TO: **Karl Michael, NYSERDA**

cc: **Franz Litz, NY DEC**

FROM: **Northeast Regional Greenhouse Gas Coalition**

DATE: **March 12. 2004**

RE: **RGGI Modeling**

The Northeast Regional Greenhouse Gas Coalition (GHG Coalition) is pleased to provide you with our initial comments on the Regional Greenhouse Gas Initiative (RGGI) modeling for your consideration. The GHG Coalition will follow up on this general memo with more detailed comments in the future.

It is the GHG Coalition's understanding that the RGGI state representatives have agreed to use ICF's Integrated Planning Model (IPM) to evaluate regional CO_2 cap and trade policy scenarios for the electric generating sector. The majority of GHG Coalition members are familiar with IPM having utilized it to evaluate various federal air pollution control scenarios. Some GHG Coalition members have also participated in the New York Greenhouse Gas Task Force and the Connecticut Climate Change Stakeholder Dialogue and hope that the experienced gained in those efforts can help inform the regional modeling going forward.

The GHG Coalition's comments focus on six general areas: the geographic scope of the modeling effort, power imports and leakage, carbon offsets, electricity demand growth, natural gas cost curves, and capacity changes.

Geographic Scope of Modeling Effort

The GHG Coalition believes that the larger the geographic region of RGGI, the greater the environmental benefit at lower overall cost. The geographic boundaries the RGGI state representatives agree to for modeling the Reference Case is extremely important. While it is uncertain at this time if Maryland and Pennsylvania will participate in RGGI, including these states in the Reference Case is essential to developing the foundation for them to do so.

The GHG Coalition recommends that the RGGI modeling Reference Case include all eleven states (plus the District of Columbia) participating in the RGGI discussions. Sensitivity runs should be utilized to evaluate the program if Maryland and Pennsylvania are not included in RGGI. The GHG Coalition also suggests evaluating what the impacts may be of including other border states in RGGI in additional sensitivity runs such as West Virginia and Ohio.

Power Imports and Emissions Leakage

The exchange of power between the RGGI region and outside regions is of significant concern to the GHG Coalition. By placing a CO_2 constraint on the electric generators in the RGGI region, generating costs will likely increase relative to electric generating costs outside the region–resulting in an increase in imported power and an increase in

emissions. The Connecticut modeling results indicate that absent any policy to address power imports, they are likely to increase and the emission benefits of RGGI are likely to be reduced.

The GHG Coalition recommends that the RGGI state representatives consider incorporating an emission portfolio standard or EPS in the IPM modeling. Time and budget constraints prevented such an evaluation during the Connecticut modeling. Our understanding is that IPM is not designed for such an analysis, but ICF may have thoughts about how to simulate such a policy.

Carbon Offsets

Due to the lack of onsite CO_2 emission reduction strategies for the electric generating sector, the incorporation of carbon offsets into RGGI is vital to reducing CO_2 emissions cost effectively. Many cost effective greenhouse gas (GHG) emission reduction strategies exist within the electricity sector (i.e., fugitive methane reductions from pipelines and fugitive sulfur hexafluoride emissions from transmission and distribution) as well as in other industry sectors including forestry, agriculture, and waste management.

The GHG Coalition recommends that carbon offset cost curves be incorporated into RGGI policy scenarios. IPM has the ability to incorporate carbon offset cost curves. ICF has done this in the past based on cost curves developed by EPA.

Electricity Demand Growth

Another important aspect of the IPM modeling is the demand growth projections utilized. Demand growth projections have a major impact on CO_2 emissions and import and export market dynamics. Furthermore, there are many policies and programs focusing on demand side energy efficiency that impact demand growth and should be appropriately incorporated into the modeling.

The GHG Coalition recommends that demand growth projections utilized in the Reference Case reflect recent actual demand in the RGGI region coupled with the demand reductions of existing energy efficiency programs and policies in each state. Each power pool (PJM, NY, and New England) has its own demand projections–these projections should be utilized in the policy scenarios as a starting point with the state specific program and policy goals incorporated.

Natural Gas Cost Curves

While all cost curve inputs and assumptions are important in IPM, natural gas cost curves have a large impact on other fuel and energy prices. The natural gas cost curves impact the projected electricity prices and these prices directly affect IPM's projection of electricity demand, power plant additions and retirements because natural gas is assumed to be operating on the margin and therefore sets the market-clearing price.

The GHG Coalition recommends that the RGGI state representatives strive to incorporate reasonable natural gas cost curves that reflect actual prices in the RGGI region in the Reference Case and policy cases. The natural gas cost curves in IPM itself have been

criticized as too low. As a result, one or more sensitivity runs should be focused on different natural gas cost curves in the RGGI modeling.

Changes in Capacity

There are at least three key areas regarding the issue of capacity additions in IPM. First, the RGGI states have aggressive renewable energy programs and policies that are likely to increase renewable energy capacity significantly in the region over the next 20 years. Reasonable estimates of renewable energy capacity additions should be incorporated into both the Reference Case and Policy Case runs.

Secondly, based on GHG Coalition member's experience in the Connecticut process, the manner with which nuclear relicensing and nuclear rerates are addressed is important and can have significant impacts on the modeling results. In the Connecticut modeling, the Reference Case included nuclear relicensing and rerates while sensitivity runs were conducted to evaluate the impacts without these events.

Thirdly, IPM may add or retire capacity that may not entirely make sense given state and regional dynamics. Because IPM is a least cost optimization model, capacity is retired and added based on costs. In the real world, there are additional considerations other than simply costs–most notably the existing retirement and capacity addition trends in a given region.

For example, in the Connecticut modeling, a new coal fired power plant is projected to be built in the Reference Case by 2020. It is more likely that all of the new capacity additions will be natural gas, with no coal, even in the long term in Connecticut. This assumption contributes to a large increase in CO_2 emissions in the Reference Case, creating an unrealistic benchmark against which the policy cases are measured. In addition, the Connecticut IPM modeling Reference Case assumes that the oil-fired generation in Connecticut is either retired or is displaced by other generation by 2006. It is unlikely that these units will be retired in the short term and therefore this assumption further adds to the unrealistic benchmark of the Reference Case against which all policy cases are measured.

The GHG Coalition recommends that ICF and RGGI state representatives evaluate what IPM predicts in terms of capacity additions/retirements and determine if they are reasonable given existing trends in the RGGI region. Such and approach will result in a more realistic outcome.