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From: NRG Energy, Inc.

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Subject: NRG Summary Comments on Auction Design Recommendations

NRG Energy, Inc. ("NRG") is a leading wholesale power generation company, primarily engaged in the ownership and operation of power generation facilities and the sale of energy, capacity and related products in the United States and internationally. In the Regional Greenhouse Gas Initiative (RGGI) applicable states, NRG owns just over 7,700 MW or a little over 8% of the installed fossil-fired generation. As a result, an effective auction design is important for our operations.

A national climate change program that is focused on reducing GHG emissions across the country in an economically responsible manner would alleviate many of the issues facing a regional program like RGGI. Such a regional program can result in distorted energy costs and a less than robust secondary allowance market disadvantaging native generation. When national legislation is enacted and becomes effective, the RGGI provisions including a regional auction, should sunset.

The comments below are offered on the recommendations in the recently published auction design report, "Auction Design for Selling CO2 Emission Allowances Under the Regional Greenhouse Gas Initiative", issued October 2007 ("Report").

1. Auction Format- A single-round sealed-bid uniform price auction format was recommended. NRG supports the objectives of simplicity, transparency and achievement of a bid price/value match for the auction. We are familiar with this format as it is consistent with energy markets in which we participate. NRG does not disagree with the Report's recommendation. One point to add is that the primary and secondary markets will depend on consistency in market rules so the auction format should not be varied once selected. NRG does not disagree with this recommendation.

2. Auction Timing- NRG supports quarterly auctions and the stated goal of June 2008 for the initial auction. However, the suggested timing of auctions should be modified slightly so that allowances for a particular vintage year are available a quarter earlier. The clearing price should be published quickly after the auction. At the time that national legislation becomes effective, purchased allowances (and offsets) should be transitioned to the national program and the regional auction should be discontinued. The report recommends separate auctions for different vintages. NRG concurs that different vintages may have different values and does not disagree with this recommendation.
3. Allowance Availability: NRG agrees that future allowances should be made available early for planning purposes and that four years in advance of their vintage year is appropriate. There remains, however, concern about the financial impacts to compliance companies due to the number of allowances to be purchased for any given year. Because the purchase in the auction is a binding document, carrying costs for affected sources would result in increased electric costs and compete with funding for other capital investments. This includes investments in the 2009-2012 timeframe to significantly reduce other regulated pollutants, investments in future technologies to reduce CO2 emissions and the construction of new, cleaner generation. NRG recommends a staggered payment plan by vintage year. For example, payment for any given vintage is due at the start of that year with an option for earlier payment if the allowances are to enter the secondary market. This approach would supply a constant stream of revenue to the states while minimizing cost impact to the electric markets.
4. Reserve Price- NRG disagrees that a reserve price is necessary. Affected units have much at stake and, typically, act conservatively in compliance issues. These units will likely seek to hold allowances for already bid energy commitments plus a buffer in the event of unplanned weather or unit outage events. If RGGI states elect to implement a reserve price, it should be carefully selected to avoid undue increases of the market price. NRG recommends that if a reserve price is employed, it should be established at no more than 50% of the \$2 auction price on which the RGGI modeling and analysis were based. Also, the use of a reserve price should sunset after the first year of auctions. Any reserve price must be published prior to the auction to provide a clear understanding of auction rules to all participants.
5. Tie Breaker- In the case of a tie at the clearing price of the auction, the Report recommends a random process to award allowances. NRG recommends that the allowances be apportioned to tying entities based on the size of their bid at that level. This approach is fair and should not pose undue burden on the auction administrator.
6. Two options are presented for unsold allowances; rollup into a contingency plan for release at the first offset trigger price (\$7) or inclusion as part of the next auction. Given compliance obligations and penalties, it is likely that all allowances will be sold. NRG again recommends publishing a reserve price, if one exists, prior to the auction. In the event that there are unsold allowances, NRG recommends that they

be rolled over to the next auction. Holding unsold allowances in a “contingency fund” to be sold when a price trigger is reached would artificially reduce the cap size as well as force a market price unrelated to the true market value.

7. Lot Size- Annual emissions from RGGI units can be quite large. Given the magnitude of allowances in the auction, NRG recommends that an auction lot size of 5,000 allowances. This should reduce the administrative and bidding costs without placing a significant burden on bidders.
8. The report recommends that auctions should be open to anyone willing to meet financial pre-qualification. Although NRG agrees that multiple participants can facilitate a secondary market, this program is unprecedented in the lack of any allocation to compliance sources. In other programs, the secondary market developed from excess allocated allowances or a smaller portion of allowances made available through an auction. The MOU on which the program is based anticipates this approach. Initial offerings should be restricted to compliance sources in order to build up an initial level of held compliance allowances. NRG recommends a transition to open auctions.

The attached description of our concern with robustness of the secondary market describes why we believe that there is a potential problem. Additional studies are warranted to insure that appropriate market monitoring procedures can be developed to prevent problems before they affect the viability of the auction and secondary market.

Generators should be exempt from the surety requirements for auction participation. Requiring surety from generators adds an unnecessary cost burden, which also will contribute to electricity prices as generators seek to pass on those costs to consumers to the extent possible.

9. Accepted Bids should be treated as Binding Contracts- NRG agrees that a bid should be a binding obligation to buy and suggests that the bid be used to establish payment schedules as discussed in item 4.
10. RGGI Inc. regional auction- NRG recommends that all states participate in a regional, uniform auction. Climate change is a global issue best addressed, at a minimum, at the national level. Further fracturing of the RGGI regional approach should be avoided.
11. Market Monitoring - NRG agrees with the concept of RGGI market monitoring described in the report and recommends that the rules for market monitoring be defined before the auctions start. It is important that this system be capable of identifying problems as well as taking action to mitigate.
12. Declaration of beneficial ownership- NRG agrees that the requirement for participants to describe “beneficial ownership” is appropriate.

13. NRG agrees that RGGI should articulate the auction goals through a "Statement of Intent," and urges RGGI to articulate those goals as clearly as possible in such a Statement. While NRG appreciates RGGI's desire to ensure that auction participants not behave in a manner that would undermine the articulated auction goals, NRG does not agree that requiring participants to "acknowledge" and "agree" to such a Statement of Intent is the appropriate means to ensure against behavior that would undermine the auction goals. To achieve RGGI's desired ends, NRG urges RGGI to reflect the auction goals in well-defined "Auction Rules." By clearly stating the auction rules, and requiring each participant to agree to be bound by such rules, RGGI will achieve its desired result.
14. Ongoing auction evaluation- NRG recommends that the RGGI member states or RGGI, Inc. track auction performance, secondary market development and energy markets as the rules are implemented. The interaction of state rules and auction design to mitigate economic, energy, and environmental issues is fundamental. Should allowances become unavailable or excessively costly, the states should have provisions beyond those in the model rule, to mitigate the consequences. State rules should provide off ramps including the ability to limit auction participants, provide additional allowances from future years, and waive or suspend compliance obligations for budget sources.

Thank you for the opportunity to comment on the very important topic of auction design. NRG appreciates the efforts that Professor Shobe and the auction design team have made to address comments provided after the Phase I auction report. We look forward to continued development of solutions as RGGI auction design progresses.

Respectfully submitted,



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Attachment to NRG Comments on Auction Design Recommendations Secondary Market and Auction Participants

To date, no analysis has been conducted to evaluate the robustness of the secondary market and its potential impact on the auction. The auction analysis did not attempt to simulate how the actual market participants would likely act. Our concern is twofold: first, purchasing behavior in the auction itself may well be driven by inefficiencies in the secondary market due to poor liquidity and the potential for withholding of allowances to markedly increase prices. Second, an auction predicated on a highly liquid and competitive secondary market may actually contribute to inefficiencies in an imperfect and illiquid secondary market.

A viable secondary market would be characterized by a high level of liquidity, that is, it would be a market where there are numerous buyers and sellers, where market prices are available, where the difference between the price asked and price bid is small, and where a single sale of allowances would not affect the market price. The primary cause for concern is the fact that setting aside "most" of the allowances for an auction changes the dynamics of the secondary market for allowances. In previous programs the secondary market consisted mostly of allowances that were deemed excess by a facility that reduced its pollution levels. As proposed it is not clear who will sell allowances in the RGGI secondary market nor when they will sell allowances.

There will likely be three major categories of market players with three different motives to participate in the auction market. The first category is sources that have compliance obligations. In previous programs affected sources traded allowances surplus to their compliance needs primarily to other affected sources that were fulfilling their compliance obligations in the secondary market. The second category is organizations that purchase allowances in the auction to retire them outside the program either to reduce CO₂ emissions or for compliance with other CO₂ reduction programs. These organizations will not participate in the RGGI CO₂ secondary market. The third category is organizations who would buy allowances to speculate either directly in the CO₂ market or in various associated energy markets. The question that has not adequately been addressed is what will happen if those organizations hold allowances that are needed by affected sources to comply with the reduction requirements.

As proposed, all affected sources will be short of allowances. It is unlikely that affected sources will sell allowances in the secondary market until they believe they can meet their budgeted compliance obligations. If they do sell before they are sure they have enough for compliance, then they run the risk of having to purchase allowances at a later date and potentially higher cost. Table 1 shows the distribution of New York allowances available in the auction relative to the expected emissions. In this case the expected emissions are a conservative estimate that reduces historical emissions and includes expected retirements. Even if affected sources assume that they only need to purchase 90% of their expected emissions before determining if they want to trade and that this category of auction participants buys all the allowances available in the auction, they will not have 90% of the allowances necessary to meet their expected compliance obligations in their accounts until the fourth quarter of 2010. Therefore it is unlikely that this participant category will provide many, if any, allowances to the secondary market particularly in the early phases of the program.

The second auction participant category, by definition, purchases allowances in the auction to retire/use them outside the program. There will be two types of players in this category: companies affected by other CO2 reduction programs and organizations that buy allowances to retire them to meet their environmental goals. This category of participants has not been a factor in previous cap and trade programs but potentially could be a major factor in this program. Any estimate of this impact depends entirely on guessing how much money they will invest in allowances.

Ultimately the goal of all CO2 cap and trade programs is to have interchangeable allowances that can be exchanged globally. Consider, for example, Illinois ("IL") Gov. Rod R. Blagojevich's statewide goal to slash the production of heat-trapping greenhouse gases (GHGs) to 1990 levels by 2020 and 60 percent below 1990 levels by 2050 announced February 14, 2007. ICF International, in partnership with Systematic Solutions Inc. is assisting the World Resources Institute to model alternate policies to achieve this goal. This is relevant for the RGGI auction design process because one of the modeling sensitivities linked the proposed IL cap and trade program with RGGI (<http://www.epa.state.il.us/air/climatechange/documents/index.html#090607mtg>). The modelers estimated that IL sources would obtain RGGI allowances for compliance with the IL program and would pay \$10/allowance to purchase 33 million RGGI allowances in 2020, representing 17.5% of the 188 million ton RGGI budget. In 2015 they predict IL would purchase 14 million allowances or 7% of the 188 million ton budget. Presumably, the model has determined that RGGI allowances are a cheaper (even at \$10 each) control option for the Illinois program. In the future the European Union program could also accept RGGI allowances providing more pressure on the market.

The other group in this category includes environmental organizations and individuals that buy allowances specifically to retire them to reduce CO2 emissions. If the allowances are held by an organization without compliance obligations, then the equivalent pollution cannot be emitted. This has been a very minor part of the Acid Rain Program to date. However, the public awareness of climate change and voluntarily reduction commitments could very easily become a significant consideration. For example, the Volkswagen "Carbon Neutral Project" is an initiative that is "making it easy for Volkswagen owners and friends to take action toward offsetting their carbon emissions right away". Volkswagen promises to offset the carbon emissions for one year of every new Volkswagen purchased in the U.S. from September 1, 2007 thru January 2, 2008. The contributions of the Carbon Neutral Project will be funneled through Carbonfund.org and put "toward the re-forestation of the Lower Mississippi Alluvial Valley, a.k.a. The VW Forest". The calculation for the carbon offset (<http://www.carbonfund.org/vw>) estimates total annual CO2 emissions from automobiles and calculates an offset cost of \$5.50 per ton. Presumably Volkswagen or any other organization can achieve CO2 reductions by offering to retire RGGI CO2 allowances (if the price is right).

The final category is for-profit companies that could purchase RGGI allowances to either speculate in the CO2 market itself or various associated energy markets. Companies have entered existing allowance markets to pursue arbitrage opportunities and have helped increase trading activity and efficiency. However, CO2 cannot be directly controlled like SO2 or NOX, so the only way that CO2 can be reduced from an existing source is to run less, run more efficiently (good only for small reductions) or convert to a different type of fuel. If CO2 allowances are not available, compliance units will need to shed load. It could be to the advantage of a non-carbon emitting electric generators to purchase allowances to drive the price up because that would

increase the price of electricity paid for their generation. There could also be an economic advantage for fuel commodity speculation depending on allowance prices.

NRG Recommendations

NRG recommends analysis to address the potential impact of non-compliance participants in the auction and the secondary market. Therefore, NRG recommends that RGGI transition to participation by all market participants, starting with auction participation limited to compliance customers.

NRG recommends additional analysis of the market specifically to address auction participant motives. It isn't very difficult to project how the participant categories might bid but there is a very wide range of potential strategies. Therefore, the limited auction experiments are not a robust approach. NRG believes that it would be more appropriate to use a Monte Carlo simulation of potential bidding strategies by the different participant categories, recognizing that the small size of the RGGI program and the potential for allowance holders to influence price by withholding allowances from the secondary market could influence bidding strategies. Auction results from the EPA Acid Rain Program give historical bidding patterns for at least the speculator category. Similar patterns of bidding could be developed for different levels of conservatism for the affected source category. Acid Rain results also suggest how the "buy to retire" category might bid, on a much smaller scale. If those bidding strategies are modeled against variations in historical emissions (weather, nuclear operations, and oil to natural gas cost differential), projected reductions from the strategic energy programs, and load growth coupled with the money available to the three categories of participants, then a wide range of potential outcomes would be available for analysis. This analysis would help reduce the uncertainties faced by the regulated community.

NRG recommends a transition to a full open auction process. There are different transition options, many of which are suggested in the comments submitted on the Auction Design Report. For example, auctions could initially be structured for different participants or initial auctions could be conducted with a reserve lower price and a safety-valve cap. This would address the concern that the volatility of allowances will be high in the early stages. Although not selected as an option, transition could be achieved through a partial, declining allowance allocation. References that discuss this topic are listed below.

1. The International Emissions Trading Association allocation study released on September 28, 2007 (<http://www.ieta.org/ieta/www/pages/index.php>)
2. Resources for the Future Discussion Paper 01-30 "The Effect of Allowance Allocation on the Cost of Carbon Emission Trading" Dallas Burtraw, Karen Palmer, Ranjit Bhavvirkar, and Anthony Paul August 2001 • (<http://www.rff.org/rff/Documents/RFF-DP-01-30.pdf>).
3. Resources for the Future Testimony of Philip R. Sharp, Congressional Chair, National Commission on Energy Policy – February 13, 2007, Prepared for the United States House of Representatives Energy and Commerce Subcommittee on Energy and Air Quality, (http://www.rff.org/rff/Documents/Testimony_Senate_Ag_Comm.pdf).

Table 1: Distribution of NY allowance vintages to auctions

		New York Auction Budget			Budgeted Emissions			
		62,110,805	62,110,805	62,110,805	55,629,964	55,629,964	55,629,964	166,889,891
		90% of expected emissions			50,066,967	50,066,967	50,066,967	150,200,902
		Allowances Available for Vintage						
Year	Qtr	2009	2010	2011	2009	2010	2011	% of 90% Needed
2008	1	7,763,851	10,353,871	0	7,763,851	10,353,871	0	12.1%
2008	2	7,763,851	0	8,881,845	15,527,701	10,353,871	8,881,845	23.1%
2008	3	7,763,851	0	0	23,291,552	10,353,871	8,881,845	28.3%
2008	4	7,763,851	0	0	31,055,403	10,353,871	8,881,845	33.5%
2009	1	7,763,851	10,353,871	0	38,819,253	20,707,742	8,881,845	45.5%
2009	2	7,763,851	0	8,881,845	46,583,104	20,707,742	17,763,690	56.6%
2009	3	7,763,851	0	0	54,346,954	20,707,742	17,763,690	61.8%
2009	4	7,763,851	0	0	62,110,805	20,707,742	17,763,690	67.0%
2010	1	0	10,353,871	8,881,845	62,110,805	31,061,614	26,645,535	79.8%
2010	2	0	10,353,871	0	62,110,805	41,415,485	26,645,535	86.7%
2010	3	0	10,353,871	0	62,110,805	51,769,356	26,645,535	93.6%
2010	4	0	10,353,871	0	62,110,805	62,123,227	26,645,535	100.5%
2011	1	0	0	8,881,845	62,110,805	62,123,227	35,527,380	106.4%
2011	2	0	0	8,881,845	62,110,805	62,123,227	44,409,226	112.3%
2011	3	0	0	8,881,845	62,110,805	62,123,227	53,291,071	118.2%
2011	4	0	0	8,881,845	62,110,805	62,123,227	62,172,916	124.1%