

MACRUC Panel

The Cost of Pricing Carbon

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What's the Problem?

- There is a difference between the cost to electric generators of reducing carbon emissions and the cost to customers of paying for those emission reductions.
- In restructured states, in which electric generation rates are based on marginal market clearing prices, the costs to consumers of a cap and trade program for carbon emissions will likely be higher than the costs of such a program in regulated states where electric generation rates are based on the cost of service.
- When carbon-emitting units set the market clearing price in restructured markets, the cost of carbon allowances will be included in the price paid to all operating generating units, including nuclear units that have no actual carbon compliance costs.

PJM Climate Change Report

- Assuming a CO₂ allowance price of \$20 per ton in the year 2013, “[t]he impact on the PJM Energy Market could be power price increases as high as \$15/MWh, and market-wide expenditures increase by as much as \$12 billion, while providing emission reductions from PJM sources of approximately 14 million tons.” PJM Climate Change Report of 1/23/09 at 25.
- According to the PJM Study, the increase in the market clearing price is about 75% of the CO₂ allowance price because “coal remains the marginal generating resource for close to 70 percent of the hours and coal has an approximate emissions rate of one ton per MWh.” Report at 24.

PJM Cost of Emission Reductions

- Assuming that PJM energy costs increase by \$12 billion to reflect the cost of a carbon cap and trade program, how much of the \$12 billion will be paid to PJM nuclear units, who have zero carbon compliance costs, but will be paid market clearing prices that include the marginal cost of allowances?

PJM Energy Production by Fuel Source

Fuel Type	2005	2006	2007	2008
Coal	56.4%	56.8%	55.3%	55.0%
Nuclear	34.2%	34.6%	33.9%	34.6%
Natural Gas	5.9%	5.5%	7.7%	7.3%
Hydroelectric	1.7%	2.0%	1.7%	1.7%
Other	1.9%	1.1%	1.4%	1.5%

Source: PJM Market Monitor Reports

PJM Nuclear Plant Payments

- In recent years, nuclear generation in PJM has amounted to approximately one-third of PJM generation, or about 255,000 gigawatt-hours per year.
- If market clearing prices increase by \$15/MWh, the increased energy payments to nuclear units would be about \$3.8 billion per year.

Adding Insult to Injury: Free Allowances to “Merchant Coal” Plants

- During the debate on the Waxman/Markey legislation, EEI proposed that a portion of free allowances be allocated to “merchant coal” plants, based on 50% of their base year emissions. See, Testimony of Jeffry Sterba, Hearing of April 23, 2009, at page 12.
- The basis for this proposal was that “in most unregulated markets the market price of electricity is determined by natural gas, and natural gas emits approximately 50% of the carbon from coal.”
- The free allocation of allowances for 50% of emissions would allow merchant coal plants to recover “the portion of their increased costs that is not recovered through market prices.”

PJM Marginal Unit by Fuel Type

Fuel Type	2005	2006	2007	2008
Coal	69%	70%	70%	78%
Misc	1%	1%	2%	1%
Natural Gas	23%	25%	24%	17%
Nuclear	0%	0%	0%	0%
Petroleum	8%	5%	5%	3%

Source: PJM Market Monitor Reports

Merchant Coal Plant Allocation

- The Waxman/Markey Bill adopts the merchant coal allocation proposal for up to 10% of the free allowances that would otherwise go to regulated investor-owned electric distribution utilities, municipal utilities, and rural cooperatives for the benefit of their ratepayers.
- This will result in higher costs even for customers in regulated states, because they will be losing up to 10% of the free allowances that would have gone to their regulated distribution utilities.

Merchant Coal Allocation

- The factual premise of the free merchant coal allocation is obviously incorrect in PJM, where coal still sets the market clearing price more than 70% of the time.
- Under Waxman/Markey, merchant coal plants recover their “cost” of compliance, while merchant nuclear plants will charge market prices that include the value of allowances, even though they incur no compliance costs.
- In other words, unregulated generators will charge the higher of cost or market.