

## **Topic Session 1 -**

### **RGGI Design, Markets and Reliability: Issues Relating to Conventional Power Supplies**

The first discussion session of the RGGI Markets Workshop will raise and address a number of issues for RGGI design from the point of view of traditional suppliers. These include issues relating to lessons learned from analyses or performance of previous regional cap and trade programs, such as the OTC NO<sub>x</sub> budget program; how RGGI design intersects with power markets, including different approaches to allowance allocations and the ability of electric generators to recover costs of RGGI compliance in current and/or future power markets; and the expected issues relating to “leakage”, given such things as alternative RGGI designs, the relative price(s) of power at different generating units in and outside of the RGGI region, the expansion of the PJM market, and any issues in GIS and/or GATS reporting systems relating to imports.

#### **Lessons Learned from other regional cap and trade programs for air emissions**

Regulators, power plant owners, regional power system operators and others have had experience in implementing and observing the impacts of other regional cap-and-trade programs affecting the power sector. Examples include the national sulfur dioxide cap-and-trade program and the OTC NO<sub>x</sub> budget program. These programs have been implemented in ways that have produced expected results (e.g., emissions reductions in the power sector, actual trading of emissions allowances among companies, conformance with power trading market designs) and unexpected results (e.g., lower-than-expected implementation costs on a \$-per-ton basis).

❖ What lessons are instructive for RGGI design and expected implementation?

#### **Intersection of RGGI Design and Electricity Markets, including Allowance Allocation Approaches and Impacts on the Ability of Electric Generators to Recover Costs of RGGI Compliance in Power Markets**

Various mechanisms have been proposed by stakeholders and discussed regarding the initial allocation of carbon dioxide allowances to affected facilities in the RGGI region. These proposals involved a variety of approaches, including allocations without cost to fossil-fuel generators based on historic heat input or electricity output, an auction/purchase process for all or a portion of their initial allocation, inclusion of a mechanism to allocate allowances to non-emitting resources (e.g., wind, nuclear, hydro, and/or energy efficiency), or for the benefit of consumers generally.

❖ What are some of the equity considerations?

❖ What allocation most aligns with RGGI objectives?

- ❖ What are the implications for generator “windfalls” or “unforeseen production costs” associated with different allocation methods, and how are different generators affected by different allocation schemes?
- ❖ How do different allocation approaches affect the ability of different types of generators to recover associated costs of compliance, given where those generators are in the expected generation dispatch order in centrally-administered markets versus existing bilateral power contracts?
- ❖ Would an auction of a large quantity of CO<sub>2</sub> allowances in the open market lead to cost increases large enough to create credit issues for the energy suppliers, or produce significant electricity price impacts?
- ❖ How will a potential lack of compensation affect which facilities can operate? What effect could this potential result have on energy system reliability?
- ❖ Would locational price differences due to transmission system congestion tend to distort the impact of allocation purchases, with generators in traditionally lower-priced areas having greater difficulty in recouping allocation costs through market mechanisms?
- ❖ What impacts might there be for unit retirements, given different RGGI allocation approaches?

Power generators’ compliance with RGGI requirements will take place in the context of two “markets”: a bilateral market, in which buyers and sellers of power enter into and carry out the terms of contracts for power; and centrally-administered power markets overseen by the regions’ three ISOs (PJM, NYISO, ISO-NE). In the context of the latter, there are strong interactions among the various ISO markets (energy, ancillary services, capacity). All of these markets shape the terms and conditions under which suppliers sell their power and are compensated for it by buyers. Depending upon the terms of existing contracts, and upon the manner in which generators perform in the ISO-administered markets, suppliers may or may not be able to directly recover the costs associated with RGGI compliance.

- ❖ Which types of contracts and generators are likely to be able to recover their expenses related to RGGI, and which are not?
- ❖ What is the magnitude of the problem associated with bilateral contracts that do not specifically address cost responsibility for costs associated with RGGI compliance?
- ❖ How many facilities/MW have bilateral contracts that would not allow the pass-through of RGGI-related costs?
- ❖ Should RGGI make special provision for those facilities with bilateral contracts that prohibit the recovery of RGGI-related costs?
- ❖ If not, how do proponents recommend that the potential reliability impacts of not doing so be addressed?
- ❖ Regarding the shifting of risk in tolling agreements: who pays for the allowance purchase?
- ❖ What are some implications of such outcomes for power market performance, prices, etc?

- ❖ How should those outcomes affect RGGI design?
- ❖ How does volatility of allowance credit prices translate into additional risk factors for new projects (including new gas-fired units) seeking financing?
- ❖ Should the RGGI process consider/assess such “cumulative impacts” of environmental compliance costs?
- ❖ If so, how? If not, how do proponents suggest the potential reliability impacts be addressed?

**Considerations Relating to “Leakage” and the Interactions of Different RGGI Designs, the Relative Price(s) of Power in Different Generating Units In and Outside of the RGGI Region, the Footprint of the PJM Markets Relative to the RGGI Region, and any Issues in GIS and/or GATS Reporting Systems Relating to Imports.**

Power is traded across state boundaries in the Northeast regional power markets on a routine basis. In New England, these “trades” occur all the time within the context of the six-state market administered by ISO-NE, and with respect to transactions to and from neighboring regions in New York and Canada. While NYISO administers a single-state power market/system, trades routinely cross the boundaries of NYISO with Canada, New England and PJM. Similarly, interstate trading is an inherent part of PJM’s markets, which have historically covered several states in the Mid-Atlantic region (including Pennsylvania, New Jersey, Delaware, and Maryland), have recently grown to the West to include parts of Virginia, DC and West Virginia, and parts of the MidWestern states as well. These patterns of trades are likely to exist into the future, and therefore should be taken into consideration during RGGI design and implementation.

How should RGGI design take into consideration these leakage issues, to assure (a) no erosion of the regional caps, and (b) no competitive disadvantage for in-region power supplies subject to RGGI requirements?

- ❖ What are the impacts to the PJM market if only a portion of the generation in PJM is subject the CO<sub>2</sub> cap-and-trade program? Is it practical to implement RGGI in only a small part of a control area, or will this type of implementation invite too much leakage as economic dispatch automatically imports non-controlled supplies into the RGGI region?
- ❖ What are the implications of the RGGI states having less ability (or more expensive ability) to take advantage of cheaper coal facilities outside of the RGGI region?
- ❖ What effect will emissions within these other states have on the RGGI region and the overall level of CO<sub>2</sub> and other emission reductions?
- ❖ To what degree can additional power flow over existing regional interfaces - interfaces that tend to be heavily loaded already during peak periods?
- ❖ Are the interfaces between ISO-controlled regions already so loaded up that there are not likely to be changes with RGGI design?