

MEMORANDUM

To: Gavin Donohue; IPPNY
Carol Murphy; ACENY

From: Mark Younger; Slater Consulting

Subject: McCullough Research report on NYISO Market Clearing Price Auction

Date: March 27, 2009

Per your request, I have reviewed the McCullough Research report entitled “The New York Independent Operator’s Market-Clearing Price Auction is Too Expensive for New York” dated March 2, 2009. The primary claim of the report is that New York consumers are paying more than they would under a Cost of Service Regulation system. The key headline of the paper is the claim that “New York customers pay \$2.2 billion a year in artificial and unnecessary electricity rates on their electric bills.” There is limited backup provided for the claim. (The analysis itself is not provided.) There is, however, sufficient information provided to indicate that it is a highly flawed analysis.

The report includes several clear misrepresentations. Its faults include the following:

- Inaccurate description of the NYISO Auction Design and Bidding;
- Grossly inflated estimate of costs to NY consumers;
- Myopic focus only on electricity cost while ignoring the other benefits provided by the restructured market; and
- Idealized view of the performance of cost of service regulation.

Each of these will be addressed in more detail below.

NYISO Auction Design and Bidding

Dr. McCullough describes the NYISO auction as somehow flawed because it pays all market participants the same clearing price (the Uniform Clearing Price or UCP). UCP auctions are widely used for competitive market designs because they are very effective at inducing bidders to bid their marginal operating costs. The result is that bids are mostly comprised of costs for fuel and emission allowances and any other costs that are directly tied to producing the next megawatt hour of electricity. Notably, the energy bids do not include the cost of building and maintaining the facilities, manpower, property taxes and any other costs that will remain regardless of whether the unit generates another megawatt hour on that day.

The assurance that the market participant will be paid the UCP set by the marginal unit provides the incentive for the market participant to bid based on the lowest cost where it is indifferent between running and not running. At that point, the marginal unit will at least be paid its short run operating costs for the next megawatt hour and lower priced bidders will receive revenue

towards both their fixed costs (e.g. manpower, taxes, Capital costs, etc.) and hopefully some profit as well by being paid the higher clearing price. Units build no profit into their bids because the profit comes from being chosen when another, more expensive, unit is needed to operate at the same time.

The NYISO auction design is appropriate for electricity markets because it integrates well with the unique physical characteristics of those markets. Electricity market conditions change every five minutes as load rises and falls and as transmission constraints provide limitations on the ability to deliver lower cost power to load centers. In the face of these constantly changing conditions, the UCP auction utilized by the NYISO provides prices across the state that identify the value of power at each location given the resources that are available to operate and the availability of transmission to deliver power from those resources.

A final complaint about the auction design by Dr. McCullough is that every day at least one market participant submits bids of \$1,000/MWh. Again, Dr. McCullough overstates the significance of this point. The \$1,000/MWh bids are a very small part of the total bids provided to the NYISO for generation. Moreover, the \$1000/MWh bids for this small amount of power are irrelevant more than 99% of the time because there are numerous other, less expensive resources, available to provide power. Most of these high bids are the result of units with limited energy generation (e.g. hydro generators) indicating that part of their limited water should be held to be used when it is most valuable to the NYISO and New York. Other resources use the high bids for the portion of their generators that they should utilize only under emergency conditions. Running at these emergency levels puts the generator under excessive stress and runs the risk that the generator will be forced out of service altogether. The high bids assure that the energy will only be taken under the extreme conditions where it is worth taking this risk rather than having to shed load.

Grossly Inflated Estimate of Costs to NY Consumers

Dr. McCullough provides almost no background for his estimate that the restructured market has resulted in \$2.2 billion in excess costs each year. The little information he has provided makes it clear that his estimate is grossly inflated.

The analysis that is described is based upon looking at the fifteen largest plants¹ based upon their generation and an estimate of their revenues under the NYISO's Market Clearing Price (both capacity and energy) and the revenues under cost of service regulation. These plants generate approximately 51% of the energy during the historic period. The report claims their Market Clearing Price based revenues are a total of \$1.159 billion more than they would have been under regulated rates. The report then doubles this value to account for the other 49% of revenue and to get its \$2.2 billion value. As noted above, no backup for the analysis is provided so we cannot verify any of the estimates.

The analysis for the report has some obvious flaws. By choosing the fifteen largest generators, the analysis has been biased towards baseload generation that is not typical of the average

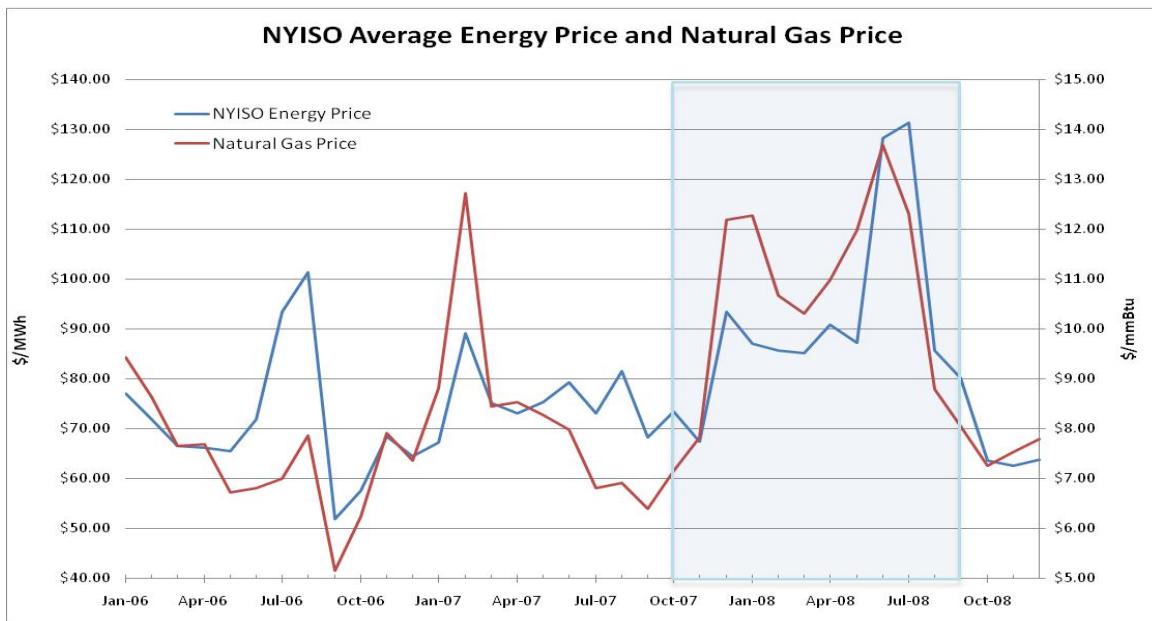
¹ The fifteen plants exclude NYPA's units.

generator in the NYISO. Four of the fifteen plants studied were nuclear generators². Five of the fifteen plants were coal generators³. The remainder of the fifteen units included three state of the art combined cycle units⁴.

There is not sufficient information to determine whether Dr. McCullough accurately accounted for the fixed operating costs of these units. These are units that generally have very low marginal operating costs (i.e. the costs of converting fuel into the next MWh of generation) but very high fixed costs (e.g. investment in the generating facility itself, manpower, and taxes).

Many of these units also have bilateral contracts for significant parts of their generation, providing this generation for defined prices over a period of time. This part of their generation does not rise and fall with the NYISO Market Clearing Price. The McCullough analysis assumes all the generation for these units was paid at the NYISO energy price.

Dr. McCullough looked at only the period from November 2007 through October 2008 as his representation of “typical conditions.” The figure below shows the NYISO monthly average energy price and the average natural gas price for the past several years. As the chart clearly shows, the period chosen by Dr. McCullough for his analysis is quite atypical.



The period chosen by Dr. McCullough for his analysis is a period of unprecedented levels of oil and natural gas costs resulting in generally much higher than historic energy prices. Basing the analysis largely on these coal, nuclear and efficient combined cycle units during a period of

² Nine Mile Point Nuclear Station, Indian Point 3, Indian Point 2 and R. E. Ginna. A total of 4.4 GW of capacity and 35.5 TWh of energy in 2008.

³ Somerset, Dunkirk, Huntley, Danskammer, and Cayuga. A total of 2.4 GW of capacity and 15.9 TWh of energy in 2008.

⁴ Athens Generating Station, Bethlehem Energy Center and East River. A total of 1.9 GW of capacity and 8.8 TWh of energy in 2008.

unusually high gas and oil prices will result in a grossly overstated estimate of the net increased revenues under the Market Clearing Price. Even assuming the analysis was done correctly, a point in doubt given its biased nature, this is not representative of normal or current operating conditions.

After “estimating” the excess payments for the fifteen largest generators, Dr. McCullough then doubles the value to get the impact on the entire market. This methodology of estimating the entire market impact is ludicrous. First, earlier in the report Dr. McCullough made a point of excluding NYPA’s generation from the fifteen plants he studied because it is largely under contract and therefore is not getting revenues based on the Market Clearing Price. However, when he merely doubles the “estimate” from the fifteen baseload units he is, in effect, attributing the average excess payment he estimated for those units to the NYPA units as well. Furthermore, he makes a similar error by not accounting for: 1) the generating units that operate for LIPA under contracts, 2) the generating units that are still owned by some of the transmission owners in the states; 3) the generating units owned by the municipal utilities; and 4) the long term contracts, held by the transmission owners, for power produced by independent generators. In each case Dr. McCullough’s methodology for “estimating” excess payments results in assuming these sources are getting revenues consistent with the 15 largest plants when the resources are receiving payments based on contracts rather than the NYISO clearing prices.

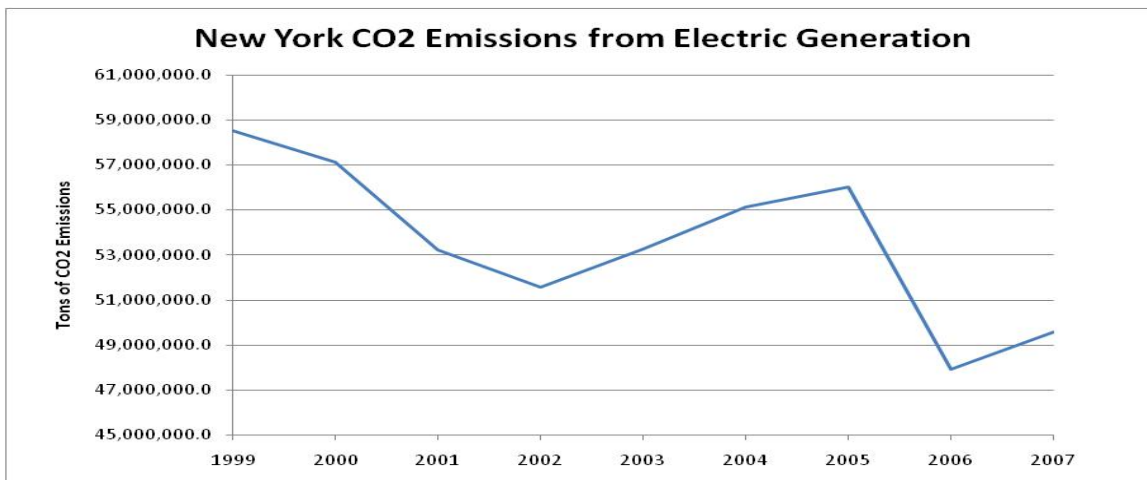
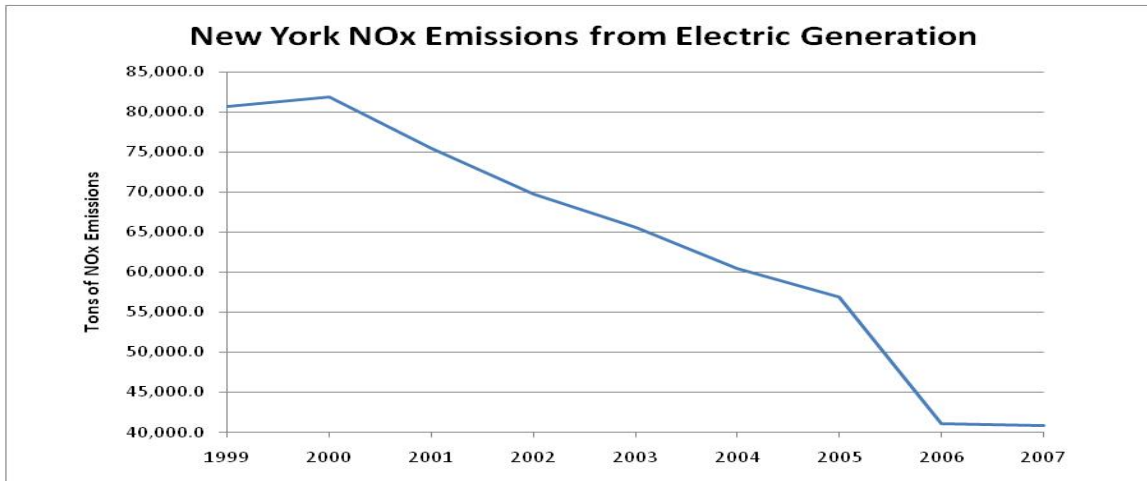
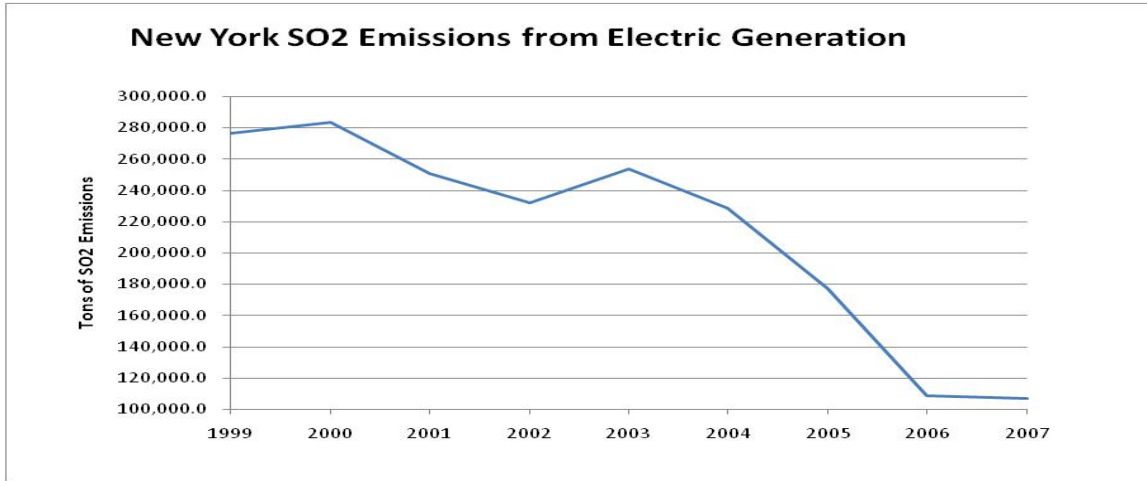
The remainder of the units are generally less efficient units that run much more infrequently. Assuming that these units’ profit base can be established by looking at the revenues of coal, nuclear and efficient combined cycle units is clearly incorrect. .

Flawed Focus on Only the Energy Price

Dr. McCullough’s report is also flawed by focusing on only the energy costs while ignoring other aspects of the market. Focusing only on cost ignores the other benefits provided by the restructured market. New York has always put a premium on being at the forefront of reducing emissions and inducing clean energy sources. The NYISO’s market design has facilitated that effort by providing clear signals on the value of generation and by easing the introduction of new generation. The clear price signals provided by the NYISO and the assurance that new generation that is more efficient than the existing resources will be paid based on their value to the system rather than their own costs has provided a strong incentive to the introduction of new state of the art traditional generation and renewable resources. The UCP has also provided clear signals on the value of reducing energy usage and provided a framework that has enabled the NYISO to implement industry leading Demand Side Management programs. The result of this design is clear in the emission trends since the NYISO started operation in late 1999 through 2007. .

The three tables below show the reductions in SO₂, NO_x and CO₂ emissions from Acid Rain Program units in New York since the NYISO began operating. The Acid Rain Program covers virtually all the electric generation within the state. The reductions over the first eight years of NYISO operation have been stunning with a 60% reduction in SO₂ emissions, 50% reduction in NO_x emissions and a 15% reduction in CO₂ emissions. Few states have matched New York’s

reductions in even one category. Those that have come close have generally been in regions with open, restructured electricity markets.



Achieving these emission reductions has not been without cost. Older higher emitting facilities have been shut down while newer cleaner facilities have been added. Without restructuring there still would have been significant cost for this progress, however, the progress would not have been as easy to achieve without the clear price signals provided by the UCP and the open market provided by the NYISO.

Misplaced Nostalgia for the Regulatory Model

Dr. McCullough's proposals are based on a nostalgic view of regulation as some golden age. It is important to remember that it is the failings of regulation that prompted the restructuring of the electricity markets. In the years before restructuring, there were numerous examples of consumers having to pay what was considered grossly inflated and inappropriate costs for generation. The failings included:

- Nine Mile Point 2
- Shoreham
- Sale of Indian Point #3 and Astoria #6 (renamed Poletti) Generating Station to NYPA because Con Edison could not complete either unit
- Statutory rates for PURPA contracts

The small number of attempts to follow a regulated model since restructuring has begun has also shown similar results. These include:

- A nearly 100% cost over-run at the East River Repowering Project by Con Edison
- Excessive cost overruns by Rochester Gas and Electric Company for the Rochester Transmission Project.
- Costs that were substantially in excess of estimates in the building of the Combined Cycle generating facility by NYPA at the Poletti Generating Station.

In the case of the East River Repowering Project and the Rochester Transmission Project, consumers have been forced to absorb all of the excess costs. If the project had been built by merchant providers as competitive market facilities, consumers would pay no more than their value in the markets, and the risk for the cost overruns would be borne by the shareholders of the merchant provider.