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MEMORANDUM

September 20, 2010

To: RGGI State Commissioners and Staff (electronic submission – info@rggi.org)

From: Derek K. Murrow, Energy & Climate Policy Director
Peter Shattuck, Carbon Markets Policy Analyst

Endorsed By: Ross Gould, Air & Energy Program Director, Environmental Advocates of New York

RE: Comments on Draft RGGI Reference Case Assumptions for the Program Review

The Regional Greenhouse Gas Initiative (RGGI) is presently the only mandatory carbon cap and trade program in the United States, and we want to thank and congratulate you for your ongoing leadership in developing and implementing a successful program. RGGI has shown that bipartisan efforts by diverse states can deliver a reasonable and transparent market-based environmental policy that guides investment towards cleaner sources of energy. We hope that policy makers in other regions and at the federal level can and will build on RGGI's successes, and we support ongoing efforts to bring forward-thinking energy and climate policy to the rest of the nation.

RGGI's contributions to cap and trade program design are significant and diverse. Auctioning nearly all of RGGI's emissions allowances optimizes economic efficiency by distributing allowances to entities who value them most, while providing an incentive for investments in low-carbon technologies. The majority of the proceeds from RGGI auctions are wisely invested in energy efficiency, reducing consumers' energy bills, reducing emissions, and achieving program goals at lower costs. RGGI also has a sound offset mechanism, which provides clarity and administrative simplicity through rigorous standards guaranteeing that emissions reductions outside of the cap are real, surplus, verifiable, permanent and enforceable. RGGI's governance has also been exemplary, with eight regional auctions to date carried out under diligent market monitoring, and allowance tracking and other pertinent information disseminated by member states in coordination with RGGI, Inc.

We commend RGGI states for initiating the review process to capitalize on RGGI's success and to strengthen the program going forward, and we look forward to participating in the development of a reference case and in subsequent components of the review process. We believe that accurate modeling and scenario development will help inform the 2012 modeling review and promote the development of sound climate policy.

As states begin to look back on the early performance of RGGI, it is important to recognize that the emissions decline in the first few years of RGGI is an excellent outcome, and is consistent with other cap and trade programs where the environmental outcome is delivered more rapidly and at lower cost than anyone anticipated. In order to learn from and take advantage of the emissions decline it is imperative that the reference case be structured appropriately, and that sensitivities be used to predict future trends with maximum possible accuracy. In this round of modeling the most important driver to

characterize accurately is energy consumption, as efficiency program investments (supported with RGGI revenue and other sources of funding) are increasing significantly across the region, decreasing demand and reducing electric load. Another important driver is relative fuel prices, as fuel price sensitivity in the electric sector can have a significant impact on the generation mix and emissions, evidenced by the steep decline in emissions from 2005-2009 caused, in part, by increased utilization of cheaper, lower-emitting natural gas generation, in addition to decreased consumption.

As clarified at the September 13th stakeholder meeting in New York, the reference case should be based on RGGI in its current form – this was not clear in the materials posted to the web. Additionally, we believe that the process of developing an accurate reference case would be strengthened by providing a higher level of assumptions detail to stakeholders when the reference case results are presented, which will allow all interested parties detailed review of both assumptions and results.

General Comments

The reference case should be based on RGGI as it stands now, and this should be expressly stated to provide clarity that is currently lacking. Information should be provided on how the RGGI cap will be applied in the model in order to ensure that all stakeholders are working from a common starting point. Additionally, the cap should be scaled downward based on emissions levels projected by the model in the first model year. Emissions levels projected by the prior round of IPM modeling diverge to some degree from actual emissions – not surprising for a large-scale planning model – so some scaling will be needed to provide an accurate assessment of the RGGI cap on the electric sector.

In order to build an accurate projection of future energy trends, legislative requirements should be included in the modeling effort, including planned investments of allowance value in energy efficiency and requirements to expand energy efficiency investments using RGGI revenue and other sources of funding.

In terms of process, we believe that the modeling exercise and subsequent results will be strengthened by allowing for a round of responsive comments in this initial cycle and all following cycles. Allowing for responsive comments will maximize stakeholder engagement and utilize the full expertise of all interested parties.

Comments on Category A

Cost and Performance of New Generation

For the cost and performance of new nuclear plants we support using the national academies study, but we encourage additional review of recent synthesis reports from Grubler in Energy Policy¹, Cooper at Vermont Law School² and Lovins and Sheik at Rocky Mountain Institute.³

Coal Plant Construction in RGGI

Within the model new coal plants should only be allowed with carbon capture and sequestration (CCS) technology and with advanced air emissions controls. However, we believe the states should think carefully about allowing them at all, as we believe that these projects are likely too expensive to be financed in restructured electric markets (which exist in almost all RGGI states) as there is inadequate

¹ Arnulf Grubler, 2010, *The costs of the French nuclear scale-up: A case of negative learning by doing*, Energy Policy, Volume 38, Issue 9, Special Section on Carbon Emissions and Carbon Management in Cities with Regular Papers, (<http://www.sciencedirect.com/science/article/B6V2W-505G2PF-1/2/e0562afd31f07af99b5d0681b94720c3>)

² Cooper, 2010, *Policy Challenges of Nuclear Reactor Construction, Cost Escalation and Crowding Out Alternatives*, available at: http://www.vermontlaw.edu/Documents/IEE/20100909_cooperStudy.pdf

³ Lovins and Sheikh, 2008, *The Nuclear Illusion*, available at: http://rmi.org/rmi/Library/E08-01_NuclearIllusion

long-term contracting ability to support advanced coal plant builds, and capacity markets are likewise unable to deliver sufficient revenue to build and finance advanced coal plants

Nuclear Plant Construction in RGGI

Similar to new advanced coal plants, we believe that new nuclear plants are too expensive to be financed in restructured electric markets (which exist in almost all RGGI states) as there is inadequate long-term contracting ability to support new nuclear plant builds, and capacity markets are likewise unable to deliver sufficient revenue to build and finance new plants. We also believe that given the history of Nuclear in the northeast in terms of cost and safety issues, no nuclear plant will be sited and built within any reasonable modeling timeframe.

Firmly Planned Generation and Retirement

We support use of ISO interconnect queues for firmly planned generation and retirement, but only for those plants that are under construction, otherwise the model should be allowed to determine new generation builds and retirement on an economic basis. We also support the inclusion of recommendations from state regulators on planned or required retirements.

We also believe that economic drivers and state and federal incentives and regulations may lead to the addition and/or increased operation of combined heat and power (CHP)/Co-generation units, which therefore should be incorporated into the model.

Firmly Planned Transmission Additions

We believe that firmly planned transmission additions should only include what is fully permitted by the states and approved by state and federal energy regulators.

Comments on Category B

Fuel Prices

The price of different fossil fuels is one of the most important determinants of RGGI region emissions, and was arguably the greatest determinant of outcomes in the 2004-2006 modeling runs. The future price of fossil fuels is also one of the most difficult variables to predict when modeling power sector behavior. Thus, we believe that the present round of modeling should incorporate information from as many relevant sources as is practicable, extending beyond market futures prices and estimates from the Energy Information Administration's *Annual Energy Outlook*.

We recommend seeking additional input on natural gas price assumptions from natural gas distribution companies in the RGGI region. Natural gas price forecasts provided by distribution companies within utility proceedings may provide local prices that are useful for prediction of power sector behavior in addition to national forecasts. These projections may also provide alternative price trajectories to the approximately 50% increase over 10 years shown in the presentation slides. In light of technological advances and expanded shale gas supply,⁴ we believe that the "leaning" rate of natural gas price increases may be too high. High and low natural gas price scenarios from Synapse Economics' *Avoided Energy Supply Costs in New England: 2009 Report*⁵ may also provide useful information for sensitivity analysis.

We also recommend consulting coal generators on coal price assumptions in order to provide additional granularity to price projections.

⁴ Navigant Consulting, 2008, *North American Natural Gas Supply Assessment*, available at:

http://www.navigantconsulting.com/downloads/knowledge_center/North_American_Natural_Gas_Supply_Assessment.pdf

⁵ See Chapter 3 (p.85): <http://www.synapse-energy.com/Downloads/SynapseReport.2009-10.AESC.AESC-Study-2009.09-020.pdf>


ENE has been reaching out to energy companies to collect additional forecast and pricing data but the timeline for comments is such that we will likely have to provide supplemental input.

Regional Energy and Peak Demand

Electricity demand is also one of the most important drivers of RGGI-region emissions, and it is essential that the model incorporate increasing energy efficiency investments that are reducing electricity consumption across the region. While ISO forecasts may provide an adequate starting point for demand assessments, such forecasts do not adequately capture existing and new legal requirements at the state level that are significantly increasing investments in all cost-effective energy efficiency.

We believe that efficiency can be incorporated into the model most accurately by using ISO forecasts that are focused on economic trends, and layering additional efficiency requirements and investments on top of those ISO forecasts (as was shown at the NYC meeting in the supplemental slides). The importance of accounting for efficiency investments cannot be understated, as states ramping up to procure all cost-effective energy efficiency will achieve first year annual savings in excess of 2% (this process is underway in ME, MA, RI and VT, and is mandated and proposed by utilities in CT). NY has also made significant new commitments to expand efficiency investments. Savings goals for MA and RI are included in Table 1, and comparable figures should be used for all RGGI states.

Table 1: Energy efficiency savings goals for Massachusetts and Rhode Island⁶

 ENE Environmental Network	2010		2011		2012		2013		2014	
	MA	RI	MA	RI	MA	RI	MA	RI	MA	RI
Savings Target (% of 2009 Retail Sales)	1.40%	1.33%	2.00%	1.36%	2.40%	1.70%	--	2.10%	--	2.50%
Annual Energy Savings (MWh)	624,427	88,546	897,232	102,566	1,103,423	128,570	--	158,820	--	189,068
Summer Demand (kW)	100,277	15,154	145,098	18,512	179,139	23,204	--	28,664	--	32,759

Thorough efforts should be made to incorporate efficiency mandates in all states, and to ensure that other efficiency programs such as minimum efficiency standards for buildings and appliances and efficiency programs funded by the American Recovery and Reinvestment Act are incorporated into the model.

ENE anticipates filing supplemental comments and data on efficiency program energy savings for ME, CT, and possibly other states.

Comments on Category C

Federal Environmental Policies

Federal environmental policies have significant potential to affect the RGGI region electric sector, and all present and forthcoming federal mandates should be included in the model. The model should therefore include as assumptions all proposed and planned rules from EPA for air pollutants. This list should include not only MACT for mercury as proposed by RGGI, but also MACT for other hazardous air pollutants. Certainly CO₂ should be part of this, as the Supreme Court established in *Massachusetts vs. EPA* that GHGs are air pollutants, and the EPA has subsequently determined to regulate GHG emissions under the Clean Air Act. (Further EPA regulation of GHGs should be considered for possible sensitivity scenarios in the modeling.) On the legislative front the model should assume no

⁶ MA savings figures based on approved statewide electric efficiency plan: <http://www.ma-eeac.org/docs/DPU-filing/1-28-10%20DPU%20Order%20Electric%20PAs.pdf>

RI savings figures for 2010-2011 based on approved statewide electric efficiency plan:

[http://www.ripuc.org/eventsactions/docket/3931-NGrid-ComplianceProcurePlan\(9-3-08\).pdf](http://www.ripuc.org/eventsactions/docket/3931-NGrid-ComplianceProcurePlan(9-3-08).pdf)

RI savings figures for 2012-2014 based on filing by Energy Efficiency Resource Management Council with the RI PUC in Docket number 4202 on 9/1/10: [http://www.ripuc.org/eventsactions/docket/4202-EERMC-EST-Filing\(9-1-10\).pdf](http://www.ripuc.org/eventsactions/docket/4202-EERMC-EST-Filing(9-1-10).pdf)

activity, as the prospects for passage and implementation of federal climate legislation are limited in the near term and the content of such legislation is completely uncertain.

Comments on Category D

Renewable Portfolio Standards

We support the use of regional market information for incorporating renewable portfolio standards within the model, including state-specific supply percentages by resource type where relevant. Alternative Compliance Payment (ACP) revenue should be used to fund renewable incentives for the lowest priced resources.

Incentives for combined heat and power (CHP) systems, such as Massachusetts' Alternative Energy Portfolio Standard⁷ and Connecticut Class III should be incorporated into the model.

State Environmental Policies

We are leaning toward supporting the use of existing requirements, as provided by States, but we would like to see additional details on the assumptions that would be used in the modeling.

Cost and Performance of Pollution Controls and Firmly Planned Control Installations

No comments.

Comments on Category E

Transmission Capability

We believe that limited additional transmission, beyond what's approved today, will be needed for reliability if reasonable assumptions are made in regards to new efficiency investments. But we support the use of ISO studies for any other reliability need identified by the model.

Reserve Margins and Local Reserve Requirements

We support the use of ISO requirements and projections for reserve margins and local reserve requirements, so long as downward adjustments are made to peak demand to reflect investments in efficiency and demand response.

Offsets

For modeling offsets availability, we support the use of EPA price and availability estimates scaled to RGGI, but we recommend that international offsets be excluded due to the complexity of negotiating international agreements with other countries and the ability of RGGI states to police offset quality outside of U.S. borders, on top of the price based limitation that already exists in RGGI. We also recommend that input be requested from the MJBBradley team related to their experience in acquiring offsets, specifically input on how prices for proposed RGGI offsets related to projected offset prices.

Comments on Modeling Results

We assume and encourage that when the modeling results (and more detailed assumptions) are presented to stakeholders at least the same level of detail will be provided as was provided in the 2004-2006 modeling process.

⁷ See: <http://www.mass.gov/Eoeea/docs/doer/rps/rps-225-cmr16-mar-12-2009.pdf>

We also suggest that results be translated outside of IPM into estimated bill impacts in terms of average residential customers' total bills, which will allow efficiency program costs and benefits to be fully captured (bills are what people pay and equal consumption times rates/prices).

Comments on Sensitivity Analysis

In order to provide a comprehensive assessment of potential outcomes for the electric sector in the RGGI region, we suggest that the following types of sensitivities be explored:

- Energy prices
 - Constant, stable natural gas prices – based on current prices
 - High fossil fuel prices – based on AEO forecasts
 - High coal prices – additional development of this scenario is needed, but it should assume at least: significant restrictions on mountain top removal and water pollution; increased safety standards at mines; and constraints to rail availability and expansion
- Energy consumption and peak demand
 - High economic growth
 - Low economic growth
 - High economic growth with investment in all cost-effective energy efficiency (ramp up to 2.5% first-year savings within 5 years in all states)
 - Low economic growth with investment in all cost-effective energy efficiency (ramp up to 2.5% first-year savings within 5 years in all states)
 - High economic growth with no investment in energy efficiency
 - Low economic growth with no investment in energy efficiency
- Low-cost Renewables – assume aggressive learning curves to simulate technology breakthroughs and lower costs

We also suggest that some combined sensitivities be considered that are 2nd or 3rd best-guess scenarios for a reference case, as we should not assume that there is one answer for business-as-usual and some of the sensitivities may produce extreme results that should be discounted

Thank you for the opportunity to comment on the modeling assumptions to date and feel free to contact us with questions.

Respectfully submitted,

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