

SEP 15 2000

**BEFORE THE ILLINOIS POLLUTION CONTROL BOARD**

STATE OF ILLINOIS  
*Pollution Control Board*

IN THE MATTER OF:

PROPOSED NEW 35 ILL. ADM. CODE, SUBPART W	)	R01-9
THE NOx TRADING PROGRAM FOR	)	
ELECTRICAL GENERATING UNITS, AND	)	
AMENDMENTS TO 35 ILL. ADM. CODE 211 and 217	)	

**JOINT COMMENTS OF THE AMERICAN LUNG  
ASSOCIATION OF METROPOLITAN CHICAGO, THE ILLINOIS  
ENVIRONMENTAL COUNCIL, THE ENVIRONMENTAL LAW AND POLICY  
CENTER, AND THE ILLINOIS PUBLIC INTEREST RESEARCH GROUP  
ON THE PROPOSED RULE  
SEPTEMBER 26, 2000**

**INTRODUCTION**

The American Lung Association of Metropolitan Chicago, the Illinois Environmental Council and the Environmental Law and Policy Center ("Environmentalists") strongly supports the Illinois Environmental Protection Agency ("Agency") proposal to implement a control level of 0.15 lbs/mmbtu standard for Electrical Generation Units (EGUs) in Illinois. We disagree with the Agency on how best to implement a NOx reduction program that incorporates this level of emissions reduction.

Although the State is allowed flexibility in adopting the EPA Model Rule, the 0.15 lbs/mmbtu emission standard for EGUs must be met if the State chooses to participate in an interstate market in which tradable NOx pollution allowances can be bought and sold. The standard should not be weakened since, in addition to the federal requirement for interstate ozone transport control and the threat of a federal implementation plan if the State fails to meet this obligation, the proposed level of NOx reduction is also necessary for the Agency's plan to meet the one-hour ozone standard in the Chicago Ozone NAA.

In fact, several significant uncertainties provide serious doubts as to whether the proposed rule will adequately protect public health: 1) The Agency has miscalculated ozone precursor emission reductions in the recent past; 2) Federally approved methods for calculating ozone precursor emissions used by the Agency substantially underestimate actual real world emissions; and 3) It is unclear how a 0.15 lbs/mmbtu rule would ensure that the citizens of the State do not suffer from ozone levels deemed unhealthy for sensitive individuals.

Environmentalists, therefore, propose an alternative proposal which will significantly increase the likelihood that the health of the citizens of Illinois will be adequately

protected. Environmentalists' proposal, set forth below: 1) utilizes an out-based allocation and re-allocation methodology; 2) includes a new source set-aside ("NSSA") that will award NOx allowances sufficient to allow post-1995 EGUs to operate; 3) requires an equal re-allocation of NOx allowances to existing "old" and "new" EGU units based on a rate of 1.5 lbs/Mwh; 4) continues a NSSA of at least five percent of the EGU budget in the out years beyond the first reallocation period; and 5) includes an additional set-aside that awards NOx allowances to energy efficiency and renewable energy projects that displace NOx emissions from EGUs.

## **SIGNIFICANT UNCERTAINTIES RAISE SERIOUS DOUBTS WHETHER THE DRAFT RULE WILL ADEQUATELY PROTECT PUBLIC HEALTH**

### **Agency miscalculations of emission reductions**

Illinois EPA has seriously underestimated required emissions reductions in the past. In the supplement to the 9% Rate of Progress Plan for the Chicago Nonattainment Area 1997-1999<sup>1</sup>, the Agency noted that it had vastly overestimated VOC reductions in the Chicago Ozone NAA. Where it had previously stated that the VOC reductions from the reformulated gasoline program had been 90.96 tons per day (TPD), they were in actuality 65.5 TPD. Calculation mistakes in other programs also accounted for an additional 29 tons of phantom VOC reductions in this document. The Agency has claimed far downstate Illinois NOx emission reductions to fill this deficit and meet federal requirements for reasonable further progress in meeting the one-hour ozone standard in the Chicago Ozone NAA. But the attainment demonstration the Agency will have to submit in December, 2000 will have significantly higher VOC emissions in the Chicago Ozone NAA than were foreseen a year ago. Although the Lake Michigan Air Directors Consortium (LADCO), the entity that models attainment strategies for Illinois, assures us that the same mistakes did not occur in the attainment modeling presented to the Board, it does highlight the fact that mistakes overestimating emissions reductions can be made.

### **Underestimated actual emissions from approved federal guidance methods**

Shortfalls in emission reductions needed for an attainment demonstration may also be beyond the control of the Agency. Much of Illinois' emission inventory of ozone precursors is uncertain and the Agency may be seriously underestimating the actual real world emissions from these sources, even while using approved federal methodologies. The Mobile Source Emission Factor model, used by the State and LADCO to calculate the emissions from on-road motor vehicles in the Chicago NAA is one example that should give pause.

On May 12, 2000 the National Academy of Sciences issued a report, Modeling Mobile Source Emissions<sup>2</sup>, which noted the Mobile model "substantially" underestimates VOC

<sup>1</sup> Illinois EPA, 9% Rate of Progress Plan for the Chicago Nonattainment Area 1997-1999<sup>1</sup>, published in (February 2000)

<sup>2</sup> Committee to Review EPA's Mobile Source Emissions Factor (MOBILE) Model, Board on Environmental Studies and Toxicology, Transportation Research Board, National Research Council *Modelling Mobile Source Emissions*, (May 2000).

emissions of unburned fuel from cars and nitrogen oxides from diesel trucks. Both are major sources of ozone precursors. On road mobile sources are responsible for 37 percent of all VOC emissions, and 55 percent of the NOx emissions in the Chicago non-attainment area, according to the Illinois EPA's Self Performance Assessment 2000<sup>3</sup>. The likelihood that emissions reductions have been underestimated from mobile sources makes a 0.15 lbs/mmbtu NOx rule all the more important to insure that the Chicago Ozone NAA meets the one-hour ozone standard by the 2007 attainment deadline. Since the attainment modeling uses the Mobile model, ozone precursors from mobile sources are underestimated.

### **Ozone levels below the one-hour ozone standard still harm Illinois public health**

Illinois was required to have submitted an attainment plan for meeting the one-hour ozone standard in 1994 and this plan is still not in place. To the State's credit, Illinois EPA was a leader in the Ozone Transport Assessment Group's (OTAGs) search for a regional approach to the ozone problem, and this effort ultimately led to the NOx SIP call from U.S EPA. Yet even if, as the Agency believes, the reductions required by the NOx SIP Call are sufficient in scope to bring the Chicago NAA into attainment with the one-hour ozone standard, significant health problems will persist due to unhealthy ozone levels in the region.

Recent medical studies have shown that ground-level ozone is even more of a persistent and damaging phenomena than previously thought, and this knowledge led to the more protective eight-hour ozone National Ambient Air Quality Standard (NAAQS) promulgated in 1997. In addition, in 1999 the U.S. EPA chose the eight-hour ozone concentration level corresponding to the eight-hour ozone NAAQS standard as "unhealthy for sensitive populations" in the Air Quality Index; the AQI is used nationally to communicate air quality to the general public. Section 319 of the federal Clean Air Act requires U.S. EPA to establish a uniform air quality index, and this requirement is independent of the statutory provisions governing establishment and revision of the NAAQS. U. S. EPA noted that the scientific record and conclusions underlying studies that examined the health impacts of ozone are more than sufficient as a basis for decisions on the levels at which the public should be notified about health risks associated with daily air quality.

Even though health warnings are issued on days where the eight-hour average ozone concentration reaches levels unhealthy for sensitive groups, it is unclear how much improvement the 0.15 lbs/mmbtu standard for EGUs will provide in lowering these eight-hour ozone levels. As the Agency stated at the first hearing on this matter, the Lake Michigan region endured 36 days in 1999 alone when the ambient ozone levels exceeded ozone levels deemed unhealthy for sensitive groups.

### **Current Estimates of Ozone Health Impacts**

Based on medical and epidemiological research that documents health effects related to ozone exposure and using actual 1997 ambient ozone measurements, a study has been done that examines the estimated impact of ozone levels on the populations of the 37

<sup>3</sup> Illinois EPA, *Self Performance Assessment 2000*, (August 2000)

states covered by the OTAG region. The study, Out of Breath: Health Effects from Ozone in the Eastern United States<sup>4</sup>, concluded that ambient levels of ozone in Illinois were responsible for numerous health impacts, including 7,200 emergency room visits and 2,400 hospital admissions for respiratory reasons, as well as over 310,000 additional asthma attacks. Short-term exposure to ozone has been linked to a variety of minor symptoms including cough, sore-throat, and head cold. This study also estimated that over 4,000,000 instances of such minor symptoms occur in Illinois over the course of an average summer.

### **Alternative Proposal for the EGU NOx Rule**

At best, the draft rule, along with subsequent rules for other NOx emissions sources, may comply with the legal requirements of the NOx SIP Call, but will still leave Illinois with air unhealthy for sensitive groups. Great uncertainty still exists whether the Agency proposed rules will meet federal requirements and protect public health in Illinois. Since we know actual ozone precursor emissions are underestimated and computer modeling based on these emission inventories is being used to bolster claims of attainment with the one-hour ozone standard. Illinois citizens face a continuing health danger from ozone levels even below the one-hour NAAQS that have been designated “unhealthy for sensitive populations” by the U.S. EPA.

In short, the Agency approach is not consistent with the Illinois Constitution, which states that each person has the right to a healthful environment and that the public policy of the State and the duty of each person is to provide and maintain a healthful environment for the benefit of this and future generations.

Given the uncertainty, the Board must therefore decide which interested party should get the benefit of this doubt, the polluting industry which has an interest in limiting emissions control, or the citizens of Illinois who have no choice but to breathe these emission by-products and suffer the health consequences. We believe that the public deserves the benefit of this doubt.

### **Suggested Rule Changes**

The methods proposed by the Agency for awarding initial NOx allowances to EGUs and the fixed-flex system which delays the full implementation of the USEPA proposed model rule allocation and trading system beyond 2011 are flawed. Environmentalists recommend that the draft Illinois NOx reduction rule should be modified to:

- 1) Use an output-based allocation and re-allocation methodology;
- 2) Include a New Source Set Aside (NSSA) that will award NOx allowances sufficient to allow post-1995 EGUs to operate;
- 3) Require an equal re-allocation of NOx allowances to existing “old” and “new” EGU units based on a rate of 1.5 lbs/Mwh;

---

<sup>4</sup> Abt Associates, *Out of Breath: Health Effects from Ozone in the Eastern United States* (October 1999)

- 4) Continue a NSSA of at least five percent of the EGU budget in the out years beyond the first reallocation period; and
- 5) Include an additional set aside that awards NOx allowances to energy efficiency and renewable energy projects that displace NOx emissions from EGUs.

## **Discussion**

### **Output-Based System Advantages**

A NOx reduction rule for Illinois should create an incentive for all EGUs to produce electricity with the least amount of smog-forming pollution per unit of electrical power generated. Within the scope of an Illinois NOx trading program, NOx allocations should be allocated on output-based measures, such as pounds of NOx per megawatt hour (lbs/MWh), that directly reflect the pollution efficiency of electrical generation. Such a NOx SIP rule has been adopted by the States of Massachusetts, New Jersey and Connecticut, using a rate of 1.5 lbs/MWh. A modified heat-input based allocation methodology, as proposed by the Agency, awards NOx credits based simply on the amount of fuel burned, does not encourage pollution efficiency, and rewards existing older and pollution inefficient generation facilities by minimizing incentives to achieve higher efficiency in generation.

### **Fair Initial Allocation of Allowances**

A new source set aside (NSSA) should be sufficient to provide allocations to all generators expected to be operating at the start of the program in 2004. Even though this is currently prohibited by a state law passed in 1999, which limits the NSSA to five percent of the EGU budget, an Illinois rule should reflect the goals of the national U.S. EPA model NOx reduction rule in treating both older and post-1995 generation facilities equally in any allocation and reallocation methodology. It is our contention that the Agency and the General Assembly severely underestimated the demand for new source set aside allocations, and as structured, the five percent cap in the NSSA unfairly raised the operating costs of new EGUs while favoring pre-1995 EGUs.

### **Fair Re-allocation of Allowances**

After the period covered by the initial three year allocation is complete, and assuming a NSSA adequate to cover the needs of all new EGUs in the first three years of the program, EGUs that operated prior to 1995 and received initial NOx allocations and newer post-1995 EGUs should be treated equally in a reallocation methodology based on generation efficiency. Beyond a "new source" period, new post-1995 EGUs should have equal access to credits awarded to pre-1995 EGUs.

In short, both groups of EGUs should receive allocations for the 4<sup>th</sup> and 5<sup>th</sup> years of the program based on the standard of 1.5 lbs/MWh. If there is an over-subscription of the available allowances, they should be pro-rated among these EGU sources based on recent historical electrical generation (i.e. MWh).

Facilities that do not operate within an allocation period, and receive NOx allocations from the State for that period, should not be granted allowances for subsequent periods. Initial baseline heat input for EGUs operational prior to 1995 should not be used to lock in guaranteed allocations until the 8<sup>th</sup> year of the program as the Agency has proposed. The Agency itself has noted, "an allowance allocated by the Agency or by USEPA under the NOx trading program does not constitute a property right." (217.756 (d) (7)). If a facility has permanently ceased operation prior to reallocation it does not need a NOx allocation for subsequent control periods, and gifting NOx allocations to a non-operational, or possibly even non-existent, EGU is inconsistent with the principle that the allocation is not a property right.

#### **Keep a Five Percent NSSA in the 6<sup>th</sup> Year of the Program**

Due to the anticipated growth in the demand for electricity and the need for new generation capacity, the Board should continue a NSSA of at least five percent of the EGU budget in the out years beyond the first reallocation period. This would allow for the provision of electricity from cleaner, less harmful sources if conditions warrant.

#### **Energy Efficiency and Renewable Energy Set-Aside**

The Agency's draft rule also misses an exceptional opportunity to establish an energy efficiency and renewable energy set-aside ("EE/RE set-aside") which would simultaneously reduce the costs of complying with the NOx SIP Call while providing Illinois with major economic and environmental benefits. We strongly recommend that the Board reject the Agency's shortsighted action in dismissing the need for this program and require the creation of an EE/RE set-aside. The set-aside should include at least 10 percent of the Illinois EGU NOx budget.

As the U.S. EPA stated in a Guidance Document describing how states could set up set-asides:

States have a great opportunity to take advantage of the economic and environmental benefits of energy efficiency and renewable energy in developing a NOx transport mitigation strategy. By including an energy efficiency and renewable energy set-aside in a state's NOx Budget Trading Program states can prevent growth in NOx emissions, avoid building additional generation capacity, save energy and consumer dollars, and put additional jobs and money into their local economies.<sup>5</sup>

U.S. EPA succinctly stated three key reasons for a state to include an EE/RE set-aside: "(1) to reduce the total economic cost of meeting the proposed NOx cap; (2) to promote energy efficiency by accelerating the adoption of energy efficient practices and technologies; and (3) to reduce future CO2-related liabilities by recognizing the positive impacts of energy efficiency and renewable energy on carbon emissions."<sup>6</sup> Such a set

---

<sup>5</sup> Office of Atmospheric Programs, U.S. Environmental Protection Agency, *Guidance on Establishing an Energy Efficiency and Renewable Energy (EE/RE) Set-Aside in the NOx Budget Trading Program* viii (March 1999).

<sup>6</sup> *Id.* at 6.

aside would assist in reducing electrical demand, and may reduce stress on the regional transmission and distribution system that would otherwise be expected to occur due to electrical load growth.

Detailed written public comments setting forth recommendations for how Illinois should establish its set-aside will be provided in the near future. In addition, the U.S. EPA has published two non-prescriptive guidance documents, with a third to be published soon, to assist states in designing a set-aside.<sup>7</sup>

### **Fixing the Current Agency Proposal**

Environmentalists strongly believe the above elements in an output-based rule are necessary to construct the most equitable and efficient system for improving air quality and public health in the Chicago region, while meeting the demands of the NOx SIP Call. It would be unfortunate if, due to the fast track nature of this rulemaking, these provisions were not included in the final rule and the rule implemented right the first time. If, due to lack of time under the fast track requirements, the Board determines that it is prevented from incorporating these elements into the final rule, there is still an opportunity for improvement in the framework the Agency has put forth as the proposed rule. The following describes how to move the rule towards providing the necessary public health protections.

- 1) Using an input-based system, all EGUs should be treated equally in the NOx allowance reallocation process
  - a. At the first reallocation for the 4<sup>th</sup> year of the program, EGUs given allocations based on pre-1995 operational status or from the NSSA, or which were not awarded allocations (but forced to buy NOx credits on the open market) should receive NOx allocations based solely on the recent heat input of that facility and a rate of 0.15 lbs/mmbtu.
  - b. Reallocation in subsequent years should continue this methodology

### **Discussion**

The General Assembly deregulated the electrical industry in Illinois in 1997 in part to promote competition in the supply of electricity. Yet in early 1999, the General Assembly limited the new source set aside for the post-1995 EGUs in the NOx trading program to a maximum of five percent of the total EGU budget. As the Agency has noted, in recent months it has become apparent that this is insufficient to cover the allocations needed by these new EGUs and could underestimate the actual need by more than a factor of six.

---

<sup>7</sup> *Id.* and Climate Protection Program, U.S. Environmental Protection Agency, *Creating an Energy Efficiency and Renewable Energy Set-Aside in the NOx Budget Trading Program: Designing the Administrative and Quantitative Elements (Draft Guidance)* EPA-430-K-00-004 (April 2000). Copies of the guidance documents are available on the EPA's Climate Protection Division website at [http://www.epa.gov/appdstar/appd/stat\\_pub.html](http://www.epa.gov/appdstar/appd/stat_pub.html).

Deliberately depriving the vast majority of new sources, many of which are already operating or are under construction, of NOx allocations they will need several years in the future puts new electric providers at a competitive disadvantage. They must incur additional costs to meet more stringent environmental regulations than the older pre-1995 generation facilities must meet, yet they are being forced to pay their direct competitors for NOx allocations they need if they wish to operate. Meanwhile, older more polluting facilities are given credits necessary to operate at a far higher emissions rate. The State is operating at cross-purposes here by encouraging competitive sources of generation, yet installing competitive barriers to the new generation sources that would provide energy.

Although the five percent new source set aside maximum is written into Illinois law, the Agency still has the opportunity to operate a more equitable NOx re-allocation system. The model rule would have all EGUs operating in 2004 that were given allocations based on pre-1995 operational status, given allocations from the NSSA, or those facilities not awarded allocations but which were operational (and purchased NOx credits on the open market) an equitable NOx reallocation based solely on the heat input of that facility. All such EGUs would be awarded NOx allocations at the first re-allocation period for the 4<sup>th</sup> year of the program based on their heat input times a rate of 0.15 lbs./mmbtu. No dual track emissions rate structure would exist as the Agency has proposed for those EGUs in operation prior to 1995 and those which became operational after this date. If there were not enough credits to award all such EGUs under this methodology an amount needed to cover emissions at those EGUs, such allocations should be prorated among these sources based on heat input. Such a system would be repeated in subsequent time periods as additional new source EGUs became operational and were then added to the inventory of EGUs that would periodically receive reallocated NOx allocations.

Similar to the output-based system, this model rule system also rewards generation efficiency. Awarding NOx allowances to all generators at a rate of 0.15 lbs./mmbtu (or less if allowances are pro-rated among an oversubscribed pool of EGUs) would likely award the EGUs with the lowest NOx rates a number of allowances greater than would be needed to cover actual emissions at these facilities. These extra NOx allowances, achieved because of such low emission rates, would provide some compensation for the expenses incurred in achieving extremely low NOx emission rates.

### **A Less Effective Improvement on the Agency Proposal**

If the Agency believes this system, suggested by the U.S. EPA in the model rule is too austere a program for existing, pre-1995 EGUs, there is still additional room for improvement over the system currently proposed by the Agency. However, it should be noted that this last proposal offers the least amount of improvement over the Agency's approach, and of the three approaches listed as ways to create a responsible NOx EGU rule for the State, this garners the least amount of enthusiasm from Environmentalists.

As noted previously, the number of new EGUs already operating, under construction, or which have applied for a permit will vastly oversubscribe the five percent NSSA for the first three years of the NOx program. Due to growth in the electrical generation industry,



unforeseen by the Agency, the General Assembly, and even by Commonwealth Edison, the Board should avoid repeating this short changing of new EGUs in subsequent years. The board should insure that:

- 1) In and beyond the 4<sup>th</sup> year of the program, NOx allocations adequate to cover actual emissions should be provided through the reallocation mechanism to new, post-1995 EGUs in operation at the start of the program.
- 2) True equal allocation based solely on heat input would commence at the second reallocation in the 6<sup>th</sup> year of the program.

### **Discussion**

The Agency has stated that demand for NOx allocations from these new facilities now stands at approximately 11,000 tons if all are constructed and operated. Although it is unlikely all of the projects currently proposed will be built and operated as proposed today, it would be prudent to assume that over the next several years prior to the start of the program this same amount of capacity would be built, especially since demand for electrical capacity needs continue to rise.

At present, under the provisions of the proposed rule, the Agency notes that in the fourth year of the program, 6,017 NOx allowances would be made available to new EGUs that commenced operation four years previous. However, this is still approximately half the number of allocations such new EGUs are expected to need to operate. In order to right the proposed inequitable distribution of credits in the initial allocation the rule should expand the "flex" portion, and decrease the "fixed" portion of the allocations for the reallocation in the 4<sup>th</sup> year of the program.

Rather than the 80 percent of the initial allocations reserved for the use of older EGUs in the first reallocation, known as the "fixed" portion, this percentage should be significantly lower. If a 10 percent EE/RE set aside is created, and a 5 percent NSSA remains in the fourth year of the program, the remaining 85 percent of EGU allocations available should number 26,096. If the need for post-1995 EGUs that were in operation prior to the first year of the program is expected to be at least 11,000 tons, then the percentage of allowances that is reserved for pre-1995 EGUs should only be 58 percent rather than 80 percent. Even if the Agency eliminates the EE/RE set aside and keeps the NSSA at 2 percent as proposed, the percentage of allowances that are reserved for pre-1995 EGUs should represent only be 63 percent of the available EGU budget. Again, this compares to 80 percent in the Agency's proposed rule.

In 2009, or the 6<sup>th</sup> year of the program, EGU allocations should be based on heat input alone. This is what the U.S.EPA model rule proposes should occur in the first reallocation period for the 4<sup>th</sup> year of the program. All EGUs should be awarded allocations based on heat input times a rate of 0.15 lbs/mmBtu. Again, if the pool is oversubscribed, such allocations should be pro-rated among all EGU sources based on heat input.

Heat input used should closely reflect the actual heat input in that future time, not the original heat input numbers the Agency used to set initial allocations for pre-1995 EGUs at the start of the program. Reallocation should be tied to actual operation of the plants preceding the reallocation. If a facility has permanently ceased operation in the period prior to reallocation it does not need a NOx allocation for subsequent control periods. Presenting NOx allocations to a non-operational, or possibly even non-existent, EGU casts doubt on the claim that this allocation is not a property right.

Again, this system would belatedly award facilities with low rates of NOx emissions for achieving such rates and providing electrical power to the public while imposing the least amount of pollution.

### **Conclusion**

The proposal put forth by the Agency indicates that Illinois is attempting to do the bare minimum in controlling harmful levels of air pollution, rather than doing what is right and necessary to protect the health of Illinois citizens - especially young children, the elderly, and those with serious medical conditions. Even with an eventual final attainment strategy for the one-hour ozone standard based on the federal NOx SIP call, this plan will still fail to actually get the Chicago region to a point where air quality is reasonably protective of public health.

Respectively submitted by,

American Lung Association of  
Metropolitan Chicago  
1440 W. Washington  
Chicago IL 60614  
(312)243-2000

ALAMC  
BY: Brian Urbaszewski  
Brian Urbaszewski  
Director of Environmental Health  
Programs

Illinois Environmental Council  
319 W. Cook  
Springfield, IL 62704  
(217) 544-5954

IEC  
BY: John Thompson BU  
John Thompson  
Director of Clean Air Programs

Environmental Law and Policy Center  
35 E. Wacker Drive  
Chicago, IL 60601  
(312) 673-6500

ELPC  
BY: Dan Rosenblum BU  
Dan Rosenblum  
Senior Attorney

Illinois Public Interest Research Group  
180 W. Washington Suite 500  
Chicago, IL 60602  
(312) 364-0096

ILPIRG  
By: Diane Brown BU  
Diane Brown  
Executive Director

Submitted on September 15, 2000