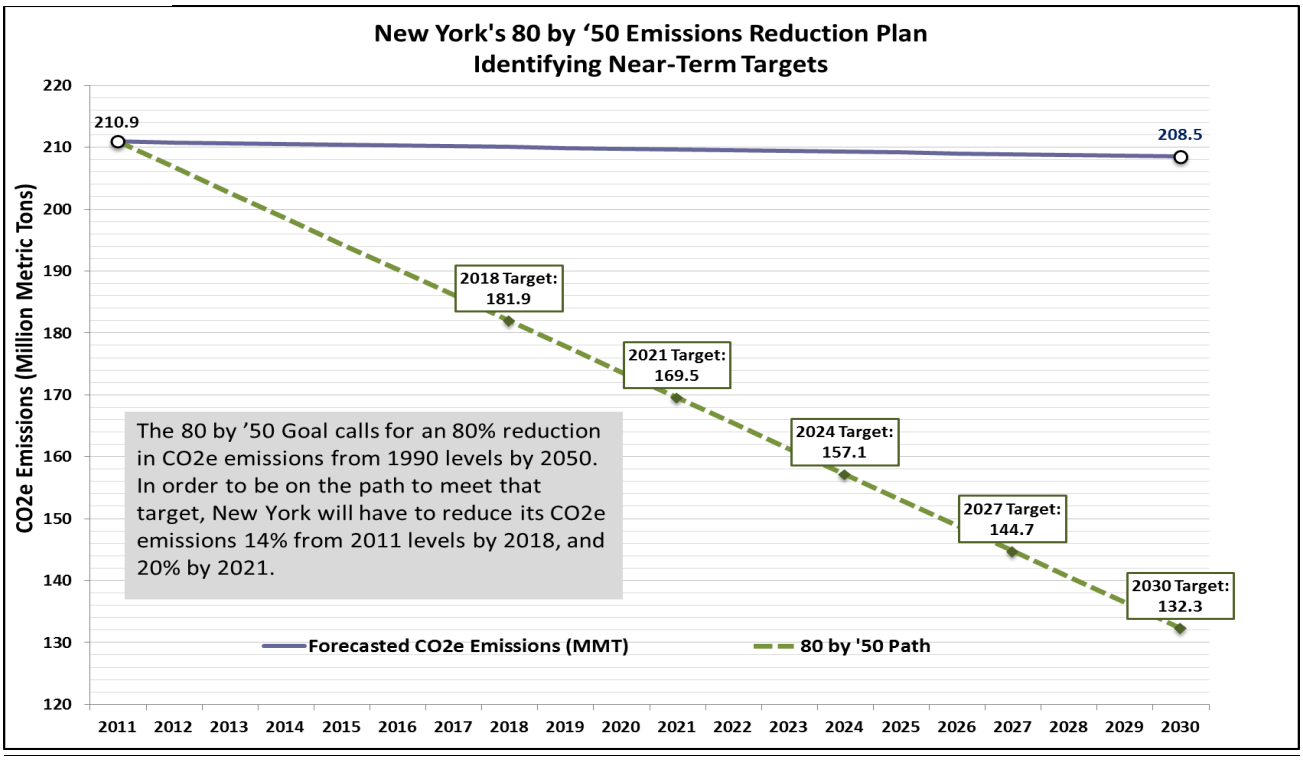
However, the Draft Plan should be revised to reflect the following changes: near and short-term targets should be established in addition to the 2050 goal. Goals should be established as actual GHG tonnage reductions, but should be reported on both in intensity and tonnage terms. Further, the focus should be on reducing carbon equivalent (CO_2e) emissions rather than strictly CO_2.

Establish Near-Term & Mid-Term GHG Reduction Targets. New York should establish near- and mid-term targets to help achieve the year-over-year economy-wide GHG reductions necessary to meet Governor Cuomo's long-term goals. Setting a target date of 2050 provides ample time and flexibility to decision makers and business owners to enact the changes that will result in an 80 percent decrease in GHG emissions.

The drawback of a 2050 goal is that it is 36 years from now, and such a distant target may not factor heavily into decisions made today. While some argue that shorter-term goals tie the hands of program administrators by focusing their attention only on meeting the next goal, Pace argues that this pressure is constructive given the magnitude of the challenge. Nothing focuses the mind like a deadline.

A more serious criticism of establishing short-term targets is that program administrators will face pressure to adopt greenhouse gas reduction measures that install inferior technologies at the expense of strategies and technologies that may take longer to implement, but have greater greenhouse gas reduction potential. Pace recognizes these issues and suggests that longer intervals between goals could address this concern, which we would be open to discussing.

Figure 1



Pace recommends that the Final Plan should establish near term targets, beginning in 2018, to serve as benchmarks towards the 2050 goal. A 14 percent reduction from 2011 levels by 2018 and a 20 percent reduction by 2021 would ensure that the state is on pace to comply with long-term emissions reduction goals.[4] Suggested benchmark targets through 2030 are shown in Figure 1.[5]

Setting near and mid-term targets should also be supplemented by annual reporting. That way, entities responsible for meeting GHG targets and policy makers can better assess progress.

Establishing these GHG reduction targets, and making policy changes to achieve them, will help New York mitigate the very high costs of climate change.

Citing the 2011 ClimAid Synthesis Report, the Draft Plan notes that the *annual* costs of responding to a changing climate at mid-century, without investing in adaptive measures, are estimated at nearly $4 to $8 billion per year.[6] These costs include damage to coastal water treatments facilities, energy outages, and coastal zone real-estate losses, among others.

New York's actions alone will not reverse the negative impacts – States and countries must work together to reduce emissions. But as the Draft Plan notes, implementing a thoughtfully selected policy suite will create economic opportunity and help New York create jobs in the clean energy sector.

Revisit Intensity Targets. The Draft Plan says "investments in clean energy strategies will help New York to reduce the intensity of its carbon emissions from the energy sector by 50 percent by 2030 (measured in CO_2 emissions per Gross State Product from 2010 baseline) putting New York on a pathway to achieve an 80 percent reduction in total emissions by 2050."[7] The problem with an energy intensity target is that it does not ensure any level of actual emissions reductions.

As energy intensity is determined by both emissions and Gross State Product (GSP) a 50 percent reduction in energy intensity by 2030 could be achieved without any actual reduction in emissions. As shown in Figure 2,[8] under a high economic growth scenario the intensity target could be achieved with a significant *increase* in actual emissions. In order for a 50 percent reduction in energy intensity to result in actual emissions reductions on pace to meet the 80 by 2050 goal, New York's compound annual GSP growth rate would have to be approximately 1 percent (which is significantly lower than recent growth trends).

[4] Executive Order 24.

[5] We note the minor differences between initial forecast included in the Draft Plan used for Figure 1 and the NYS GHG Inventory and Forecast published in April 2014.

[6] *Shaping the Future: 2014 Draft New York State Energy Plan*, Vol 2. January 2014. At 25. We also note there's a discrepancy between Table 3 and the narrative found on the following pages. We used the more conservative numbers.

[7] *Shaping the Future: 2014 DRAFT New York State Energy Plan*, Vol. 1. January 2014. At 28.

[8] Figure 2 shows CO_2e emissions, while the Plan's energy intensity target is based on CO_2 emissions. As stated below, we believe that emissions reduction targets should be presented in terms of CO_2e so as to account for the damaging impacts of GHG pollutants other than CO_2.

Figure 2

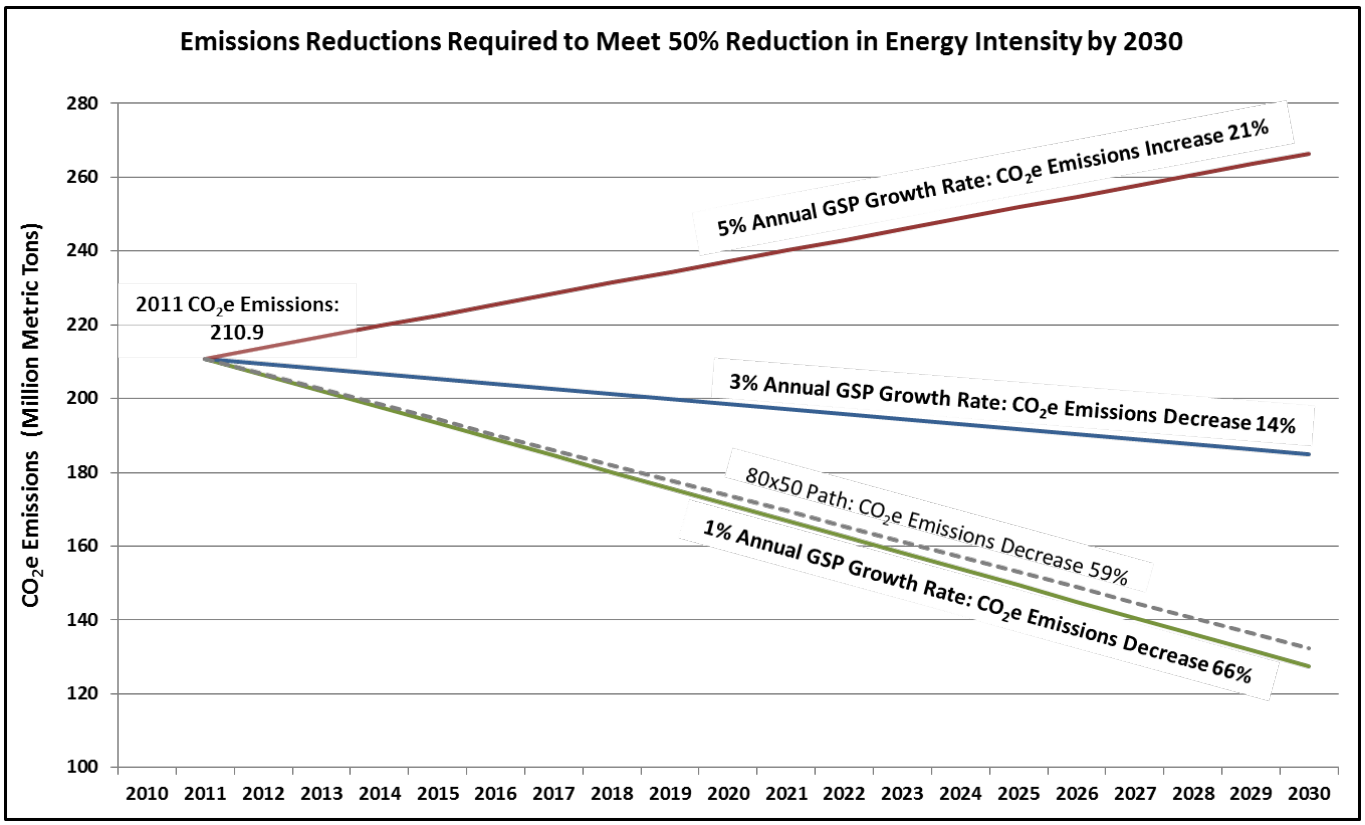


Figure 2 Explanation. Figure 2 shows the change in CO2e emissions that would be required under three economic growth scenarios in order to reduce the state's energy intensity 50% by 2030. The red line represents a 5% combined annual growth rate (CAGR) of New York's gross state product (GSP): this is a high growth scenario. Based on this level of GSP growth, the state's CO2e emissions could increase by 21% from 2011 levels and the intensity target would still be attained. The blue line represents a 3% CAGR: over the last four quarters, US GDP has grown by an average of 2.6% (Bureau of Economic Analysis). Under this reasonable growth scenario, a 14% reduction in CO2e emissions would be enough to meet the intensity target—much less than the 59% reduction in CO2 emissions required to be on pace to meet the 80 by 50 target. Lastly, the green line shows a 1% CAGR, a low estimate. It is only under this low growth scenario that the intensity target would yield emissions reductions comparable to the 80 by 50 target.

Instead of establishing an energy intensity target, which does not ensure emissions reductions comparable to the 80 by 2050 goal, the Draft Plan should set goals in actual tonnage reductions to provide a more accurate measurement of policy performance. While GHG reduction goals should be set in tons, Pace recommends reporting on intensity as well.

Clarify Carbon. "Carbon" should be clarified to refer to CO_2 equivalent ("CO_2e"). Other GHGs are more potent than carbon, and the science has illustrated that a comprehensive approach to GHG reductions is necessary to mitigate climate change. The Draft Plan acknowledges the importance of accounting for other GHGs, but the use of CO_2e in the place of CO_2 should be consistent throughout.

The following measures already sketched out in the Draft Plan will help New York State meet these near-term and mid-term targets.

2) ESTABLISH STATE ENERGY EFFICIENCY & RENEWABLE ENERGY TARGETS TO MEET THE GHG GOALS.

Energy Efficiency (EE): The Draft Plan includes "a state commitment through 2020"[9] to EE programs, which are currently set to expire in 2015. While this time horizon is essential to provide certainty for utilities, building owners, and contractors to invest in EE, the Final Plan should include a commitment with more specific targets to capture all cost-effective EE across all customer classes.

> **A goal of meeting roughly 20 percent of forecasted electricity demand in 2025 though energy efficiency (which equates to roughly 2 percent of annual electric demand being met by efficiency over a 10 year period) should be included in the Final Plan.**

Based on the results of the Energy Efficiency and Renewable Resource Potential Study of New York State 2014 that was published alongside the Draft Plan, this goal is clearly within our reach.

The economic potential for electric energy efficiency is 36 percent of the forecast or 66,123 GWh in 2020 and 45 percent of forecast of 91,856 GWh in 2030.[10] Even as an outer bound, these figures suggest enormous untapped potential to decrease electricity use in New York.

As for achievable potential, or an estimate that takes market barriers and other similar considerations into the deployment of EE, the figures are worth highlighting. Achievable potential is estimated at 12 percent of the 2020 forecast or 21,748 GWh, and 18 percent in 2030, or roughly 36,328 GWh of electricity savings potential. [11] Tremendous efficiency potential also exists for natural gas.

The enormous potential in electricity savings, particularly in the commercial sector as noted in the Draft Plan, suggest this is sure-fire path to reaching Governor Cuomo's long-term greenhouse gas reduction goals. Capturing the full 2020 achievable potential alone would be the equivalent of avoiding 15.79 million metric tons of C02e, or the equivalent of eliminating emissions from 4.1 coal-fired power plants. That kind of reduction would be significant progress toward meeting the second recommended GHG target.

The Draft Plan correctly notes the significant economic benefits that have resulted from New York's existing efficiency programs. For example, current investments in EE by NYSERDA and the utilities have created more than 1,000 additional jobs through the end of 20111. The Draft Plan also appropriately recognizes that investments in energy savings create macro economic benefits including, labor income, and increase employment. And sections of the plan highlight the increasing importance of the clean energy sector in economic development.

---

[9] *Shaping the Future: 2014 DRAFT New York State Energy Plan*, Vol. 1. January 2014. At 31.
[10] *Energy Efficiency and Renewable Energy Potential Study of New York State:* Vol.1. Study Overview. At 21.
[11] Ibid. At 24.

For all of these reasons, EE targets should be set as part of the Public Service Commission's Clean Energy Fund proceeding (14-M-0094), as well as in the context of the Reforming the Energy Vision Proceeding (14-M-0101). And Pace recommends that the Final Plan should include a detailed estimate of economic benefits of establishing the goals and lay out the case for its adoption.

Renewable Energy (RE): The Final Plan must scale up RE. As with EE, the Draft Plan includes "a State commitment through 2025"[12] to a renewable energy portfolio. Just like with EE, the Final Plan should establish a more specific commitment.

> **A goal of meeting half of the state's electricity demand with renewable energy by 2025 (50% by 2025) should be established in the Final Plan.**

Again, based on figures already included in the Draft Plan, these goals are also clearly within our reach. Based on the preliminary results of the Energy Efficiency and Renewable Energy Potential Study, New York has tremendous renewable energy potential.

The estimates for bounded technical renewable potential suggest that New York could generate 58,585 GWh of electricity or meet 33 percent of its electricity needs with renewables by 2020. New York could generate 138,975 GWh with renewables or meet 70 percent of its needs by the year 2030.[13]

Just like with EE, the economic benefits of RE are significant. The Draft Plan states that New York's current RPS public investments have leveraged nearly $3 billion in private investment and construction of these projects have helped create nearly 1,400 net jobs.

The long-term commitment to renewable energy provides other economic benefits as well, such as decreased reliance on fossil fuels and a reduction in exposure for all consumers to fossil fuel price volatility. Further, updated cost benefit analysis is likely to show these technologies can be competitive when the negative factors of existing energy production are taken into account.

Further, many customers in NY who pay into the RPS are unable to site solar, wind, or other renewable technologies where they live or work due to infrastructure constraints. To address this barrier, the Final Plan should include a commitment to pursue the regulatory and/or legislative changes necessary to allow customers to aggregate their demand and subscribe to an offsite renewable project that would offset a portion of their demand from the grid (known as "shared renewables" or "community energy").

Again, Pace recommends that the Final Plan should include a detailed estimate economic of the benefits of establishing this 50 percent by 2025 goal for RE and explain the policy case for its adoption.

[12] *Shaping the Future: 2014 DRAFT New York State Energy Plan*, Vol. 1. At 37.
[13] *Energy Efficiency and Renewable Energy Potential Study of New York State 2014*. Vol. 1. Study Overview. At 32.

3) STRENGTHENING BUILDING CODES & END USE EFFICIENCY IN BUILDINGS

While the Draft Plan notes that the New York State Energy Conservation Construction Code (ECCCNYS) will be updated in 2014 and increase the efficiency of buildings by 18 to 24 percent, codes and appliance standards must be aggressively enforced.

For too long, this area has suffered from lack of funding and political will to follow through on stated commitments. For example, the American Recovery and Reinvestment Act of 2009 (ARRA) required that new construction and renovations achieve 90 percent Energy Code compliance in by 2017. The Draft Plan references a New York Statewide Compliance Study that investigated the degree to which recently constructed New York buildings comply with the ECCCNYS.

While the study was only a snapshot of construction activity, using two different evaluation methods and using codes in effect at the time of permitting "neither the commercial nor residential sampled buildings meet the ARRA goal of demonstrating 90% compliance."[14] The study ultimately concluded that changes in all levels of government are required to help meet the ARRA targets. In general, the problems with wielding building codes as an efficiency mechanism have been found to be psychological rather than technical.

As buildings account for the lion's share of energy demand, strengthening codes and standards will both spur economic growth and reduce emissions. The Final Plan should build on the Draft Plan's mention of codes and standards as a priority by including more specific action items and recommendations.

For instance, NYSERDA cites that it has trained 17,000 code enforcement officials, architects, engineers, and builders. Establishing updated training targets, or aggressively driving participants to already created online resources. Updating the code is not enough.

4) PURSUE AGGRESSIVE TRANSPORTATION SECTOR GHG REDUCTIONS

The transportation sector accounts for the largest portion of New York's GHG emissions, and historically has also been the fastest growing contributor year over year. Based on improvement for vehicle fuel economy and declining rates of vehicle miles traveled, the forecasts for emissions from the transportation sector show a slower rate of growth. But transportation-related emissions still makes up 42 percent of New York's emissions profile.

> **A transportation emissions reduction goal should be established and policy makes should model a suite of actions to meet the goal.**

[14] New York Energy Code Compliance Study for Energy Final Report Original Publication January 2012 Revised January 2014 Report Number 14-05.

Achieving major reductions in transportation emissions require action on many fronts. As the Draft Plan notes, the complete suite of policy actions includes encouraging the development and use of more efficient vehicles and promoting all types of alternative fuel vehicles. These are also lower cost options than major land use changes.

An area with significant promise involves promoting the use of electric vehicles. New York should continue investing in electric vehicle (EV) infrastructure while also making the necessary regulatory changes at the PSC to remove barriers to EV adoption. There are additional challenges such as working with local planning boards to eliminate archaic local land use laws that prevent the fast adoption of charging stations.

The Governor has moved in the right direction by creating Charge NY, a new program announced by Governor Cuomo on September 6, 2013 to accelerate the integration of electric vehicles into the market. Through this program, the state will invest in electric vehicle charging infrastructure and technology, and will engage universities, research centers, and technology-based business and manufacturers. Charge NY's goal is to have a network of 3,000 public charging stations throughout the state. That said, the pace of this program's implementation seems to have slowed.

The PSC should require the DMV to inform the utilities of plug-in electric vehicle (PEV) purchases within their utility territory to prevent load growth pockets that require equipment upgrades or that may cause system failures. The PSC must do more to create pricing schemes that will attract PEV customers to the market. Creating super off-peak pricing schemes, such as the San Diego model, would encourage PEV customers to charge during off-peak hours preventing load spikes during peak hours, while saving customers money. Educating the public about the economic, health, and environmental impacts of PEVs is vital to achieving wide adoption. Educating customers about the actual transportation costs of electricity as compared to gasoline at the pump is one such initiative. Providing better meters along with value added price signals and integrating the meters into the grid will maximize system benefits.

In addition, some municipalities who would like to install PEV charging stations bump up against utility franchise issues preventing wide scale adoption. This lack of legal certainty leads to a lack of private investment. The PSC should act quickly to address the legal uncertainty related to installing, owning, controlling or selling electricity in the grid.

The Governor must also ensure New York plays a lead role in fulfilling the recently signed eight state Zero Emission Vehicle MOU, and explore mechanisms that can track and potentially reduce the carbon intensity of the state's liquid fuels – which are on a path to get dirtier as tar sands-derived fuels potentially enter the state's market.

The Zero Emission Vehicle MoU is a memorandum of understanding to put 3.3 million zero-emission vehicles on the roads of the signatory states by 2025, with refueling infrastructure to support those vehicles. California, Oregon, Massachusetts, Connecticut, Vermont, Rhode Island, New York, and Maryland signed this memorandum in October 2013. Zero-emission vehicles include electric vehicles, plug-in hybrid-electric vehicles, and hydrogen fuel-cell electric vehicles.

These eight signatory states represent 23% of the US car market. The MoU calls for the creation of a ZEV Program Implementation Task Force, which is to come up with a plan of action within six months to meet the MoU's goals. As a first step, the governors of the eight states agreed to several efforts, including harmonizing building codes and considering the establishment of favorable electricity rates for home charging stations.[15]

5) UPDATE SOCIALLY OPTIMAL COST-BENEFIT ANALYSES

Cost Benefit Changes: We are very pleased that recent Public Service Commission orders have identified the need to revise and update the various cost-benefit measures traditionally used and required by the state agencies in designing and implementing their renewable and energy efficiency programs.

It is critically important that the "price effect" of these programs also be included. The price effect of reduced demand can be significant in the wholesale markets for energy and capacity. This is especially the case during peak periods. Failure to include the price effects of reduced demand makes energy efficiency measures appear less cost effective.

Further, present State policy excludes these price effects on the basis that they are mere income redistributions. But the redistribution that results from these programs benefits the in-state consumers while burdening the very largely out of state fossil fuel providers and independent generator owners.

We find this distinction both telling and compelling, and urge the State to include some form of price effect in future cost-benefit analyses. It is critical that evaluation and assessment programs be initiated immediately so that we can measure and evaluate and improve the new Green Bank programs as they emerge.

Full Fuel Cycle Carbon Costs: In concert with its decision to start to include reasonable estimates of carbon costs in its cost benefit analyses for energy efficiency and renewable energy, New York should start to assemble and calculate data on the full amount of climate change gases emitted by the various fuels—through their full cycle. Pace finds it instructive that the U.S. Department of Defense is now considering life cycle fuel costs in its major planning decisions.

Much attention has appropriately been directed recently at the escape of methane gas in the drilling and transportation stages of its cycle. NYSERDA, or some other agency should take the lead in developing—or having a contractor develop—a "best estimate" of these climate change gas emissions associated with natural gas, coal and oil used in New York State.

[15] http://www.oregon.gov/deq/docs/MOUzev.pdf.

CONCLUSION

Thank you for the opportunity to comment. Again, the five improvements we recommend will build upon the already strong foundation established in the plan. Pace looks forward to a continued productive dialogue throughout the planning process.

Very truly yours,

Pace Energy and Climate Center

APPENDIX A