NESCAUM/ MARAMA

NO_x Budget Model Rule

Prepared for:

NESCAUM/MARAMA NO_x Budget Task Force
NESCAUM/MARAMA NO_x Budget Ad Hoc Committee
and the
Ozone Transport Commission Stationary
and Area Source Committee

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EXECUTIVE SUMMARY

This document presents a Model Rule that implements a nitrogen oxides (NO_x) emission budget program consistent with the precepts of the Ozone Transport Commission (OTC) Memorandum of Understanding on Phase II NO_x Reductions. This September 27, 1994 OTC Memorandum of Understanding (MOU) committed the signatory states to the development and proposal of regulations that would create a region-wide NO_x emission reduction in 1999 and 2003. The MOU requires reductions in ozone season NO_x emissions from utility and large industrial combustion facilities within the Ozone Transport Region in order to further the effort to achieve the health-based National Ambient Air Quality Standard (NAAQS) for ozone.

A Task Force of representatives from the states in the OTC, organized through the Northeast States for Coordinated Air Use Management (NESCAUM) and the Mid-Atlantic Regional Air Management Association (MARAMA), were charged with the task of developing a Model Rule that would implement the program defined by the OTC MOU. The NESCAUM/MARAMA NO_x Budget Task Force and the U.S. Environmental Protection Agency (U.S. EPA) developed this Model Rule as a template for states in the OTC to adopt their own rules to implement the OTC MOU. The NESCAUM/MARAMA NO_x Budget Task Force was joined by an Ad Hoc Committee, comprised of representatives from industry, utilities and environmental groups, to provide interested party input to the process.

The Model Rule presented here represents substantial consensus among the states on key regulatory elements of a NO_x Budget program that implements the OTC MOU. Numerous program parameters, including such things as provisions for allowance trading, permitting, emissions monitoring, emissions and allowance reconciliation, and enforcement, have been explored and evaluated through development of issue papers, preparation of supporting studies, and lengthy discussion and debate. The Ad Hoc Committee members have participated in conference calls and meetings where specific provisions of the Model Rule have been discussed and have been invited to comment on several earlier drafts of the Model Rule.

On July 26, 1995, a DRAFT of the NO_x Budget Model Rule was released to a wider audience and comment on the rule was solicited. The comments received were reviewed and discussed in a joint meeting of the NESCAUM/MARAMA NO_x Budget Task Force and Ad Hoc Committee on August 21, 1995. At that time, changes were recommended to

the rule based on suggestions of commenters[1]. A DRAFT FINAL Model Rule was forwarded to the OTC Commissioners and the OTC Stationary and Area Source Committee where, through the fall of 1995, additional discussions were held and changes in the rule were made to accommodate recommendations on emission monitoring provisions, allowance banking provisions and program audit provisions. The Model Rule, presented in this document, is the result of this process.

The NO_x Budget Model Rule implements the OTC MOU emission reduction requirement through a market-based "cap and trade" program. A preliminary analysis conducted for the U.S. EPA[2] demonstrated that substantial economic benefits could be achieved by implementing a significant NO_x emission reduction with a "cap and trade" program as compared to a traditional emission limit program. These preliminary findings indicate that in 2005, the cost savings attributable to use of a "cap and trade" program are approximately 30% or nearly $ 80 million in annualized cost across the region. Since cost savings and source flexibility are maximized by applying the program across a broad region, certain elements of state rules must be consistent across the region. These common components have been identified by the states, with input from U.S.EPA and industry.

To implement the program, the OTC MOU emission reductions are applied to a 1990 baseline for NO_x Emissions in the Ozone Transport Region to create a "cap" or emissions budget for each of the two target years: 1999 and 2003. The 1990 baseline was established through extensive work of the OTC Stationary and Area Source Committee, U.S.EPA, and industry, to refine and quality assure the information available on actual NO_x emissions for 1990. The 1990 baseline emissions and budget has been disaggregated to a state level and the states will allocate allowances to the facilities in the program, called budget sources. Beginning in 1999, the sum of NO_x emissions from budget sources can not exceed the equivalent number of allowances allocated in the region. An allowance is equal to one ton of NO_x emissions. Budget sources must hold allowances for all NO_x emitted during the ozone season months of May through September and budget sources are allowed to buy, sell, or trade allowances as needed.

In order to ensure that NO_x emissions do not exceed allowances, budget sources are required to monitor and annually report NO_x emitted during the ozone season. The preferred method of emissions monitoring includes utilization of sophisticated continuous

[1] A document which summarizes the comments received on the DRAFT Model Rule is available from NESCAUM.
[2] *"Estimated Effects of Alternative NO_x cap and Trading Schemes in the Northeast Ozone Transport Region"*, ICF Resources, September 1995.

emissions monitoring systems (CEMS), as approved by U.S.EPA under 40 CFR, Part 75; the Acid Rain Program. Any budget source currently subject to Part 75 monitoring, must maintain and use that monitoring for emissions tracking under the NO_x Budget Program. Budget sources who are not currently subject to Part 75 monitoring requirements have several alternative monitoring methods available to use. Alternative monitoring methods include procedures that utilize stack testing, heat input measurement, and fuel flow monitoring to predict emissions as well as Part 60 CEMS with more stringent quality assurance testing. Provisions have been made to allow for the use of default factors for those sources who are small and where other monitoring options would be an economic burden.

Once the ozone season has ended, budget sources have a window of opportunity to evaluate their reported emissions and obtain any additional allowances they may need to balance the emissions during the ozone season. This is called the end-of-season reconciliation period and this period ends December 31 of each year with the submittal of a certification of compliance by the Authorized Account Representative for the budget source. Should the budget source not obtain sufficient allowances to offset emissions for the season, the rule relies on existing state and federal enforcement protocols and penalties as well as subtraction of allowances from the budget source's allocation of allowances for the following year.

Allowances that are not used automatically roll-over into the following year and are banked. The Allowance banking provisions of the NO_x Budget Model Rule provide for unlimited banking of allowances with price-based progressive flow control on the use of banked allowances. In this manner, the use of banked allowances is controlled. The progressive flow control would allow a certain portion of banked allowances to be used on a 1 for 1 basis and others on a 2 for 1 basis, the amount of which is determined by total number of allowances banked in the OTR. This puts in place incentives for companies to build up large banks of unused allowances. Unused allowances will be generated by implementing greater controls on NO_x emissions than might otherwise be expected under this program. To add incentive for early NO_x reductions, the program also allows for a one time conversion to allowances, NO_x emission reductions made in excess of MOU requirements in the years 1997 and 1998. The banking program is supported by more explicit program audit provisions seen by many as critical to maintain the integrity of the system.

Finally, the Model Rule makes provisions for possible rule modifications in the future. One instance where a modification might be in order is if refined air quality modeling shows a need to change the emission reduction requirement for the year 2003. This "mid-course

correction" is an option identified in the OTC MOU and the Model Rule accommodates the OTC MOU schedule for modeling and the possible revision of the 2003 emission reduction target and budget.

The NO_x Budget Model Rule provides a consistent platform for states to begin individual rulemaking. The Model Rule addresses many of the issues and concerns raised by members of the NESCAUM/MARAMA NO_x Budget Task Force, the Ad Hoc Committee, the OTC Stationary and Area Source Committee and other parties who commented on the DRAFT Model Rule.

The NO_x Budget Program will next address implementation issues. Several implementation issues have been identified as needing immediate attention. The foremost of these is the issue of funding to support modification of the Acid Rain Tracking System. This is necessary so that the system can accept data from the NO_x budget sources, and generate the appropriate reports to support the NO_x Budget Program. Another implementation issue being addressed is the development of a guidance document on emission monitoring quality assurance and quality control. States individually have begun to address allowance allocation procedures.

In addition to the implementation issues, several program design questions have been targeted for further work and evaluation by the NESCAUM/MARAMA NO_x Budget Task Force and others . The items for further study include requests that:

1. The rule contain language to functionally link the NO_x Budget Program to other emission trading programs such as Open Market Trading programs. The NESCAUM/MARAMA Emission Trading Demonstration Project is discussing this linkage;
2. The program allow for inclusion of sources outside of the Ozone Transport Region; and,
3. The program permit non-utility parties who implement energy savings (private party demand side management) to obtain allowances for the emission reductions their activities created.

1.0 INTRODUCTION

On September 27, 1994 the Ozone Transport Commission (OTC) adopted a Memorandum of Understanding (MOU) committing the signatory states to the development and proposal of a region-wide nitrogen oxides (NO_x) emission reduction in 1999 and 2003[3]. The OTC MOU requires reductions in ozone season NO_x emissions from utility and large industrial combustion facilities, in order to further the effort to achieve the health-based National Ambient Air Quality Standard (NAAQS) for ozone.

This document presents a Model Rule that could be used to implement the program called for by the MOU. In addition to the rule, this document includes a discussion of the background to the program, as well as a summary of the rule development process, including issues identified and evaluated in developing a consensus based Model Rule.

This Model Rule represents substantial consensus among the states and U.S.EPA on key regulatory elements of a NO_x Budget Program that implements the OTC MOU. Numerous program parameters, including such things as provisions for allowance trading, allowance banking, permitting, emissions monitoring, emissions and allowance reconciliation and enforcement, have been explored and evaluated through the development of issue papers, preparation of supporting studies, and lengthy discussion and debate.

The NO_x Budget Model Rule provides a consistent platform for states to begin individual rulemaking. The Model Rule does not yet address all of the issues and suggestions that were raised in the rule development and review process. Several items have been identified for further study and evaluation and may be addressed in future discussions on the Model Rule scheduled for 1996. The outstanding issues include a linkage between the NO_x Budget Program and Open Market Trading programs, addressing non-utility demand-side management programs, and expansion of the NO_x Budget Program to sources outside of the Ozone Transport Region (OTR). The last of these issues becomes particularly important in light of national trends towards utility deregulation and the potential for increased import of power into the OTR. The first of these issues is being investigated through the work of a Demonstration Project Workgroup organized by the Northeast States for Coordinated Air Use Management (NESCAUM). Issues of power import and broader regional ozone transport, are being addressed through the Ozone Transport Assessment Group (OTAG).

[3] "Memorandum of Understanding Among the States of the Ozone Transport Commission on Development of a Regional Strategy Concerning the Control of Stationary Source Nitrogen Oxide Emissions", signed September 27, 1994.

2.0 AIR QUALITY IN THE NORTHEAST

Elevated concentrations of ground-level ozone along the east coast is a region-wide condition of air pollution that extends from Virginia to Maine. In recognition of the regional extent of this condition, and the necessity to approach air pollution control from a regional perspective, Congress created the Ozone Transport Commission in the Clean Air Act Amendments of 1990.[4]

Ozone is not directly emitted but is created as a result of the chemical reaction of nitrogen oxides (NO_x) and volatile organic compounds (VOC), in the presence of sunlight and heat, to form ozone in the air masses traveling long distances. Ozone is a respiratory inhibitor. Exposure to ozone causes decreased lung capacity, particularly in children and elderly. Decreased lung capacity from ozone exposure can frequently last several hours after the initial exposure. All states in the OTR, except Vermont, have experienced levels of ozone during the months of May to September in excess of the NAAQS of 0.12 PPM.

Current U.S. Environmental Protection Agency (U.S. EPA) assessment of the ozone problem in the Northeast using the ROMNET (Regional Oxidant Modeling for the Northeast Transport Region), other ROM Modeling, and Urban Airshed Modeling (UAM), indicates that the OTR states will need to reduce NO_x emissions by 50 to 75 percent from 1990 baseline levels, in order to attain the National Ambient Air Quality Standards (NAAQS) for ozone throughout the OTR.[5] A similar reduction in emissions of volatile organic compounds (VOC) was also indicated, and is the focus of past and present state, and OTC regulatory activities. The NO_x Budget Program, represented by this Model Rule, would be proposed as one component of each state's plan to reduce ozone precursor emissions and achieve the air quality standards.

3.0 OZONE TRANSPORT REGION NO_x EMISSION REDUCTION INITIATIVE

In the Fall of 1993, NESCAUM, with funding from the U.S. EPA, began to study the feasibility of implementing regional NO_x emission reductions, utilizing an emission budget program in the northeast. The study was soon expanded to include states in the Mid-Atlantic Regional Air Management Association (MARAMA). The study provided a

[4] 42 U.S.C 7401-7626, Section 184
[5] 59 FR 48674, September 1994

conceptual design for a regional, market based, NO_x budget program, and evaluated the feasibility of implementing such a program.[6]

Concurrent with this activity, the Stationary and Area Source Committee of the OTC began to investigate regional NO_x emissions control with a focus on identifying the appropriate level of emission reductions that would contribute to a significant improvement in air quality. The OTC Stationary and Area Source Committee evaluated the information on ozone formation available through U.S.EPA airshed modeling, and identified a level of NO_x emission reduction that would reduce ozone concentrations in the Ozone Transport Region (OTR). The OTC Stationary and Area Source Committee prepared, for the full OTC, a recommendation for two additional phases of NO_x emission reduction beyond that already achieved by Reasonably Available Control Technology (RACT) across the region. This recommendation was formally adopted by the OTC in a Memorandum of Understanding (MOU) in September 1994.

The OTC MOU requires a significant reduction in NO_x emissions from utility and large boiler sources across the OTR. In order to accomplish this, the OTC states[7], in the MOU of September 27, 1994, agreed to propose regulations for the control of NO_x emissions in accordance with the following guidelines:

1. The level of NO_x reduction required, would be established from a 1990 baseline emissions level.
2. The reduction would vary by location, or zone, and would be implemented in two phases utilizing a region-wide trading program.
3. The reduction would be the less stringent of the following:[8]
    - By May 1, 1999, the affected facilities in the Inner zone shall reduce their rate of NO_x emissions by 65% from baseline, or emit NO_x at a rate no greater than 0.20 pounds per million Btu.
    - By May 1, 1999, the affected facilities in the Outer zone shall reduce their rate of NO_x emissions by 55% from baseline, or shall emit NO_x at a rate no greater than 0.20 pounds per million Btu.

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[6] *"Feasibility of a Regional Market-based NO_x Budget System for the Ozone Transport Region"*, Tech Environmental Inc., October 1994

[7] The OTC states include Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania, Maryland, Delaware, the northern counties of Virginia and the District of Columbia. The states of Virginia and Massachusetts did not sign the September 27, 1994 MOU.

[8] "Memorandum Of Understanding Among the States of the Ozone Transport Commission on Development of a Regional Strategy Concerning the Control of Stationary Source Nitrogen Oxide Emissions", signed September 27, 1994.

- By May 1, 2003, the affected facilities in the Inner and Outer zones shall reduce their rate of NO_x emissions by 75% from baseline, or shall emit NO_x at a rate no greater than 0.15 pounds per million Btu.
- By May 1, 2003, the affected facilities in the Northern zone shall reduce their rate of NO_x emissions by 55% from baseline, or shall emit NO_x at a rate no greater than 0.20 pounds per million Btu.

It should be noted, that while not explicitly listed in the MOU, the 1999 level of control for the northern zone is expected to reflect RACT. The zones referred to in the OTC MOU are fully defined later in this document.

In December 1994, the two regional organizations; NESCAUM and MARAMA, organized a Task Force, including representatives from the OTC states and U.S. EPA, to develop a model rule that would implement the OTC MOU. The NESCAUM/MARAMA NO_x Budget Task Force, hereafter referred to as the Task Force, began by identifying key issues that needed investigation. Each of the issues was explored through issue papers where regulatory options were outlined and evaluated.

In March 1995, an Ad Hoc Committee, comprised of representatives from industry, utilities and environmental groups, were convened to provide "interested party" input to the process. The Ad Hoc Committee originally participated in the 1993-1994 NESCAUM/MARAMA study of the feasibility of a market-based NO_x budget system in the northeast. Their participation in development of the Model Rule has brought additional depth and understanding of the issues, as well as the perspective of parties most likely to be regulated by this rule. The Ad Hoc Committee members have participated in conference calls and meetings where specific provisions of the Model Rule have been discussed, as well as commented on discussion drafts of the Model Rule.

On July 26, 1995, a DRAFT of the NO_x Budget Model Rule was released to a wider audience and comment on the rule was solicited. The comments received were reviewed and discussed in a joint meeting of the Task Force and Ad Hoc Committee on August 21, 1995. At that time, changes were recommended to the rule based upon suggestions of commenters[9]. The resulting Model Rule was sent forward to the OTC Stationary and Area Source Committee with two issues unresolved. One of these issues was allowance banking; the other, program funding.

[9] A document which summarizes the comments received on the DRAFT Model Rule is available from NESCAUM.

Allowance banking is the term used to define the movement of allowances from one year to the next. During the fall of 1995, the OTC Stationary and Area Source Committee evaluated several allowance banking options that provided for "managed" banking of allowances from year to year. What developed was a program of "Progressive Flow Control" which is described in detail in a later section of this document. The progressive flow control program was reviewed, and commented upon by the NESCAUM/MARAMA NO_x Budget Task Force and Ad Hoc Committee during the first week of January 1996. On January 10, 1996, the OTC Stationary and Area Source Committee heard further comment at their meeting before concluding that the NO_x Budget Model Rule incorporating progressive flow control allowance banking, be recommended to the full OTC Commission at their meeting of February 13, 1996. By this action, the major policy recommendations on components of the NO_x Budget Model Rule were complete, except for the details of implementation and the identification of a funding mechanism.

4.0 SUMMARY OF NO_x BUDGET PROGRAM MODEL RULE

This Model Rule was developed to provide a template for states in the OTC, to adopt their own rules for implementation of the OTC MOU NO_x reduction requirement. The model rule that has been developed, implements the NO_x emission reductions specified in the OTC MOU, using a market-based approach. What follows here is a brief description of the NO_x Budget Program and the requirements of the Model Rule. For more detailed information, please see the specific Model Rule language in Section 7.0.

The Clean Air Act Amendments of 1990 encourage market-based approaches for achieving environmental goals. At the national level, the U.S.EPA has adopted programs that utilize market- based incentives to reduce sulfur dioxide emissions from utilities (Acid Rain Program), to promote alternative motor vehicle fuels, to phase-out the use of ozone depleting substances, and to promote clean fuel vehicle purchase programs.

Two primary types of market-based programs are being implemented in the United States. The first program type is the emission reduction trading program where emission reductions, beyond those required by state or federal law, can be banked and traded among sources to achieve cost effective compliance, or to provide offsets for new source growth. The eligible emission reductions are surplus to what is needed for a state's attainment or maintenance plan. The U.S. EPA Open Market Trading program is an example of an emission reduction trading program.

The second type of market-based program is a "cap and trade", or emissions budget program. This type of program sets a regulatory limit on mass emissions from a discrete

group of sources, allocates allowances to the sources authorizing emissions up to the regulatory limit, and permits trading of allowances in order to effect cost efficient compliance with the cap. The number of allowances allocated is limited by the cap on mass emissions or the state's attainment and maintenance plan, and are not considered surplus in the same manner as emission reductions in an emission reduction trading program. The California RECLAIM program and the U.S.EPA Acid Rain Program are examples of this type of market based approach.

The NO_x Budget Model Rule implements the OTC MOU NO_x emission reduction requirement through a market-based "cap and trade" program. A preliminary analysis conducted for the U.S. EPA[10], showed that substantial economic benefits could be achieved by implementing a significant NO_x emission reduction with a "cap and trade" program, as compared to a traditional emission limit program. These preliminary findings indicate that in 2005, the cost savings attributable to use of a "cap and trade" program are approximately 30% or nearly $ 80 million in annualized cost across the region.

To implement the OTC MOU, the required emission reductions are applied to a 1990 baseline for NO_x emissions in the OTR to create a "cap", or emissions budget for each of the two target years: 1999 and 2003. In the OTC MOU, the OTC Stationary and Area Source Committee was charged with developing an acceptable 1990 emissions baseline by March 1, 1995. The committee, along with staff from the U.S.EPA, worked diligently to refine and quality assure the 1990 emissions data. This data was made available to states from the utility and industrial boiler sources who would be subject to this program. In addition, the Committee addressed exceptional circumstances in the 1990 data, and made the appropriate adjustments. Consistent with the September 27, 1994 MOU, 1990 baseline emissions figures were submitted to the U.S. EPA by March 1, 1995, with the understanding that there would be some additional quality assurance adjustments, and resolution of a 10,000 ton reserve at a later date. The final 1990 baseline, including the last of the quality assurance adjustments, exceptional circumstance adjustments, and inclusion of the 10,000 ton reserve, was submitted to the full OTC Commission in June of 1995. This baseline was formally adopted at the OTC Commission Meeting of June 13, 1995. The 1990 baseline, including adjustments and allocation of the 10,000 ton reserve, was established at 490,741 tons of NO_x over a five month period (May through September).

[10] "*Estimated Effects of Alternative NO_x Cap and Trading Schemes in the Northeast Ozone Transport Region*", ICF Resources, September 1995.

The NO_x Budget Model Rule provides that once the 1990 baseline is established, the OTC MOU reduction requirement is applied to create the 1999 and 2003 emission budgets. The budget would then be allocated as "allowances" to the emission units subject to the program (budget sources). Budget sources are defined as fossil fuel fired boilers and indirect heat exchangers of 250 million Btu or greater, and electric generating units of 15 megawatts, or greater. Budget sources are defined on a unit level, meaning that each boiler or utility generator is considered a separate budget source. There are approximately 465 budget sources that would be applicable to the NO_x Budget Program. The regionwide seasonal NO_x Budget for 1999 (Phase II Target) is 219,055 tons. For Phase III, in 2003, the target is 142,874 tons of NO_x.[11]

The Model Rule does not indicate how allowance allocation will be done by the states. This part of the Model Rule was determined to be one of the areas where the states should have full discretion to develop and adopt their own allocation methodologies. A format has been provided in the Model Rule for states to insert budget source allocations once the states have devised and applied their own allocation formulas. The allowance allocations will also need to be reflected in operating permits for each budget source.

Beginning in 1999, the sum of NO_x emissions from budget sources during the May through September control period, can not exceed the equivalent number of allowances allocated in the region. An allowance is equal to one ton of NO_x emissions. The budget sources are allowed to buy, sell, or trade allowances to meet their needs.

Budget sources may also be allowed to "bank" allowances on a limited basis. Banking is defined as the carry-over of unused allowances from one control period to the next. The progressive flow control banking program allows unlimited carry-over of unused allowances from one year to the next. The eventual use of banked allowances is regulated through a pricing mechanism that relates the number of allowance in the bank, regionwide, to a formula for withdrawal and use of allowances. In short, if the number of banked allowances, regionwide, exceeds 10% of the regionwide allocation for the year, some of the banked allowances in each budget sources' account will be subject to a 2 to 1 withdrawal ratio. This is discussed in greater detail in Section 5.0.

In order to ensure that NO_x emissions do not exceed allowances, budget sources are required to monitor and report NO_x emissions during the control period each year. The

[11] *"1990 OTC Nox Baseline Emission Inventory", Volumne 1: Supplemental Material.* E.H. Pechan Associates, July 12, 1995.

preferred method of emissions monitoring includes utilization of sophisticated continuous emissions monitoring systems (CEMS), as approved by U.S.EPA under 40 CFR, Part 75 (the Acid Rain Program). Any budget source currently subject to Part 75 monitoring, must maintain and use that monitoring for emissions tracking under the NO_x Budget Program. Budget sources who are not currently subject to Part 75 monitoring requirements have several alternative monitoring methods available to use.

One alternative monitoring method would be use of 40 CFR, Part 75, Appendix E *"Optional NO_x Emissions Estimation Protocol for Gas Fired Peaking Units and Oil Fired Peaking Units."* This appendix describes an approved alternative monitoring method for oil and gas-fired peaking units, that utilizes stack testing and fuel flow monitoring to predict emissions. For purposes of the NO_x Budget Program, the method can be expanded to all oil and gas fired units that are not already implementing Part 75 CEMS.

Another alternative monitoring system available to non-utility sources, is implementation of Part 60 CEMS with more stringent quality assurance testing. The explicit provisions for this method have been developed by a subcommittee of the Task Force with input from non-utility members of the Ad Hoc Committee. The alternative methods combine emission factors with flow meters to measure fuel input or heat input where flow meters would be prohibitively expensive or technologically difficult to install. In all cases, monitored emissions must be reported in hourly emissions format to a centralized emissions tracking system.

Once the control period has ended, budget sources have a window of opportunity to evaluate their reported emissions and obtain any additional allowances they may need to balance their emissions during the period. This is called the end-of-season reconciliation period. This period ends December 31 of each year with the submittal of certification of compliance by the Authorized Account Representative for the budget source. Allowances that are unused at the end of the reconciliation period are "banked". Should the budget source not obtain sufficient allowances to offset emissions for the season, the rule relies on existing state and federal enforcement protocols and penalties, as well as requires a deduction of allowances from the next year's allocation equivalent to three times the amount of excess emissions. This means that for each ton of excess emissions, 3 allowances will be subtracted from the compliance account for the following control period.

Other requirements contained in the Model Rule include:

- Designation of an Authorized Account Representative as the only person from a budget source authorized to report and certify compliance with the NO_x Budget Program.
- Provisions for voluntary opt-in to the program by emitting units who do not meet the definition of budget source.
- Provisions for permitting new sources which would meet the definition of "budget source" and be subject to this program.
- A state commitment to conduct a periodic audit of the program to ensure that the program, as implemented, is consistent with any applicable reasonable further progress (RFP) requirements or attainment demonstrations, and to ensure that the banking provisions are not causing substantial exceedence of the seasonal budget.

Finally, the Model Rule makes provisions for possible rule modifications in the future. One instance where a modification might be in order is if refined air quality modeling shows a need to change the emission reduction requirement for the year 2003. This "mid-course correction" is an option identified in the OTC MOU and the Model Rule accommodates the schedule for modeling and the possible revision of the 2003 emission reduction target and budget. The OTC MOU specifies that should modeling reveal the need to modify the 2003 emission reduction requirement, the MOU must be revised to incorporate the revised requirement.

5.0 DISCUSSION OF ISSUES EVALUATED IN MODEL RULE DEVELOPMENT

As previously stated, the NO_x Budget Model Rule was developed as a template for states in the OTC to use in developing their individual state rules. What makes the NO_x Budget Program unique is that each state will be developing rules that, when combined with the rules from other states, will implement a regional program. Absent a federal mandate and implementation of a federal program (i.e., the Clean Air Act Title IV Acid Rain Program), implementation of a regional program requires a certain amount of consistency among states in the region. Maintaining consistency requires the states to develop a program which establishes an agreement on core components, and maintain that agreement through the individual state rulemaking, actions and through implementation of the rule.

State program consistency is important to the overall success of the Model Rule. State programs that are substantively identical in key areas, can ensure that a ton of emissions reduced in one
state, is equivalent to a ton reduced in another. Since states desire to promote cost effective compliance through emission trading, this level of consistency is very important

to an effective trading program. Variation in the stringency of monitoring requirements, or application of discounts in some states, and not in others, raises questions of equity and fairness, causes uncertainty in the validity of each ton of reduction, and creates barriers to trading.

In order to promote consistency, development of the Model Rule first focused on identifying key program elements that must be common to all states. The Model Rule is the product of issue evaluation and consensus building on these common elements. Once issues were evaluated and resolved, the transition from issue papers to a model rule, required an evaluation of the conceptual design criteria for the model rule. The resulting Model Rule was designed to be simple, comprehensive, and specific, so that states using this rule as the basis for developing state specific rules, will have adequate guidance to formulate effective programs that would be consistent across the region.

The Task Force and the Ad Hoc Committee initially identified key components of the rule that must be consistent in all states in order for the program to operate effectively across the broader region. These components are listed as follows.

- Applicability to a minimum group of facility types (listed in the OTC MOU)
- Control period (May 1- September 30).
- Trading period (allowance transfer deadline).
- Emission reductions and limits.
- Date by which the allocation of allowances must be made by the state to the budget sources.
- Allowance Tracking System.
- Emissions Tracking System.
- Allowance banking provisions.
- Inter-zone trading discounts.
- Self-certification penalties.
- Requirement for allowance allocation to be reflected in operating permits.
- Voluntary opt-in provisions.
- State program audits.

Components of the rule where state-to-state consistency is not necessary, or which are viewed as critical for a state to maintain flexibility to handle state specific issues were determined to be as follows:

- Applicability of rule beyond the OTC MOU sources.
- Allocation of allowances (method of allocation).

In the following pages, significant issues that were evaluated in the development of the Model Rule are briefly discussed.

Seasonal Budget Correlation to Daily Emissions

The period when ozone is most likely to be formed in the OTR (May through September) is classified as the "control period". The NO_x Budget Program will be applied during this 5 month period. The question raised was whether the program, if established to control total emissions on a seasonal basis, would adequately address peak ozone-day emissions.

The following options were evaluated to address the concern of peak ozone day emissions:

1. A seasonal emission budget with no daily emission limit. States would estimate daily emission reductions, adjusted by an uncertainty factor if necessary for attainment planning purposes. States will audit of the program and reduce the seasonal cap in future years if daily emissions are higher than expected.
2. A requirement that budget source emissions stay below a maximum daily emission limit of 120% of the daily average of the 153 day seasonal budget.
3. A requirement that budget sources meet a rolling 5-day average emission limit based on the daily average of the 153 day seasonal budget.
4. A requirement that budget sources meet a rolling daily emission limit based on the daily average of the 153 day seasonal budget.
5. A requirement that budget sources meet a daily emission limit only on days ozone concentrations are forecast to be high.

Many difficulties would arise from the implementation of options 2 through 5 above. The problem is best illustrated by the examination of peaking units. Peaking units operate for a limited number of days during the control period at times of peak demand. A daily emission limit would impose a heavy burden on these facilities because peaking units would be required to obtain NO_x emission allowances to cover potential daily emissions well in excess of actual emissions.

As an example, suppose a peaking facility produces 1 ton of NO_x per day while operating at full capacity. If a daily limit based on 120% of the daily average for the 153 day control period is established, then the source must obtain (153 days/season x 1 ton/day / 1.2) or 127.5 tons of allowances to operate at full capacity for one day. If the unit only operates for 30 days during the year, excess unusable allowances are (127.5 tons - 30 days x 1 ton/day) or 97.5 tons. Because these allowances cannot be traded without affecting the compliance of the budget source, the peaking units may be encouraged to operate more often during the year. Since many peaking units are generally older units that emit more NO_x per kW-hr than baseload units, a daily emission consideration could potentially cause emissions of NO_x to increase across the season.

Additionally, according to utilities, peaking units are necessary to meet customer requirements on peak demand days. The daily emission limit based on seasonal average may encourage companies to install controls on peaking units before installing them on baseload units. Baseload units are primary candidates for control on a cost basis, and the implementation of control on baseload units should encourage allowances that would otherwise be used by those units, to be traded to peaking units where the cost of control is high. A daily limit would therefore indirectly discourage trading.

Finally, daily emission limitations may encourage load shifting. During peak demand days, if baseload units approach their daily emission limit, peaking units would need to run at higher capacities to meet demand. If peaking units need to operate at higher capacities than baseload units due to limitations on the baseload units, and given that peaking units are likely to be higher emitting than baseload units, then peak demand, during the ozone season, will be met at a higher NO_x emission level.

A study conducted by National Economic Research Associates (NERA)[12], examined the question of ozone day emissions within the context of a seasonal cap. This study is currently in draft form, but preliminary results indicate that the daily emissions from fossil fuel generated power is highly variable based on unit availability. By comparing two scenarios for NO_x control; one scenario where the OTC MOU NO_x reduction is applied on a unit -by-unit basis, and a scenario where allowance trading between sources is allowed, NERA concluded that allowance trading may only increase daily emissions on a peak

[12] *"The Timing of NO_x Emissions and Emission Trading in the Ozone Transport Region: An Analysis of the New England Power Pool", DRAFT,* National Economic Research Associates, April 11, 1995.

ozone day by 5% over what would otherwise be expected under a command and control program (with no trading).

Given the small magnitude of this increase compared to the peak ozone day NO_x inventory (including mobile sources), and the potential for the daily limit to result in increased seasonal emissions and load shifting, the conclusion of the Task Force is to recommend a NO_x Budget Program that does not contain a limit on peak ozone day emissions.

Allowance Banking

Banking is the retention of unused allowances from one season for use in another. Banking has been the most debated issue in development of the NO_x Budget Program and its evaluation has included consideration of a number of options.

The banking options that have been discussed to date include:

1. Prohibiting banking.
2. Limiting the amount of allowances that can be banked, the type of allowances that can be banked (add-on control only), and the life time of the banked allowance.
3. Controlling the use of banked allowances.

A number of specific, limited, banking scenarios have been discussed individually and in combination, including:

1. Allowing only a fixed percentage of allowances to be banked by any one budget source.
2. Permitting allowances to be banked for a fixed period of time after which they expire.
3. Subjecting banked allowances to a fixed discount rate.
4. Limiting the banking eligibility of emission reductions achieved more than one year before the allocation year.
5. Requiring that banked allowances not be traded.

6. Imposing "flow control" or a percentage limit on the use of banked allowances.
7. "First-in, First-out" or, alternatively, "Last-in, First-out" use of banked allowances.

Proponents of banking argue that banking:

- Can encourage early reduction.
- Allows for more active market based trading.
- Protects against variations in the availability of power generating facilities and swings in demand.
- May encourage allowance use at the site of allocation instead of across a wide geographic area.
- May promote the "holding" of allowances for emergency use, reducing the amount of allowances actually used in a season.
- May allow more flexibility to reach emission reduction goals and time tables.

When discussing allowance banking, the assumption has been that utilities will plan emission reduction for an "average" year where fossil fuel generated power makes up 53-55% of the total power use. In years of limited nuclear power availability, fossil fuel generated power makes up nearly 60% of the total power generated. In this instance, it is presumed that if available, banked allowances would be used to achieve compliance. Without banking, many purport that utilities will make greater initial reductions in order to build-in a margin of safety for compliance with the NO_x Budget Program. Several members of the Task Force and Ad Hoc Committee view banking as an aspect of flexibility that undermines the emission reductions which could otherwise be achieved by the NO_x Budget Program and could indirectly reward utilities with poorly planned NO_x control.

Further, opponents to banking argue that banking:

- May encourage facilities to bank unused allowances and "dump" them in later years. This could affect states' rates of progress (ROP) and attainment.
- Adds complexity to allowance trading system.
- Increases emissions (unused allowances that cannot be banked are not emitted).

- May prevent the OTR from achieving attainment with the Phase II NO_x reductions, which if achieved, would negate the need to implement Phase III NO_x reductions.

While the use of banked allowances could potentially result in actual emissions exceeding the target emission level for any given year, NERA, examined power generation through the time period 1990 through 1994 to assess the likelihood of this occurring. The NERA study[13] showed that the variation in emissions over time was largely a function of the availability of nuclear power. In fact, 1990 was a year where emissions from fossil fuel generated electricity was higher than the average (1990-1994). Of the four years examined, only one year demonstrated emissions higher than those in 1990. The other three years showed emissions from 6% to 13% lower than the 1990 level. The one year of higher emissions was also a year of low nuclear power availability.

In order to resolve the issues surrounding banking, the NESCAUM/MARAMA NO_x Budget Task Force forwarded the banking program issue to the OTC Stationary and Area Source Committee for discussion. The OTC Stationary and Area Source Committee revisited the primary advantages of any banking program and tailored a managed banking scheme to make the most of the benefits of banking, and minimize the disbenefits. Banking programs can be regarded as having two major benefits to the environment. As previously stated, banking can encourage early emission reduction and can encourage excess emission reduction. With these two concepts, a managed banking program was designed to include incentives for early reductions as well as incentives for excess emission reductions. The use of banked allowance, frequently perceived as a "budget busting" activity, is controlled in this program by a pricing system. This pricing system seeks to influence the economics of controlling emissions by encouraging sources to control for a "worst case", rather than an "average" year thereby gaining greater emission reduction on average across the region.

The result is a progressive flow control banking system. The program has two components. First, there is a banking component that allows unlimited banking of unused allowances. Second, the system places a price on the use of allowances. The system requires that each year, at the end of the reconciliation period, the number of allowances banked throughout the region would be computed. If the total number of allowances

[13] Ibid.

banked are less than 10% of the annual regional allocation, banked allowance can be used without discounts or penalties in the upcoming control period. If the regional total of banked allowances exceed 10% of the annual regional allocation, a withdrawal procedure would be implemented to regulate the use of banked allowances. The 10% figure was chosen to roughly equate what has been shown to be the variation emissions in years of low nuclear availability.

The withdrawal procedure involves a simple ratio that is applied to each account of banked allowances. Application of the ratio results in identification of the banked allowances that can be used on a 1-for-1 basis and those, which if used, must be used on a 2-for-1 basis. This concept is best explained by example.

In Phase II, the regional NO_x Budget target is 219,005 tons. For this example, the total number of banked allowances in the region is determined to be 23,650. This number exceeds 10% of the NO_x Budget allocation for the year. Therefore, the withdrawal procedure is implemented for the upcoming control period.

The number of banked allowances in the region and the number of allowances which represent 10% of the NO_x budget allocation for the upcoming control period are combined to create a ratio that relates the number of banked allowances to the budget as follows:

$$\frac{\textbf{0.10 x the regional } NO_x \textbf{ Budget}}{\textbf{\# of allowances in the bank}} = \frac{\textbf{21,900}}{\textbf{23,650}} = \textbf{0.926}$$

The ratio is then applied to each account (general as well as compliance accounts) to identify the number of banked allowances which can be used at 1-for-1 and the number of banked allowances which can be used at 2-for-1. If Source A has 953 allowances in the bank, and Source B has 4000 allowances, the ratio of 0.926 is applied to each account. The result is that Source A has 883 allowances they can use in the upcoming control period, on a 1-for-1 basis and 70 allowances they can use in the upcoming control period on a 2-for-1 basis. In terms of real emissions, Source A can use banked allowances up to 918 tons equivalent, to balance emissions in the upcoming control period. Source B, with a larger account of banked allowances can use 3704 allowances on a 1-for-1 basis and 296 on a 2-for-1 basis. In terms of real emissions, Source B has banked allowances equaling 3852 tons equivalent, to balance emissions. This illustrates that the larger the number of unused allowances a budget source can accumulate (possible by over-control), the larger the absolute number of allowances a source can use through the

allowance withdrawal protocol. Also, since the ratio is developed by looking at the regional total for banked allowances, events such as shutdowns, curtailments and demand shift within the region are controlled for, prior to application of the ratio to individual accounts.

Following further on this example, should the following year indicate the total banked allowances across the region are less than 10% of the allocation, All banked allowances in each account shall be useable on a 1-for-1 basis. Banked allowances do not expire.

In 2003, when the regional target is reduced through implementation of Phase III, the allowance withdrawal protocol will reflect the reduction. If the above example had occurred in 2003. the allowance reduction ratio would be as follows:

0.10 x the regional NO_x Budget =	**14,287**	**= 0.604**
# of allowances in the bank	**23,650**	

What the allowance deduction protocol encourages investment in excess emission reductions, and promotes large accounts of banked allowances while dampening the effect of emission increases in years of low nuclear power availability. As shown in the example, budget sources who accumulate large accounts of unused allowances, will be able to use more allowances at a 1-for-1 ratio, than those with small accounts. This, combined with the fact that the banked allowances are not devalued over time by a cap on use, provides additional economic incentive to encourage increased levels of control and excess emission reductions across the region. This can be more protective to the environment on the whole, while allowing flexibility to address power production demands in years of low nuclear availability.

Added to the progressive flow control banking provision, is an incentive for early emission reductions. Early reduction incentives can accelerate control and result in real emission reductions in advance of regulatory deadlines. The early reduction incentive included in the program, allow real, surplus, and quantifiable emission reductions occurring in 1997 and 1998, to be certified by the states as credit, which can be converted to allowances in 1999 when the NO_x Budget Program takes effect. These early credits can not be created from shut down or curtailment, and can only be generated by sources who reduce emissions below that required by the NO_x Budget Program. This provides a one time

bonus of allowances for those who make real emission reduction in advance of the NO_x Budget Program deadlines.

Finally, the banking program is supported by a strong program audit requirement. Given the magnitude of the debate over banking in this rule, a program audit was determined to be essential to ensure NO_x Budget program integrity and to demonstrate that the program is providing the expected air quality benefits. The first program audit is to be completed by March 31, 2002. The audit will examine, at minimum, the following:

- Emission reporting accuracy through validation of CEMS or other emission data generation methods at budget sources.
- Ambient ozone monitoring data through out the seasonal control period and throughout the OTR.
- Emission rates of budget sources on peak electric generation days, ozone periods and across the seasonal control period.
- Patterns of allowance transfer and use (temporal and geographical), including banked allowances and early reductions converted to allowances.
- Other data as necessary to determine the efficacy of the NO_x Budget program.

Should the audit reveal that the emission reductions expected of the program are not being achieved, the states in the OTR may make adjustments to the program. Such adjustments, to the extent possible, would focus on the primary cause of program aberrations but could include changes in the banking program (increasing retirement ratios, limiting the size of the bank) should it be determined that the banking provisions of the rule are causing the NO_x Budget to be exceeded on a routine basis or in an unacceptable manner.

This allowance banking package was developed by a small work group including states, utilities and environmental interests. The package was reviewed by the NESCAUM/MARAMA NO_x Budget Task Force and the Ad Hoc Committee before being recommended to the OTC Commissioners for consideration by the OTC Stationary and Area Source Committee.

There continues to be some concern from industry that including banking in the NO_x Budget Program will preclude attainment with emission reductions to be achieved by

Phase II of the program. This group has expressed concern that Phase III should not be necessary or automatic. In the mid-course correction provisions of the OTC MOU, Phase III reductions can be modified by a finding through modeling and other emission analysis. Such analysis should incorporate a conservative projection of the impact of the allowance banking provisions to verify if banking will in any way influence the daily formation of ozone. Similar assumptions will need to be made in the analysis regarding the lack of a daily cap on emissions and in the geographic scope of allowance trading.

Emission Monitoring and Reporting

In order for NO_x allowances to be accurately traded and tracked, budget sources must use consistent monitoring procedures to determine their emissions. Accurate and consistent monitoring is needed to ensure that all allowances in the NO_x Budget Program have the same "value" (e.g. one ton of NO_x emissions measured to an accuracy 80% may not equivalent to one ton of NO_x emissions measured to an accuracy of 90%). Since states desire to promote cost effective compliance through emission trading, this level of consistency is very important to an effective trading program.

U.S.EPA has recommended that the monitoring, record keeping and reporting requirements be equivalent, or identical, to 40 CFR,, Part 75 requirements (Acid Rain Program). However, requiring all budget sources to implement Part 75 monitoring would be costly. Further, it might discourage, or prevent sources, from opting into the program and may encourage load shifting. The intent of the NO_x Budget Program is to include the emissions from all electric generating units and prevent load shifting. Most budget sources are currently subject to the monitoring requirements of either 40 CFR,, Part 60 (New Source Performance Standards) or Part 75.

There are four significant differences between the Part 60 and Part 75 monitoring and reporting requirements:

- In Part 60 monitoring is rate based and was designed to determine compliance with emission limits. It does not require flow meters that would allow recording of data in tons emitted. In most cases, Part 75 monitoring does require flow monitoring and was designed to determine total emissions.
- The Part 60 relative accuracy tests require accuracy at 20%; Part 75 requires 10% accuracy with incentives for accuracy below 7.5%. Phase I Acid Rain sources currently average 4%. The less demanding accuracy requirement of

Part 60 allows potential under-reporting of emissions in contrast to the more stringent Part 75 requirements.

- The quality assurance requirements for Part 75 are significantly more stringent on a daily, quarterly, and annual basis. This is designed to lead to more accurate emissions measurements.
- Part 75 requires 100% data reporting. This includes missing data substitution for periods when monitors are not working and incentives for increased monitor availability. Part 60 monitoring does not require missing data substitution and has less stringent monitoring availability requirements.

The Model Rule handles concerns about cost and feasibility as well as validity of the monitoring methods by providing several monitoring options for Non-Part 75 sources to choose from. Budget sources already applicable to Part 75 requirements, must continue to use Part 75 CEMS for purposes of monitoring emissions in the NO_x Budget Program. Non-Part 75 sources have the option to implement Part 75 monitoring or any of the following:

- 40 CFR,, Part 75, Appendix E which employs periodic stack testing combined with fuel flow data to provide emission estimates (oil and gas sources only).
- Part 60 monitoring equipment with some changes in data handling and quality assurance to derive emission rate combined with heat input information to derive utilization information, combined to result in emissions in pounds per hour.
- Default emission rates, combined with heat input information to derive utilization, combined to result in emission in pounds per hour.

There are several options available for collecting heat input information including fuel flow metering (daily or weekly), and boiler efficiency testing.

The details of initial certification of the monitoring system, relative accuracy testing of the system and periodic quality assurance and quality control of the data have been removed from the NO_x Budget Model Rule and incorporated into a document entitled *Guidance for Implementation of Emission Monitoring Requirements for the NO_x Budget Program.* This guidance document is referenced in the rule. The rule and the guidance document have been developed by a subgroup of the NO_x Budget Task Force, including state and

U.S.EPA staff who are experts in emission monitoring systems. The guidance document is currently DRAFT and will be further refined in the months ahead.

In all instances, emissions data must be resolved to an hourly basis and hourly data must be reported to a centralized emissions tracking system . A centralized tracking system is another program design option that was discussed with the Ad Hoc Committee. There was strong support for such a system, and strong support from utility groups for adoption of the U.S. EPA's Emissions and Allowance Tracking Systems used for the Acid Rain Program. Advantages to using the U.S.EPA system and having one centralized system include:

- A single point of contact for reporting.
- Many utility sources are already reporting to the Acid Rain System so adoption of that system for the NO_x Budget Program would avoid redundant reporting requirements.
- The cost of developing a new centralized tracking system could be extremely prohibitive.

A decentralized reporting or "privatized" reporting system would pose problems of cost, redundant reporting, and multiple reporting requirements.

Inter-zone Trading:

The MOU established an emission reduction requirement based on zones that were defined by geography and by attainment classification. The three zones are defined as Northern, Inner, and Outer. The Northern Zone encompasses the areas in Maine, New Hampshire, and Vermont with designated attainment and areas of nonattainment below "moderate" classification, and the attainment counties in northeastern New York. The contiguous moderate and above non-attainment areas in Connecticut, Delaware, the District of Columbia, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island and Virginia comprise the inner zone. The outer zone is the non-contiguous areas designated nonattainment for ozone and classified serious, severe, or moderate, as well as nonattainment areas classified as marginal, and attainment areas within the boundaries of the OTR in Delaware, Maryland, Pennsylvania, New York, and Virginia as in effect on September 27, 1994.

Variable emission reductions by zone were established by the OTC MOU based upon the principal that emission reductions in the inner zone would have a greater influence on regional air quality than those achieved in the outer zone. Optimally, inter-zone trading ratios would be established to encourage actual emission reductions where such reductions would do the most good for air quality. However, at the time the Model Rule was developed, explicit information on the air quality benefits of NO_x control by the zones in the OTC MOU, was only beginning to become available.

ICF Resources, Inc. has recently conducted an analysis for the U.S.EPA on the cost and impact of the NO_x Budget Program[14]. The ICF report evaluated and projected the geographical shift in emissions under several trading scenarios, including a full, unrestricted, trading program and one where trading was restricted to within zones (intra-zone trading). The study shows that in the year 2005, there is no discernible difference in regional NO_x emissions when comparing a full trading option to a intra-zonal trading option. Since these two options are at opposite ends of the spectrum of trading options, institution of a trading ratio would appear to have no influence on where emissions would be reduced in the region.

Therefore, while the Model Rule establishes a zone-based emission reduction requirement resulting in a budget, the Task Force decided not to apply a trading ratio to discount allowances if they are traded across zones. This decision was based on the lack of affirmative proof that a trading ratio would influence air quality and in light of the desire to minimize program complexity. Implementation of a trading ratio is still an option for 2003 if modeling becomes available to help establish ratios based on the influence of emission reductions in various areas on air quality.

New Source Review

As the NO_x Budget Program progresses, older budget sources will be replaced with new facilities. The NO_x Budget Program must account for the introduction of these new sources. These new sources will require emission offsets to construct, as required by the Clean Air Act, and allowances to operate during the control period consistent with the NO_x Budget Program. The NO_x Budget Model Rule treats the two requiremetns independently, as is discussed in this section.

[14] "*Estimated Effects of Altemative NO_x Cap and Trading Schemes in the Northeast Ozone Transport Region*", ICF Resources, September 1995.

New sources must still follow all of the rules established by U.S.EPA and the Clean Air Act for offsets. According to the Clean Air Act Amendments of 1990, and U.S.EPA general policy, emission offsets for a new source in a nonattainment area must come from sources in either:

1. the same nonattainment area; or
2. a nonattainment area where:
    a) ozone nonattainment is at equal or higher classification; and
    b) emissions contribute to the violation of NAAQS in the area in which the new source proposes to locate.

EPA has modified this general policy for proposed new sources in the OTR. New sources proposing to locate in ozone nonattainment areas classified "moderate" or lower, can obtain emission offsets from sources in an attainment area, provided that it can be shown that emissions from the attainment area contribute to violation of NAAQS in the nonattainment area.

Integrating NO_x Budget allowances with the offset program adds complexity to the New Source Review issue. The Task Force examined a number of options to link the two programs to be less redundant and more streamlined. Full integration of New Source Review and the NO_x Budget Program, similar to that done in the California RECLAIM program was discussed. Unlike RECLAIM, the NO_x Budget Program is only a seasonal program which raised legal issues that impede the integration of these two programs. Also, under this scenario, allowances would have to meet the requirements of offsets (ratios) that would impose additional burdens upon budget sources.

Since a large proportion of stationary source NO_x is emitted by budget sources, the primary creators of NO_x offsets for new sources are already budget sources. By looking at the emission reductions as "reductions" first, some attempt has been made to clarify the linkage between the two programs. The following example may illustrate this linkage:

If a 1200 ton budget source (which includes 500 tons of seasonal allowances) were to shut down, there would be an emission reduction of 1200 tons. With this reduction, in an

Finally, under no condition may the inclusion of additional sources into the program increase or decrease the allowance allocation to budget sources.

Program Fees

One area of the Model Rule which is still "RESERVED" is the section of the rule which deals with how the program will be funded. Of particular concern is how a centralized emission tracking system and the allowance tracking system would be funded.

The rule provides for some fees to be applied to budget sources for tracking system account maintenance. This neglects to address significant up-front costs for modifying the existing Acid Rain tracking system to accommodate this program. Further, the fees identified in the rule may not be feasible without additional legislation in some states.

The issue of program funding is one that needs to be pursued further. One of the primary facts that needs to be established is the cost of developing and maintaining the tracking system. Until the NOx Budget Model Rule is finalized, U.S. EPA has been unable to provide detailed cost information. Over the next few months, the specific system needs for the program will be more clearly defined based on what is required by this rule, a more detailed cost estimate for the system upgrades will be developed, and further discussions on funding will take place.

For implementation, it has been recommended that an agreement, similar in nature to a contract, be developed between the OTC states and the U.S.EPA-Acid Rain Division. This agreement would define the development, operation and maintenance of a centralized allowance and emissions tracking system. The agreement would include designation of an administrative body for both oversight of the regional program, and as an interface between U.S.EPA and the OTC states. The agreement should contain specific commitments to program funding and support.

6.0 Issues for Future Consideration

The NO_x Budget Model Rule provides a consistent platform for states to begin individual rulemaking. The Model Rule does not, however, address all of the issues and suggestions raised by parties who commented on the DRAFT NO_x Budget Model Rule

during the rule development and review process. Several items have been identified for further study and evaluation and may be addressed in minor revisions to the Model Rule, or will be discussed in guidance. The outstanding issues include a linkage between the NO_x Budget Program and Open Market Trading programs, expansion of the NO_x Budget Program to sources outside of the Ozone Transport Region, and inclusion of provision that allow emission reductions generated by private party demand-side management to be recognized and allocated allowances.

NESCAUM is currently working on a third year of an emissions trading demonstration project where the concept of linking the NO_x Budget Program and the Open Market Trading Program is being discussed. Through the demonstration project, the concepts of a linkage between the two programs will be subject to extensive discussion and review by industry, states, U.S.EPA and environmental interests. The results of this work may be considered by the Task Force, at some future date, for possible inclusion in the NO_x Budget Model Rule.

The issue of including sources in the NO_x budget which are physically located outside of the OTR is particularly important in light of national trends towards utility deregulation and the potential for increased import of power into the OTR. The concern is that utilities in the OTR shall import power from outside the OTR which will reduce their need to use allowances. These unused allowances may be shifted to other sources within the budget while emissions on the boundaries of the OTR increase.

The concern of private parties who implement or support demand-side management (DSM) projects is that the utilities will reap the benefits of the projects through reduced demand, and subsequent reduced need for allowances. This raises an issue of equity as well as a concern that the NO_x Budget Program might adversely influence decisions to implement DSM measures.

7.0 THE NO_x BUDGET MODEL RULE

In the following pages, the explicit language of the NO_x Budget Model Rule is provided.

CONTENTS

(1) Purpose and Scope

a. This regulation, hereafter referred to as the NO_x Budget Program, is established to require a reduction in emissions of nitrogen oxides. The reduction, once implemented, will constitute a NO_x emission budget during each control period beginning May 1999.

b. The NO_x emission budget as established in Section (3) has been determined by application of the following reduction requirement to the 1990 baseline emissions level as adopted by the Ozone Transport Commission on June 13, 1995:[15]

1. By May 1, 1999, the affected facilities in the inner zone shall reduce their combined rate of NO_x emissions by 65% from baseline level, or emit NO_x at a rate no greater than 0.20 pounds per million Btu, whichever is less stringent.

[15] States should replace this list with the reduction requirement that explicitly applies in each state and list the applicable counties in place of the terms "inner zone", "outer zone" and "northern zone".

2. By May 1, 1999, the affected facilities in the outer zone shall reduce their combined rate of NO_x emissions by 55% from baseline or shall emit NO_x at a rate no greater than 0.20 pounds per million Btu, whichever is less stringent.
3. By May 1, 2003, the affected facilities in the inner and outer zones shall reduce their combined rate of NO_x emissions by 75% from baseline or shall emit NO_x at a rate no greater than 0.15 pounds per million Btu, whichever is less stringent.
4. By May 1, 2003, the affected sources in the Northern Zone shall reduce their combined rate of NO_x emissions by 55% from baseline or shall emit NO_x at a rate no greater than 0.20 pounds per million Btu, whichever is less stringent.

c. If an area within the inner zone is redesignated to attainment, it shall remain in the inner zone. If a contiguous "marginal" area is reclassified to "moderate" classification , it shall become part of the inner zone.[16]

d. The NO_x reduction requirement, established by the OTC MOU to begin May 1, 2003, may be modified if additional modeling and other scientific analysis show that this program, as modified, together with regulations governing volatile organic compound (VOC) emissions, will achieve attainment of the ozone National Ambient Air Quality Standard across the Ozone Transport Region, and the Ozone Transport Commission's MOU is modified to reflect those modeling results and other analysis no later than December 31, 1998.

e. The NO_x budget shall be implemented by allocation of allowances equivalent to the statewide NO_x budget in tons, as described in Section (6).

f. Further, this regulation in Sections (5) through (17) establishes rules and procedures for use and trading of allowances, and establishes procedures for tracking allowance use, monitoring and reporting emissions, and certifying compliance with the NO_x Budget Program.

g. The trading of allowances between budget sources in different states for purposes of compliance, is contingent upon the adoption and implementation by those states of comparable and consistent NO_x Budget Program regulations.

h. Nothing in this regulation waives any NO_x reduction requirement otherwise in effect, including compliance with regulations implementing Reasonably Available Control

[16] States should revise this language to be a specific requirements for certain counties and eliminate the use of the term "zone".

Technology for NO_x, or regulations governing the construction of new sources in the Ozone Transport Region.

i. The effective date of this regulation is __*insert date*_____.

(2) Definitions

The terms used in this regulation apply solely to this regulation. Where an identical term is defined in another part of the air pollution control regulations for the state, the definition in this section controls. The following words and phrases shall have meaning in the NO_x Budget Program as defined below:

Account number means the identification number given by the NO_x Allowance Tracking System Administrator to an account in which allowances are held in the NO_x Allowance Tracking System pursuant to Section (10) of this regulation.

Account means the place in the NO_x Allowance Tracking System where allowances are recorded including both allowances held by a budget source (compliance account) or allowances held by any person (general account).

Acquiring account means the party in an allowance transfer who obtains allowances through purchase, trade, auction or gift.

Administrator means the person or agency designated by the state as the Administrator of the NO_x Allowance Tracking System and the NO_x Emissions Tracking System.[17]

Affected Facilities means fossil fuel fired boilers or indirect heat exchangers with a maximum rated heat input capacity of 250 MMBtu/Hour or more which operated at any time in calendar year 1990. The term Affected Facilities is only used to establish the NO_x Budget for the state.

Allocate or Allocation means the initial assignment of allowances to a budget source through this regulation, and recorded by the Administrator to a NO_x Allowance Tracking System facility account or general account.

[17] If, under an operational agreement being discussed with U.S.EPA, U.S.EPA assumes the role of tracking system Administrator, this definition shall read "the Administrator of the United States Environmental Protection Agency or the Administrator's duly authorized representative".

Allocation Period means any time period to which allowances are allocated such as the period 1999 though 2002, the period 2003 through 2013 and the period 2013 through *__insert date____*. ***NOTE**: States may chose alternative allocation periods provided that allocation is accomplished at least one year prior to the start of the season for which the allowances will be used.*

Allowance means the limited authorization to emit one ton of NO_x during a specified control period. All allowances shall be allocated, transferred, or used as whole allowances. To determine the number of whole allowances, the number of allowances shall be rounded down for decimals less than 0.50 and rounded up for decimals of 0.50 or greater.

Allowance deduction means the withdrawal of allowances for permanent retirement by the Administrator from a NO_x Allowance Tracking System account pursuant to Section (14) of this rule.

Allowance transfer means the conveyance to another account of one or more allowances from one person to another by whatever means, including but not limited to purchase, trade, auction, or gift in accordance with the procedures established in Section (8) of this rule, effected by the submission of an allowance transfer request to the NATS Administrator.

Allowance transfer deadline means midnight of December 31 and is the deadline by which allowances may be submitted for recording in an budget source's compliance account for purposes of meeting the requirements of this regulation for the preceding control period.

Alternative monitoring system means a system or component of a system, designed to provide direct or indirect data of mass emissions per time period, pollutant concentrations, or volumetric flow as provided for in Section (11) of this regulation.

Authorized Account Representative (AAR) means the responsible person who is authorized, in writing, to transfer and otherwise manage allowances as well as certify reports to the NATS and the NETS.

Banked Allowance means an allowance which is not used to reconcile emissions in the designated year of allocation but which is carried forward into the next year and flagged in the compliance or general account as "banked".

Banking means the retention of unused allowances from one control period for use in a future control period.

Baseline means the NO_x emission inventory approved by the Ozone Transport Commission on June 13, 1995, as the official 1990 baseline emissions of May 1 through September 30 for purposes of the NO_x Budget Program.

Boiler means a facility which combusts fossil fuel to produce steam or to heat water, or any other heat transfer medium.

Budget or Emission Budget means the numerical result in tons per season of NO_x emissions which results from the application of the emission reduction requirement of the OTC MOU dated September 27, 1994, and which is the maximum amount of NO_x emissions which may be released from the budget sources collectively during a given control period.

Budget source means a fossil fuel fired boiler or indirect heat exchanger with a maximum rated heat input capacity of 250 MMBtu/Hour, or more; and all electric generating facility with a rated output of 15 MW, or more.[18] Any person who applies to opt into the NO_x Budget Program shall be considered a budget source upon acceptance of the application for opt-in.

Clean Air Act means the Clean Air Act as amended in 1990 (42 U.S.C. 7401- 7626).

Compliance account means the account for each budget source in the NO_x Allowance Tracking System, in which are held current and future year allowances useable for a specific designated control period as indicated by their unique serial number.

Continuous Emissions Monitoring System (CEMS) means the equipment required by this regulation used to sample, analyze, and measure which will provide a permanent record of emissions expressed in pounds per million British Thermal Units (Btu) and tons per day. The following systems are component parts included in a continuous emissions monitoring system:

Nitrogen oxides pollutant concentration monitor
Diluent gas monitor (oxygen or carbon dioxide)
A data acquisition and handling system
Flow monitoring systems (where appropriate)

[18] States who elect to add other facilities to applicability will need to change the definition of budget source accordingly.

Control period means the period beginning May 1 of each year and ending on September 30 of the same year, inclusive.

Current year means the calendar year in which the action takes place or for which an allocation is designated. For example, an allowance allocated for use in 1999 which goes unused and becomes a banked allowance on Jan 1, 2000 can be used in the "Current Year" 2000 subject to the conditions for banked allowance use as stated in this rule.

Early Reduction Credit means credit for NO_x emission reductions achieved during the control periods of 1997 or 1998.

Electric generating facility means any fossil fuel fired combustion facility of 15 MW capacity or greater which provides electricity for sale or use.

Excess emissions means emissions of nitrogen oxides reported by a budget source during the control period, rounded to the nearest whole ton, which is greater than the equivalent number of allowances allocated to, or which are available in the budget source NO_x Allowance Tracking System compliance account by the allowance transfer deadline for that season.

Fossil fuel means natural gas, petroleum, coal or any form of solid, liquid or gaseous fuel derived wholly, or in part, from such material.

Fossil fuel fired means the combustion of fossil fuel or any derivative of fossil fuel alone, or, if in combination with any other fuel, fossil fuel comprises 51% or greater of the annual heat input on a Btu basis.

General Account means an account in the NATS that is not a compliance account.

Heat input means heat derived from the combustion of fuel in a budget source and does not include the heat derived from preheated combustion air, recirculated flue gas, or exhaust from other sources.

Indirect heat exchanger means combustion equipment in which the flame and/or products of combustion are separated from any contact with the principal material in the process by metallic or refractory walls, which includes, but is not limited to, steam boilers, vaporizers, melting pots, heat exchangers, column reboilers, fractioning column feed

preheaters, reactor feed preheaters, fuel-fired reactors such as steam hydrocarbon reformer heaters and pyrolisis heaters.

Inner zone[19] means the area comprised of the contiguous areas designated nonattainment for ozone and classified as "Moderate", "Serious", or "Severe" pursuant to Section 107 of the Clean Air Act in the states of Virginia, Maryland, Delaware, Pennsylvania, New York, New Jersey, Connecticut, Rhode Island, New Hampshire (including "marginal" nonattainment areas in Merrimack County, Hillsboro County and Rockingham County), Massachusetts and the District of Columbia, as in effect on September 27, 1994.

Maximum heat input capacity means the ability of a budget source to combust a stated maximum amount of fuel on a steady state basis, as determined by the physical design and characteristics of the facility. Maximum heat input capacity is expressed in millions of British Thermal Units (MMBtu) per unit of time which is the product of the gross caloric value of the fuel (expressed in BTU/pound) times the fuel feed rate in the combustion device (expressed in mass of fuel/time).

NO_x Allowance Tracking System (NATS) means the computerized system used to track the number of allowances held and used by any person.[20]

NO_x Emissions Tracking System (NETS) shall mean the computerized system used to track NO_x emissions from budget sources.[21]

Non-Part 75 Budget Source means any budget source not subject to the requirements for emissions monitoring adopted pursuant to Section 412 of the Clean Air Act Amendments of 1990 and codified at 40 CFR, Part 75.

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[19] A state rule can delete this definition provided that Section (1) lists the reduction requirement by county and there is no reference to zones in the rule.

[20] This presumes that an acceptable operational agreement can be reached between the OTC states and the U.S.EPA, to allow the Acid Rain tracking system to serve as the NATS and that funding can be obtained to upgrade, support and maintain the Acid Rain Allowance Tracking System for this purpose. If this occurs, this definition should specifically reference the system which is operated and maintained by the U.S. Environmental Protection Agency for purposes of tracking allowance use for the Acid Rain program, and is further defined at 40 CFR, Part 72, Subpart A, Section 72.2.

[21] Based on the outcome of negotiations on an operational agreement between the OTC and U.S.EPA, this definition could be expanded to state: "For purposes of this program, the official NO_x Emissions Tracking System is defined as that which is operated and maintained by the U.S. Environmental Protection Agency for purposes of tracking allowance use for the Acid Rain program, and further defined at 40 CFR, Part 72, Subpart A, Section 72.2."

Northern zone[22] means the geographic area comprised of the states of Vermont, New Hampshire (except for its moderate and serious nonattainment areas, and the "marginal nonattainment portions of Merrimack County, Hillsboro County and Rockingham County), Maine and those counties in northeastern New York which are designated attainment for the pollutant ozone as in effect on September 27, 1994.

Opt in means to choose to voluntarily participate in the NO_x Budget Program, and comply with the terms and conditions of this regulation.

OTC MOU means the Memorandum of Understanding signed by representatives of ten states and the District of Columbia as members of the Ozone Transport Commission on September 27, 1994.

OTR means the Ozone Transport Region as designated by Section 184(a) of the Clean Air Act Amendments of 1990.

Outer zone [23] means the remainder of the Ozone Transport Region not otherwise included in the inner zone or the northern zone. Areas in the outer zone which are reclassified, subsequent to September 27, 1994 as "Moderate", "Serious" or "Severe" and which are contiguous to the inner zone, shall become part of the inner zone and subject to all standards and requirements of the inner zone upon the effective date of the reclassification.

Owner or Operator means any person who is an owner or who operates, controls or supervises a budget source and shall include, but not be limited to, any holding company, utility system or plant manager.

Quantifiable means a reliable and replicable basis for calculating the amount of an emission reduction acceptable to the state where the reduction is to be credited, and to the U.S.EPA.

Real means a reduction in the rate of emissions, quantified retrospectively, net of any consequential increase in actual emissions due to shifting demand.

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[22] See footnote on INNER ZONE
[23] See footnote on INNER ZONE

Recorded with regard to an allowance transfer or deduction means an account in the NATS has been updated by the Administrator with the particulars of an allowance transfer or deduction.

Repowering, for the purpose of early reduction credit means,

1. Qualityfying Repowering Technology as defined by 40 CFR, Part 72 or,
2. The replacement of a budget source by either a new combustion source or the purchase of heat or power from the owner of a new combustion source, provided that:
    a. The replacement source (regardless of owner) is on the same, or contiguous property as the budget source being replaced;
    b. The replacement source has a maximum heat output rate that is equal to or greater than the maximum heat output rate of the budget source being replaced; or,
    c. The replacement source has a power output rate that is equal to or greater than the power output rate of the combustion source being replaced; and
    d. The replacement source incorporates technology capable of controlling multiple combustion pollutants simultaneously with improved fuel efficiency and with significantly greater waste reduction relative to the performance of technology in widespread commercial use as of November 15, 1990.

Submitted means sent to the appropriate authority under the signature of the Authorized Account Representative. For purposes of determining when something is submitted, an official U.S. Postal Service postmark, or electronic time stamp, shall establish the date of submittal.

Surplus means an emission reduction which is not required by a state adopted SIP at the time the reduction was made, relied upon in an applicable attainment demonstration, or required by state or federal permit or order. For purposes of early reduction credit, emission reductions are surplus to the extent the permitted allowable emissions are below the emission limit of the NOx Budget Program, and the permit was issued after the effective date of this rule.

(3) NO_x Emission Budget

a. The NO_x Budget Program is established to limit total mass NO_x emissions from budget sources during the control period of May 1 through September 30. The initial NO_x Budget is as follows:

The NO_x Budget Model Rule provides that once the 1990 baseline is established, the OTC MOU reduction requirement is applied to create the 1999 and 2003 emission budgets. The budget would then be allocated as "allowances" to the emission units subject to the program (budget sources). Budget sources are defined as fossil fuel fired boilers and indirect heat exchangers of 250 million Btu or greater, and electric generating units of 15 megawatts, or greater. Budget sources are defined on a unit level, meaning that each boiler or utility generator is considered a separate budget source. There are approximately 465 budget sources that would be applicable to the NO_x Budget Program. The regionwide seasonal NO_x Budget for 1999 (Phase II Target) is 219,055 tons. For Phase III, in 2003, the target is 142,874 tons of NO_x.[11]

The Model Rule does not indicate how allowance allocation will be done by the states. This part of the Model Rule was determined to be one of the areas where the states should have full discretion to develop and adopt their own allocation methodologies. A format has been provided in the Model Rule for states to insert budget source allocations once the states have devised and applied their own allocation formulas. The allowance allocations will also need to be reflected in operating permits for each budget source.

Beginning in 1999, the sum of NO_x emissions from budget sources during the May through September control period, can not exceed the equivalent number of allowances allocated in the region. An allowance is equal to one ton of NO_x emissions. The budget sources are allowed to buy, sell, or trade allowances to meet their needs.

Budget sources may also be allowed to "bank" allowances on a limited basis. Banking is defined as the carry-over of unused allowances from one control period to the next. The progressive flow control banking program allows unlimited carry-over of unused allowances from one year to the next. The eventual use of banked allowances is regulated through a pricing mechanism that relates the number of allowance in the bank, regionwide, to a formula for withdrawal and use of allowances. In short, if the number of banked allowances, regionwide, exceeds 10% of the regionwide allocation for the year, some of the banked allowances in each budget sources' account will be subject to a 2 to 1 withdrawal ratio. This is discussed in greater detail in Section 5.0.

In order to ensure that NO_x emissions do not exceed allowances, budget sources are required to monitor and report NO_x emissions during the control period each year. The

[11] *"1990 OTC Nox Baseline Emission Inventory", Volumne 1: Supplemental Material.* E.H. Pechan Associates, July 12, 1995.

preferred method of emissions monitoring includes utilization of sophisticated continuous emissions monitoring systems (CEMS), as approved by U.S.EPA under 40 CFR, Part 75 (the Acid Rain Program). Any budget source currently subject to Part 75 monitoring, must maintain and use that monitoring for emissions tracking under the NO_x Budget Program. Budget sources who are not currently subject to Part 75 monitoring requirements have several alternative monitoring methods available to use.

One alternative monitoring method would be use of 40 CFR, Part 75, Appendix E *"Optional NO_x Emissions Estimation Protocol for Gas Fired Peaking Units and Oil Fired Peaking Units."* This appendix describes an approved alternative monitoring method for oil and gas-fired peaking units, that utilizes stack testing and fuel flow monitoring to predict emissions. For purposes of the NO_x Budget Program, the method can be expanded to all oil and gas fired units that are not already implementing Part 75 CEMS.

Another alternative monitoring system available to non-utility sources, is implementation of Part 60 CEMS with more stringent quality assurance testing. The explicit provisions for this method have been developed by a subcommittee of the Task Force with input from non-utility members of the Ad Hoc Committee. The alternative methods combine emission factors with flow meters to measure fuel input or heat input where flow meters would be prohibitively expensive or technologically difficult to install. In all cases, monitored emissions must be reported in hourly emissions format to a centralized emissions tracking system.

Once the control period has ended, budget sources have a window of opportunity to evaluate their reported emissions and obtain any additional allowances they may need to balance their emissions during the period. This is called the end-of-season reconciliation period. This period ends December 31 of each year with the submittal of certification of compliance by the Authorized Account Representative for the budget source. Allowances that are unused at the end of the reconciliation period are "banked". Should the budget source not obtain sufficient allowances to offset emissions for the season, the rule relies on existing state and federal enforcement protocols and penalties, as well as requires a deduction of allowances from the next year's allocation equivalent to three times the amount of excess emissions. This means that for each ton of excess emissions, 3 allowances will be subtracted from the compliance account for the following control period.

Other requirements contained in the Model Rule include:

- Designation of an Authorized Account Representative as the only person from a budget source authorized to report and certify compliance with the NO_x Budget Program.
- Provisions for voluntary opt-in to the program by emitting units who do not meet the definition of budget source.
- Provisions for permitting new sources which would meet the definition of "budget source" and be subject to this program.
- A state commitment to conduct a periodic audit of the program to ensure that the program, as implemented, is consistent with any applicable reasonable further progress (RFP) requirements or attainment demonstrations, and to ensure that the banking provisions are not causing substantial exceedence of the seasonal budget.

Finally, the Model Rule makes provisions for possible rule modifications in the future. One instance where a modification might be in order is if refined air quality modeling shows a need to change the emission reduction requirement for the year 2003. This "mid-course correction" is an option identified in the OTC MOU and the Model Rule accommodates the schedule for modeling and the possible revision of the 2003 emission reduction target and budget. The OTC MOU specifies that should modeling reveal the need to modify the 2003 emission reduction requirement, the MOU must be revised to incorporate the revised requirement.

5.0 DISCUSSION OF ISSUES EVALUATED IN MODEL RULE DEVELOPMENT

As previously stated, the NO_x Budget Model Rule was developed as a template for states in the OTC to use in developing their individual state rules. What makes the NO_x Budget Program unique is that each state will be developing rules that, when combined with the rules from other states, will implement a regional program. Absent a federal mandate and implementation of a federal program (i.e., the Clean Air Act Title IV Acid Rain Program), implementation of a regional program requires a certain amount of consistency among states in the region. Maintaining consistency requires the states to develop a program which establishes an agreement on core components, and maintain that agreement through the individual state rulemaking, actions and through implementation of the rule.

State program consistency is important to the overall success of the Model Rule. State programs that are substantively identical in key areas, can ensure that a ton of emissions reduced in one
state, is equivalent to a ton reduced in another. Since states desire to promote cost effective compliance through emission trading, this level of consistency is very important

to an effective trading program. Variation in the stringency of monitoring requirements, or application of discounts in some states, and not in others, raises questions of equity and fairness, causes uncertainty in the validity of each ton of reduction, and creates barriers to trading.

In order to promote consistency, development of the Model Rule first focused on identifying key program elements that must be common to all states. The Model Rule is the product of issue evaluation and consensus building on these common elements. Once issues were evaluated and resolved, the transition from issue papers to a model rule, required an evaluation of the conceptual design criteria for the model rule. The resulting Model Rule was designed to be simple, comprehensive, and specific, so that states using this rule as the basis for developing state specific rules, will have adequate guidance to formulate effective programs that would be consistent across the region.

The Task Force and the Ad Hoc Committee initially identified key components of the rule that must be consistent in all states in order for the program to operate effectively across the broader region. These components are listed as follows.

- Applicability to a minimum group of facility types (listed in the OTC MOU)
- Control period (May 1- September 30).
- Trading period (allowance transfer deadline).
- Emission reductions and limits.
- Date by which the allocation of allowances must be made by the state to the budget sources.
- Allowance Tracking System.
- Emissions Tracking System.
- Allowance banking provisions.
- Inter-zone trading discounts.
- Self-certification penalties.
- Requirement for allowance allocation to be reflected in operating permits.
- Voluntary opt-in provisions.
- State program audits.

Components of the rule where state-to-state consistency is not necessary, or which are viewed as critical for a state to maintain flexibility to handle state specific issues were determined to be as follows:

- Applicability of rule beyond the OTC MOU sources.
- Allocation of allowances (method of allocation).

In the following pages, significant issues that were evaluated in the development of the Model Rule are briefly discussed.

Seasonal Budget Correlation to Daily Emissions

The period when ozone is most likely to be formed in the OTR (May through September) is classified as the "control period". The NO_x Budget Program will be applied during this 5 month period. The question raised was whether the program, if established to control total emissions on a seasonal basis, would adequately address peak ozone-day emissions.

The following options were evaluated to address the concern of peak ozone day emissions:

1. A seasonal emission budget with no daily emission limit. States would estimate daily emission reductions, adjusted by an uncertainty factor if necessary for attainment planning purposes. States will audit of the program and reduce the seasonal cap in future years if daily emissions are higher than expected.
2. A requirement that budget source emissions stay below a maximum daily emission limit of 120% of the daily average of the 153 day seasonal budget.
3. A requirement that budget sources meet a rolling 5-day average emission limit based on the daily average of the 153 day seasonal budget.
4. A requirement that budget sources meet a rolling daily emission limit based on the daily average of the 153 day seasonal budget.
5. A requirement that budget sources meet a daily emission limit only on days ozone concentrations are forecast to be high.

Many difficulties would arise from the implementation of options 2 through 5 above. The problem is best illustrated by the examination of peaking units. Peaking units operate for a limited number of days during the control period at times of peak demand. A daily emission limit would impose a heavy burden on these facilities because peaking units would be required to obtain NO_x emission allowances to cover potential daily emissions well in excess of actual emissions.

As an example, suppose a peaking facility produces 1 ton of NO_x per day while operating at full capacity. If a daily limit based on 120% of the daily average for the 153 day control period is established, then the source must obtain (153 days/season x 1 ton/day / 1.2) or 127.5 tons of allowances to operate at full capacity for one day. If the unit only operates for 30 days during the year, excess unusable allowances are (127.5 tons - 30 days x 1 ton/day) or 97.5 tons. Because these allowances cannot be traded without affecting the compliance of the budget source, the peaking units may be encouraged to operate more often during the year. Since many peaking units are generally older units that emit more NO_x per kW-hr than baseload units, a daily emission consideration could potentially cause emissions of NO_x to increase across the season.

Additionally, according to utilities, peaking units are necessary to meet customer requirements on peak demand days. The daily emission limit based on seasonal average may encourage companies to install controls on peaking units before installing them on baseload units. Baseload units are primary candidates for control on a cost basis, and the implementation of control on baseload units should encourage allowances that would otherwise be used by those units, to be traded to peaking units where the cost of control is high. A daily limit would therefore indirectly discourage trading.

Finally, daily emission limitations may encourage load shifting. During peak demand days, if baseload units approach their daily emission limit, peaking units would need to run at higher capacities to meet demand. If peaking units need to operate at higher capacities than baseload units due to limitations on the baseload units, and given that peaking units are likely to be higher emitting than baseload units, then peak demand, during the ozone season, will be met at a higher NO_x emission level.

A study conducted by National Economic Research Associates (NERA)[12], examined the question of ozone day emissions within the context of a seasonal cap. This study is currently in draft form, but preliminary results indicate that the daily emissions from fossil fuel generated power is highly variable based on unit availability. By comparing two scenarios for NO_x control; one scenario where the OTC MOU NO_x reduction is applied on a unit -by-unit basis, and a scenario where allowance trading between sources is allowed, NERA concluded that allowance trading may only increase daily emissions on a peak

[12] *"The Timing of NO_x Emissions and Emission Trading in the Ozone Transport Region: An Analysis of the New England Power Pool", DRAFT,* National Economic Research Associates, April 11, 1995.

ozone day by 5% over what would otherwise be expected under a command and control program (with no trading).

Given the small magnitude of this increase compared to the peak ozone day NO_x inventory (including mobile sources), and the potential for the daily limit to result in increased seasonal emissions and load shifting, the conclusion of the Task Force is to recommend a NO_x Budget Program that does not contain a limit on peak ozone day emissions.

Allowance Banking

Banking is the retention of unused allowances from one season for use in another. Banking has been the most debated issue in development of the NO_x Budget Program and its evaluation has included consideration of a number of options.

The banking options that have been discussed to date include:

1. Prohibiting banking.
2. Limiting the amount of allowances that can be banked, the type of allowances that can be banked (add-on control only), and the life time of the banked allowance.
3. Controlling the use of banked allowances.

A number of specific, limited, banking scenarios have been discussed individually and in combination, including:

1. Allowing only a fixed percentage of allowances to be banked by any one budget source.
2. Permitting allowances to be banked for a fixed period of time after which they expire.
3. Subjecting banked allowances to a fixed discount rate.
4. Limiting the banking eligibility of emission reductions achieved more than one year before the allocation year.
5. Requiring that banked allowances not be traded.

6. Imposing "flow control" or a percentage limit on the use of banked allowances.
7. "First-in, First-out" or, alternatively, "Last-in, First-out" use of banked allowances.

Proponents of banking argue that banking:

- Can encourage early reduction.
- Allows for more active market based trading.
- Protects against variations in the availability of power generating facilities and swings in demand.
- May encourage allowance use at the site of allocation instead of across a wide geographic area.
- May promote the "holding" of allowances for emergency use, reducing the amount of allowances actually used in a season.
- May allow more flexibility to reach emission reduction goals and time tables.

When discussing allowance banking, the assumption has been that utilities will plan emission reduction for an "average" year where fossil fuel generated power makes up 53-55% of the total power use. In years of limited nuclear power availability, fossil fuel generated power makes up nearly 60% of the total power generated. In this instance, it is presumed that if available, banked allowances would be used to achieve compliance. Without banking, many purport that utilities will make greater initial reductions in order to build-in a margin of safety for compliance with the NO_x Budget Program. Several members of the Task Force and Ad Hoc Committee view banking as an aspect of flexibility that undermines the emission reductions which could otherwise be achieved by the NO_x Budget Program and could indirectly reward utilities with poorly planned NO_x control.

Further, opponents to banking argue that banking:

- May encourage facilities to bank unused allowances and "dump" them in later years. This could affect states' rates of progress (ROP) and attainment.
- Adds complexity to allowance trading system.
- Increases emissions (unused allowances that cannot be banked are not emitted).

- May prevent the OTR from achieving attainment with the Phase II NO_x reductions, which if achieved, would negate the need to implement Phase III NO_x reductions.

While the use of banked allowances could potentially result in actual emissions exceeding the target emission level for any given year, NERA, examined power generation through the time period 1990 through 1994 to assess the likelihood of this occurring. The NERA study[13] showed that the variation in emissions over time was largely a function of the availability of nuclear power. In fact, 1990 was a year where emissions from fossil fuel generated electricity was higher than the average (1990-1994). Of the four years examined, only one year demonstrated emissions higher than those in 1990. The other three years showed emissions from 6% to 13% lower than the 1990 level. The one year of higher emissions was also a year of low nuclear power availability.

In order to resolve the issues surrounding banking, the NESCAUM/MARAMA NO_x Budget Task Force forwarded the banking program issue to the OTC Stationary and Area Source Committee for discussion. The OTC Stationary and Area Source Committee revisited the primary advantages of any banking program and tailored a managed banking scheme to make the most of the benefits of banking, and minimize the disbenefits. Banking programs can be regarded as having two major benefits to the environment. As previously stated, banking can encourage early emission reduction and can encourage excess emission reduction. With these two concepts, a managed banking program was designed to include incentives for early reductions as well as incentives for excess emission reductions. The use of banked allowance, frequently perceived as a "budget busting" activity, is controlled in this program by a pricing system. This pricing system seeks to influence the economics of controlling emissions by encouraging sources to control for a "worst case", rather than an "average" year thereby gaining greater emission reduction on average across the region.

The result is a progressive flow control banking system. The program has two components. First, there is a banking component that allows unlimited banking of unused allowances. Second, the system places a price on the use of allowances. The system requires that each year, at the end of the reconciliation period, the number of allowances banked throughout the region would be computed. If the total number of allowances

[13] Ibid.

banked are less than 10% of the annual regional allocation, banked allowance can be used without discounts or penalties in the upcoming control period. If the regional total of banked allowances exceed 10% of the annual regional allocation, a withdrawal procedure would be implemented to regulate the use of banked allowances. The 10% figure was chosen to roughly equate what has been shown to be the variation emissions in years of low nuclear availability.

The withdrawal procedure involves a simple ratio that is applied to each account of banked allowances. Application of the ratio results in identification of the banked allowances that can be used on a 1-for-1 basis and those, which if used, must be used on a 2-for-1 basis. This concept is best explained by example.

In Phase II, the regional NO_x Budget target is 219,005 tons. For this example, the total number of banked allowances in the region is determined to be 23,650. This number exceeds 10% of the NO_x Budget allocation for the year. Therefore, the withdrawal procedure is implemented for the upcoming control period.

The number of banked allowances in the region and the number of allowances which represent 10% of the NO_x budget allocation for the upcoming control period are combined to create a ratio that relates the number of banked allowances to the budget as follows:

$$\frac{\textbf{0.10 x the regional } NO_x \textbf{ Budget}}{\textbf{\# of allowances in the bank}} = \frac{\textbf{21,900}}{\textbf{23,650}} = \textbf{0.926}$$

The ratio is then applied to each account (general as well as compliance accounts) to identify the number of banked allowances which can be used at 1-for-1 and the number of banked allowances which can be used at 2-for-1. If Source A has 953 allowances in the bank, and Source B has 4000 allowances, the ratio of 0.926 is applied to each account. The result is that Source A has 883 allowances they can use in the upcoming control period, on a 1-for-1 basis and 70 allowances they can use in the upcoming control period on a 2-for-1 basis. In terms of real emissions, Source A can use banked allowances up to 918 tons equivalent, to balance emissions in the upcoming control period. Source B, with a larger account of banked allowances can use 3704 allowances on a 1-for-1 basis and 296 on a 2-for-1 basis. In terms of real emissions, Source B has banked allowances equaling 3852 tons equivalent, to balance emissions. This illustrates that the larger the number of unused allowances a budget source can accumulate (possible by over-control), the larger the absolute number of allowances a source can use through the

allowance withdrawal protocol. Also, since the ratio is developed by looking at the regional total for banked allowances, events such as shutdowns, curtailments and demand shift within the region are controlled for, prior to application of the ratio to individual accounts.

Following further on this example, should the following year indicate the total banked allowances across the region are less than 10% of the allocation, All banked allowances in each account shall be useable on a 1-for-1 basis. Banked allowances do not expire.

In 2003, when the regional target is reduced through implementation of Phase III, the allowance withdrawal protocol will reflect the reduction. If the above example had occurred in 2003. the allowance reduction ratio would be as follows:

0.10 x the regional NO_x Budget =	**14,287**	**= 0.604**
# of allowances in the bank	**23,650**	

What the allowance deduction protocol encourages investment in excess emission reductions, and promotes large accounts of banked allowances while dampening the effect of emission increases in years of low nuclear power availability. As shown in the example, budget sources who accumulate large accounts of unused allowances, will be able to use more allowances at a 1-for-1 ratio, than those with small accounts. This, combined with the fact that the banked allowances are not devalued over time by a cap on use, provides additional economic incentive to encourage increased levels of control and excess emission reductions across the region. This can be more protective to the environment on the whole, while allowing flexibility to address power production demands in years of low nuclear availability.

Added to the progressive flow control banking provision, is an incentive for early emission reductions. Early reduction incentives can accelerate control and result in real emission reductions in advance of regulatory deadlines. The early reduction incentive included in the program, allow real, surplus, and quantifiable emission reductions occurring in 1997 and 1998, to be certified by the states as credit, which can be converted to allowances in 1999 when the NO_x Budget Program takes effect. These early credits can not be created from shut down or curtailment, and can only be generated by sources who reduce emissions below that required by the NO_x Budget Program. This provides a one time

bonus of allowances for those who make real emission reduction in advance of the NO_x Budget Program deadlines.

Finally, the banking program is supported by a strong program audit requirement. Given the magnitude of the debate over banking in this rule, a program audit was determined to be essential to ensure NO_x Budget program integrity and to demonstrate that the program is providing the expected air quality benefits. The first program audit is to be completed by March 31, 2002. The audit will examine, at minimum, the following:

- Emission reporting accuracy through validation of CEMS or other emission data generation methods at budget sources.
- Ambient ozone monitoring data through out the seasonal control period and throughout the OTR.
- Emission rates of budget sources on peak electric generation days, ozone periods and across the seasonal control period.
- Patterns of allowance transfer and use (temporal and geographical), including banked allowances and early reductions converted to allowances.
- Other data as necessary to determine the efficacy of the NO_x Budget program.

Should the audit reveal that the emission reductions expected of the program are not being achieved, the states in the OTR may make adjustments to the program. Such adjustments, to the extent possible, would focus on the primary cause of program aberrations but could include changes in the banking program (increasing retirement ratios, limiting the size of the bank) should it be determined that the banking provisions of the rule are causing the NO_x Budget to be exceeded on a routine basis or in an unacceptable manner.

This allowance banking package was developed by a small work group including states, utilities and environmental interests. The package was reviewed by the NESCAUM/MARAMA NO_x Budget Task Force and the Ad Hoc Committee before being recommended to the OTC Commissioners for consideration by the OTC Stationary and Area Source Committee.

There continues to be some concern from industry that including banking in the NO_x Budget Program will preclude attainment with emission reductions to be achieved by

Phase II of the program. This group has expressed concern that Phase III should not be necessary or automatic. In the mid-course correction provisions of the OTC MOU, Phase III reductions can be modified by a finding through modeling and other emission analysis. Such analysis should incorporate a conservative projection of the impact of the allowance banking provisions to verify if banking will in any way influence the daily formation of ozone. Similar assumptions will need to be made in the analysis regarding the lack of a daily cap on emissions and in the geographic scope of allowance trading.

Emission Monitoring and Reporting

In order for NO_x allowances to be accurately traded and tracked, budget sources must use consistent monitoring procedures to determine their emissions. Accurate and consistent monitoring is needed to ensure that all allowances in the NO_x Budget Program have the same "value" (e.g. one ton of NO_x emissions measured to an accuracy 80% may not equivalent to one ton of NO_x emissions measured to an accuracy of 90%). Since states desire to promote cost effective compliance through emission trading, this level of consistency is very important to an effective trading program.

U.S.EPA has recommended that the monitoring, record keeping and reporting requirements be equivalent, or identical, to 40 CFR,, Part 75 requirements (Acid Rain Program). However, requiring all budget sources to implement Part 75 monitoring would be costly. Further, it might discourage, or prevent sources, from opting into the program and may encourage load shifting. The intent of the NO_x Budget Program is to include the emissions from all electric generating units and prevent load shifting. Most budget sources are currently subject to the monitoring requirements of either 40 CFR,, Part 60 (New Source Performance Standards) or Part 75.

There are four significant differences between the Part 60 and Part 75 monitoring and reporting requirements:

- In Part 60 monitoring is rate based and was designed to determine compliance with emission limits. It does not require flow meters that would allow recording of data in tons emitted. In most cases, Part 75 monitoring does require flow monitoring and was designed to determine total emissions.
- The Part 60 relative accuracy tests require accuracy at 20%; Part 75 requires 10% accuracy with incentives for accuracy below 7.5%. Phase I Acid Rain sources currently average 4%. The less demanding accuracy requirement of

Part 60 allows potential under-reporting of emissions in contrast to the more stringent Part 75 requirements.

- The quality assurance requirements for Part 75 are significantly more stringent on a daily, quarterly, and annual basis. This is designed to lead to more accurate emissions measurements.
- Part 75 requires 100% data reporting. This includes missing data substitution for periods when monitors are not working and incentives for increased monitor availability. Part 60 monitoring does not require missing data substitution and has less stringent monitoring availability requirements.

The Model Rule handles concerns about cost and feasibility as well as validity of the monitoring methods by providing several monitoring options for Non-Part 75 sources to choose from. Budget sources already applicable to Part 75 requirements, must continue to use Part 75 CEMS for purposes of monitoring emissions in the NO_x Budget Program. Non-Part 75 sources have the option to implement Part 75 monitoring or any of the following:

- 40 CFR,, Part 75, Appendix E which employs periodic stack testing combined with fuel flow data to provide emission estimates (oil and gas sources only).
- Part 60 monitoring equipment with some changes in data handling and quality assurance to derive emission rate combined with heat input information to derive utilization information, combined to result in emissions in pounds per hour.
- Default emission rates, combined with heat input information to derive utilization, combined to result in emission in pounds per hour.

There are several options available for collecting heat input information including fuel flow metering (daily or weekly), and boiler efficiency testing.

The details of initial certification of the monitoring system, relative accuracy testing of the system and periodic quality assurance and quality control of the data have been removed from the NO_x Budget Model Rule and incorporated into a document entitled *Guidance for Implementation of Emission Monitoring Requirements for the NO_x Budget Program.* This guidance document is referenced in the rule. The rule and the guidance document have been developed by a subgroup of the NO_x Budget Task Force, including state and

U.S.EPA staff who are experts in emission monitoring systems. The guidance document is currently DRAFT and will be further refined in the months ahead.

In all instances, emissions data must be resolved to an hourly basis and hourly data must be reported to a centralized emissions tracking system . A centralized tracking system is another program design option that was discussed with the Ad Hoc Committee. There was strong support for such a system, and strong support from utility groups for adoption of the U.S. EPA's Emissions and Allowance Tracking Systems used for the Acid Rain Program. Advantages to using the U.S.EPA system and having one centralized system include:

- A single point of contact for reporting.
- Many utility sources are already reporting to the Acid Rain System so adoption of that system for the NO_x Budget Program would avoid redundant reporting requirements.
- The cost of developing a new centralized tracking system could be extremely prohibitive.

A decentralized reporting or "privatized" reporting system would pose problems of cost, redundant reporting, and multiple reporting requirements.

Inter-zone Trading:

The MOU established an emission reduction requirement based on zones that were defined by geography and by attainment classification. The three zones are defined as Northern, Inner, and Outer. The Northern Zone encompasses the areas in Maine, New Hampshire, and Vermont with designated attainment and areas of nonattainment below "moderate" classification, and the attainment counties in northeastern New York. The contiguous moderate and above non-attainment areas in Connecticut, Delaware, the District of Columbia, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island and Virginia comprise the inner zone. The outer zone is the non-contiguous areas designated nonattainment for ozone and classified serious, severe, or moderate, as well as nonattainment areas classified as marginal, and attainment areas within the boundaries of the OTR in Delaware, Maryland, Pennsylvania, New York, and Virginia as in effect on September 27, 1994.

Variable emission reductions by zone were established by the OTC MOU based upon the principal that emission reductions in the inner zone would have a greater influence on regional air quality than those achieved in the outer zone. Optimally, inter-zone trading ratios would be established to encourage actual emission reductions where such reductions would do the most good for air quality. However, at the time the Model Rule was developed, explicit information on the air quality benefits of NO_x control by the zones in the OTC MOU, was only beginning to become available.

ICF Resources, Inc. has recently conducted an analysis for the U.S.EPA on the cost and impact of the NO_x Budget Program[14]. The ICF report evaluated and projected the geographical shift in emissions under several trading scenarios, including a full, unrestricted, trading program and one where trading was restricted to within zones (intra-zone trading). The study shows that in the year 2005, there is no discernible difference in regional NO_x emissions when comparing a full trading option to a intra-zonal trading option. Since these two options are at opposite ends of the spectrum of trading options, institution of a trading ratio would appear to have no influence on where emissions would be reduced in the region.

Therefore, while the Model Rule establishes a zone-based emission reduction requirement resulting in a budget, the Task Force decided not to apply a trading ratio to discount allowances if they are traded across zones. This decision was based on the lack of affirmative proof that a trading ratio would influence air quality and in light of the desire to minimize program complexity. Implementation of a trading ratio is still an option for 2003 if modeling becomes available to help establish ratios based on the influence of emission reductions in various areas on air quality.

New Source Review

As the NO_x Budget Program progresses, older budget sources will be replaced with new facilities. The NO_x Budget Program must account for the introduction of these new sources. These new sources will require emission offsets to construct, as required by the Clean Air Act, and allowances to operate during the control period consistent with the NO_x Budget Program. The NO_x Budget Model Rule treats the two requiremetns independently, as is discussed in this section.

[14] "*Estimated Effects of Altemative NO_x Cap and Trading Schemes in the Northeast Ozone Transport Region*", ICF Resources, September 1995.

New sources must still follow all of the rules established by U.S.EPA and the Clean Air Act for offsets. According to the Clean Air Act Amendments of 1990, and U.S.EPA general policy, emission offsets for a new source in a nonattainment area must come from sources in either:

1. the same nonattainment area; or
2. a nonattainment area where:
    a) ozone nonattainment is at equal or higher classification; and
    b) emissions contribute to the violation of NAAQS in the area in which the new source proposes to locate.

EPA has modified this general policy for proposed new sources in the OTR. New sources proposing to locate in ozone nonattainment areas classified "moderate" or lower, can obtain emission offsets from sources in an attainment area, provided that it can be shown that emissions from the attainment area contribute to violation of NAAQS in the nonattainment area.

Integrating NO_x Budget allowances with the offset program adds complexity to the New Source Review issue. The Task Force examined a number of options to link the two programs to be less redundant and more streamlined. Full integration of New Source Review and the NO_x Budget Program, similar to that done in the California RECLAIM program was discussed. Unlike RECLAIM, the NO_x Budget Program is only a seasonal program which raised legal issues that impede the integration of these two programs. Also, under this scenario, allowances would have to meet the requirements of offsets (ratios) that would impose additional burdens upon budget sources.

Since a large proportion of stationary source NO_x is emitted by budget sources, the primary creators of NO_x offsets for new sources are already budget sources. By looking at the emission reductions as "reductions" first, some attempt has been made to clarify the linkage between the two programs. The following example may illustrate this linkage:

If a 1200 ton budget source (which includes 500 tons of seasonal allowances) were to shut down, there would be an emission reduction of 1200 tons. With this reduction, in an

Finally, under no condition may the inclusion of additional sources into the program increase or decrease the allowance allocation to budget sources.

Program Fees

One area of the Model Rule which is still "RESERVED" is the section of the rule which deals with how the program will be funded. Of particular concern is how a centralized emission tracking system and the allowance tracking system would be funded.

The rule provides for some fees to be applied to budget sources for tracking system account maintenance. This neglects to address significant up-front costs for modifying the existing Acid Rain tracking system to accommodate this program. Further, the fees identified in the rule may not be feasible without additional legislation in some states.

The issue of program funding is one that needs to be pursued further. One of the primary facts that needs to be established is the cost of developing and maintaining the tracking system. Until the NOx Budget Model Rule is finalized, U.S. EPA has been unable to provide detailed cost information. Over the next few months, the specific system needs for the program will be more clearly defined based on what is required by this rule, a more detailed cost estimate for the system upgrades will be developed, and further discussions on funding will take place.

For implementation, it has been recommended that an agreement, similar in nature to a contract, be developed between the OTC states and the U.S.EPA-Acid Rain Division. This agreement would define the development, operation and maintenance of a centralized allowance and emissions tracking system. The agreement would include designation of an administrative body for both oversight of the regional program, and as an interface between U.S.EPA and the OTC states. The agreement should contain specific commitments to program funding and support.

6.0 Issues for Future Consideration

The NO_x Budget Model Rule provides a consistent platform for states to begin individual rulemaking. The Model Rule does not, however, address all of the issues and suggestions raised by parties who commented on the DRAFT NO_x Budget Model Rule

during the rule development and review process. Several items have been identified for further study and evaluation and may be addressed in minor revisions to the Model Rule, or will be discussed in guidance. The outstanding issues include a linkage between the NO_x Budget Program and Open Market Trading programs, expansion of the NO_x Budget Program to sources outside of the Ozone Transport Region, and inclusion of provision that allow emission reductions generated by private party demand-side management to be recognized and allocated allowances.

NESCAUM is currently working on a third year of an emissions trading demonstration project where the concept of linking the NO_x Budget Program and the Open Market Trading Program is being discussed. Through the demonstration project, the concepts of a linkage between the two programs will be subject to extensive discussion and review by industry, states, U.S.EPA and environmental interests. The results of this work may be considered by the Task Force, at some future date, for possible inclusion in the NO_x Budget Model Rule.

The issue of including sources in the NO_x budget which are physically located outside of the OTR is particularly important in light of national trends towards utility deregulation and the potential for increased import of power into the OTR. The concern is that utilities in the OTR shall import power from outside the OTR which will reduce their need to use allowances. These unused allowances may be shifted to other sources within the budget while emissions on the boundaries of the OTR increase.

The concern of private parties who implement or support demand-side management (DSM) projects is that the utilities will reap the benefits of the projects through reduced demand, and subsequent reduced need for allowances. This raises an issue of equity as well as a concern that the NO_x Budget Program might adversely influence decisions to implement DSM measures.

7.0 THE NO_x BUDGET MODEL RULE

In the following pages, the explicit language of the NO_x Budget Model Rule is provided.

CONTENTS

(1) Purpose and Scope

a. This regulation, hereafter referred to as the NO_x Budget Program, is established to require a reduction in emissions of nitrogen oxides. The reduction, once implemented, will constitute a NO_x emission budget during each control period beginning May 1999.

b. The NO_x emission budget as established in Section (3) has been determined by application of the following reduction requirement to the 1990 baseline emissions level as adopted by the Ozone Transport Commission on June 13, 1995:[15]

1. By May 1, 1999, the affected facilities in the inner zone shall reduce their combined rate of NO_x emissions by 65% from baseline level, or emit NO_x at a rate no greater than 0.20 pounds per million Btu, whichever is less stringent.

[15] States should replace this list with the reduction requirement that explicitly applies in each state and list the applicable counties in place of the terms "inner zone", "outer zone" and "northern zone".

2. By May 1, 1999, the affected facilities in the outer zone shall reduce their combined rate of NO_x emissions by 55% from baseline or shall emit NO_x at a rate no greater than 0.20 pounds per million Btu, whichever is less stringent.
3. By May 1, 2003, the affected facilities in the inner and outer zones shall reduce their combined rate of NO_x emissions by 75% from baseline or shall emit NO_x at a rate no greater than 0.15 pounds per million Btu, whichever is less stringent.
4. By May 1, 2003, the affected sources in the Northern Zone shall reduce their combined rate of NO_x emissions by 55% from baseline or shall emit NO_x at a rate no greater than 0.20 pounds per million Btu, whichever is less stringent.

c. If an area within the inner zone is redesignated to attainment, it shall remain in the inner zone. If a contiguous "marginal" area is reclassified to "moderate" classification , it shall become part of the inner zone.[16]

d. The NO_x reduction requirement, established by the OTC MOU to begin May 1, 2003, may be modified if additional modeling and other scientific analysis show that this program, as modified, together with regulations governing volatile organic compound (VOC) emissions, will achieve attainment of the ozone National Ambient Air Quality Standard across the Ozone Transport Region, and the Ozone Transport Commission's MOU is modified to reflect those modeling results and other analysis no later than December 31, 1998.

e. The NO_x budget shall be implemented by allocation of allowances equivalent to the statewide NO_x budget in tons, as described in Section (6).

f. Further, this regulation in Sections (5) through (17) establishes rules and procedures for use and trading of allowances, and establishes procedures for tracking allowance use, monitoring and reporting emissions, and certifying compliance with the NO_x Budget Program.

g. The trading of allowances between budget sources in different states for purposes of compliance, is contingent upon the adoption and implementation by those states of comparable and consistent NO_x Budget Program regulations.

h. Nothing in this regulation waives any NO_x reduction requirement otherwise in effect, including compliance with regulations implementing Reasonably Available Control

[16] States should revise this language to be a specific requirements for certain counties and eliminate the use of the term "zone".

Technology for NO_x, or regulations governing the construction of new sources in the Ozone Transport Region.

i. The effective date of this regulation is __*insert date*_____.

(2) Definitions

The terms used in this regulation apply solely to this regulation. Where an identical term is defined in another part of the air pollution control regulations for the state, the definition in this section controls. The following words and phrases shall have meaning in the NO_x Budget Program as defined below:

Account number means the identification number given by the NO_x Allowance Tracking System Administrator to an account in which allowances are held in the NO_x Allowance Tracking System pursuant to Section (10) of this regulation.

Account means the place in the NO_x Allowance Tracking System where allowances are recorded including both allowances held by a budget source (compliance account) or allowances held by any person (general account).

Acquiring account means the party in an allowance transfer who obtains allowances through purchase, trade, auction or gift.

Administrator means the person or agency designated by the state as the Administrator of the NO_x Allowance Tracking System and the NO_x Emissions Tracking System.[17]

Affected Facilities means fossil fuel fired boilers or indirect heat exchangers with a maximum rated heat input capacity of 250 MMBtu/Hour or more which operated at any time in calendar year 1990. The term Affected Facilities is only used to establish the NO_x Budget for the state.

Allocate or Allocation means the initial assignment of allowances to a budget source through this regulation, and recorded by the Administrator to a NO_x Allowance Tracking System facility account or general account.

[17] If, under an operational agreement being discussed with U.S.EPA, U.S.EPA assumes the role of tracking system Administrator, this definition shall read "the Administrator of the United States Environmental Protection Agency or the Administrator's duly authorized representative".

Allocation Period means any time period to which allowances are allocated such as the period 1999 though 2002, the period 2003 through 2013 and the period 2013 through *__insert date____*. ***NOTE**: States may chose alternative allocation periods provided that allocation is accomplished at least one year prior to the start of the season for which the allowances will be used.*

Allowance means the limited authorization to emit one ton of NO_x during a specified control period. All allowances shall be allocated, transferred, or used as whole allowances. To determine the number of whole allowances, the number of allowances shall be rounded down for decimals less than 0.50 and rounded up for decimals of 0.50 or greater.

Allowance deduction means the withdrawal of allowances for permanent retirement by the Administrator from a NO_x Allowance Tracking System account pursuant to Section (14) of this rule.

Allowance transfer means the conveyance to another account of one or more allowances from one person to another by whatever means, including but not limited to purchase, trade, auction, or gift in accordance with the procedures established in Section (8) of this rule, effected by the submission of an allowance transfer request to the NATS Administrator.

Allowance transfer deadline means midnight of December 31 and is the deadline by which allowances may be submitted for recording in an budget source's compliance account for purposes of meeting the requirements of this regulation for the preceding control period.

Alternative monitoring system means a system or component of a system, designed to provide direct or indirect data of mass emissions per time period, pollutant concentrations, or volumetric flow as provided for in Section (11) of this regulation.

Authorized Account Representative (AAR) means the responsible person who is authorized, in writing, to transfer and otherwise manage allowances as well as certify reports to the NATS and the NETS.

Banked Allowance means an allowance which is not used to reconcile emissions in the designated year of allocation but which is carried forward into the next year and flagged in the compliance or general account as "banked".

Banking means the retention of unused allowances from one control period for use in a future control period.

Baseline means the NO_x emission inventory approved by the Ozone Transport Commission on June 13, 1995, as the official 1990 baseline emissions of May 1 through September 30 for purposes of the NO_x Budget Program.

Boiler means a facility which combusts fossil fuel to produce steam or to heat water, or any other heat transfer medium.

Budget or Emission Budget means the numerical result in tons per season of NO_x emissions which results from the application of the emission reduction requirement of the OTC MOU dated September 27, 1994, and which is the maximum amount of NO_x emissions which may be released from the budget sources collectively during a given control period.

Budget source means a fossil fuel fired boiler or indirect heat exchanger with a maximum rated heat input capacity of 250 MMBtu/Hour, or more; and all electric generating facility with a rated output of 15 MW, or more.[18] Any person who applies to opt into the NO_x Budget Program shall be considered a budget source upon acceptance of the application for opt-in.

Clean Air Act means the Clean Air Act as amended in 1990 (42 U.S.C. 7401- 7626).

Compliance account means the account for each budget source in the NO_x Allowance Tracking System, in which are held current and future year allowances useable for a specific designated control period as indicated by their unique serial number.

Continuous Emissions Monitoring System (CEMS) means the equipment required by this regulation used to sample, analyze, and measure which will provide a permanent record of emissions expressed in pounds per million British Thermal Units (Btu) and tons per day. The following systems are component parts included in a continuous emissions monitoring system:

Nitrogen oxides pollutant concentration monitor
Diluent gas monitor (oxygen or carbon dioxide)
A data acquisition and handling system
Flow monitoring systems (where appropriate)

[18] States who elect to add other facilities to applicability will need to change the definition of budget source accordingly.

Control period means the period beginning May 1 of each year and ending on September 30 of the same year, inclusive.

Current year means the calendar year in which the action takes place or for which an allocation is designated. For example, an allowance allocated for use in 1999 which goes unused and becomes a banked allowance on Jan 1, 2000 can be used in the "Current Year" 2000 subject to the conditions for banked allowance use as stated in this rule.

Early Reduction Credit means credit for NO_x emission reductions achieved during the control periods of 1997 or 1998.

Electric generating facility means any fossil fuel fired combustion facility of 15 MW capacity or greater which provides electricity for sale or use.

Excess emissions means emissions of nitrogen oxides reported by a budget source during the control period, rounded to the nearest whole ton, which is greater than the equivalent number of allowances allocated to, or which are available in the budget source NO_x Allowance Tracking System compliance account by the allowance transfer deadline for that season.

Fossil fuel means natural gas, petroleum, coal or any form of solid, liquid or gaseous fuel derived wholly, or in part, from such material.

Fossil fuel fired means the combustion of fossil fuel or any derivative of fossil fuel alone, or, if in combination with any other fuel, fossil fuel comprises 51% or greater of the annual heat input on a Btu basis.

General Account means an account in the NATS that is not a compliance account.

Heat input means heat derived from the combustion of fuel in a budget source and does not include the heat derived from preheated combustion air, recirculated flue gas, or exhaust from other sources.

Indirect heat exchanger means combustion equipment in which the flame and/or products of combustion are separated from any contact with the principal material in the process by metallic or refractory walls, which includes, but is not limited to, steam boilers, vaporizers, melting pots, heat exchangers, column reboilers, fractioning column feed

preheaters, reactor feed preheaters, fuel-fired reactors such as steam hydrocarbon reformer heaters and pyrolisis heaters.

Inner zone[19] means the area comprised of the contiguous areas designated nonattainment for ozone and classified as "Moderate", "Serious", or "Severe" pursuant to Section 107 of the Clean Air Act in the states of Virginia, Maryland, Delaware, Pennsylvania, New York, New Jersey, Connecticut, Rhode Island, New Hampshire (including "marginal" nonattainment areas in Merrimack County, Hillsboro County and Rockingham County), Massachusetts and the District of Columbia, as in effect on September 27, 1994.

Maximum heat input capacity means the ability of a budget source to combust a stated maximum amount of fuel on a steady state basis, as determined by the physical design and characteristics of the facility. Maximum heat input capacity is expressed in millions of British Thermal Units (MMBtu) per unit of time which is the product of the gross caloric value of the fuel (expressed in BTU/pound) times the fuel feed rate in the combustion device (expressed in mass of fuel/time).

NO_x Allowance Tracking System (NATS) means the computerized system used to track the number of allowances held and used by any person.[20]

NO_x Emissions Tracking System (NETS) shall mean the computerized system used to track NO_x emissions from budget sources.[21]

Non-Part 75 Budget Source means any budget source not subject to the requirements for emissions monitoring adopted pursuant to Section 412 of the Clean Air Act Amendments of 1990 and codified at 40 CFR, Part 75.

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[19] A state rule can delete this definition provided that Section (1) lists the reduction requirement by county and there is no reference to zones in the rule.

[20] This presumes that an acceptable operational agreement can be reached between the OTC states and the U.S.EPA, to allow the Acid Rain tracking system to serve as the NATS and that funding can be obtained to upgrade, support and maintain the Acid Rain Allowance Tracking System for this purpose. If this occurs, this definition should specifically reference the system which is operated and maintained by the U.S. Environmental Protection Agency for purposes of tracking allowance use for the Acid Rain program, and is further defined at 40 CFR, Part 72, Subpart A, Section 72.2.

[21] Based on the outcome of negotiations on an operational agreement between the OTC and U.S.EPA, this definition could be expanded to state: "For purposes of this program, the official NO_x Emissions Tracking System is defined as that which is operated and maintained by the U.S. Environmental Protection Agency for purposes of tracking allowance use for the Acid Rain program, and further defined at 40 CFR, Part 72, Subpart A, Section 72.2."

Northern zone[22] means the geographic area comprised of the states of Vermont, New Hampshire (except for its moderate and serious nonattainment areas, and the "marginal nonattainment portions of Merrimack County, Hillsboro County and Rockingham County), Maine and those counties in northeastern New York which are designated attainment for the pollutant ozone as in effect on September 27, 1994.

Opt in means to choose to voluntarily participate in the NO_x Budget Program, and comply with the terms and conditions of this regulation.

OTC MOU means the Memorandum of Understanding signed by representatives of ten states and the District of Columbia as members of the Ozone Transport Commission on September 27, 1994.

OTR means the Ozone Transport Region as designated by Section 184(a) of the Clean Air Act Amendments of 1990.

Outer zone [23] means the remainder of the Ozone Transport Region not otherwise included in the inner zone or the northern zone. Areas in the outer zone which are reclassified, subsequent to September 27, 1994 as "Moderate", "Serious" or "Severe" and which are contiguous to the inner zone, shall become part of the inner zone and subject to all standards and requirements of the inner zone upon the effective date of the reclassification.

Owner or Operator means any person who is an owner or who operates, controls or supervises a budget source and shall include, but not be limited to, any holding company, utility system or plant manager.

Quantifiable means a reliable and replicable basis for calculating the amount of an emission reduction acceptable to the state where the reduction is to be credited, and to the U.S.EPA.

Real means a reduction in the rate of emissions, quantified retrospectively, net of any consequential increase in actual emissions due to shifting demand.

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[22] See footnote on INNER ZONE
[23] See footnote on INNER ZONE

Recorded with regard to an allowance transfer or deduction means an account in the NATS has been updated by the Administrator with the particulars of an allowance transfer or deduction.

Repowering, for the purpose of early reduction credit means,

1. Qualityfying Repowering Technology as defined by 40 CFR, Part 72 or,
2. The replacement of a budget source by either a new combustion source or the purchase of heat or power from the owner of a new combustion source, provided that:
    a. The replacement source (regardless of owner) is on the same, or contiguous property as the budget source being replaced;
    b. The replacement source has a maximum heat output rate that is equal to or greater than the maximum heat output rate of the budget source being replaced; or,
    c. The replacement source has a power output rate that is equal to or greater than the power output rate of the combustion source being replaced; and
    d. The replacement source incorporates technology capable of controlling multiple combustion pollutants simultaneously with improved fuel efficiency and with significantly greater waste reduction relative to the performance of technology in widespread commercial use as of November 15, 1990.

Submitted means sent to the appropriate authority under the signature of the Authorized Account Representative. For purposes of determining when something is submitted, an official U.S. Postal Service postmark, or electronic time stamp, shall establish the date of submittal.

Surplus means an emission reduction which is not required by a state adopted SIP at the time the reduction was made, relied upon in an applicable attainment demonstration, or required by state or federal permit or order. For purposes of early reduction credit, emission reductions are surplus to the extent the permitted allowable emissions are below the emission limit of the NOx Budget Program, and the permit was issued after the effective date of this rule.

(3) NO_x Emission Budget

a. The NO_x Budget Program is established to limit total mass NO_x emissions from budget sources during the control period of May 1 through September 30. The initial NO_x Budget is as follows:

1. For 1999 and each year thereafter, through and including 2002, not to exceed _____[24] _____ tons during each control period.
2. For 2003 and each year thereafter, not to exceed _____[25] _____ tons during each control period.

b. The initial NO_x budget, established in paragraph a. above, shall be modified by the state to include sources who choose to opt-into this program pursuant to Section (4) of this rule. Any modification of the budget after establishment of the initial budget shall be recorded and maintained by the state, and submitted on an annual basis, by January 1 of each year, to the appropriate U.S.EPA Regional Office. Modifications to the budget shall be subject to public notice of at least __[26]___ days commencing with an announcement published in a newspaper of general circulation; and, the opportunity for public comment should a request for hearing be received within the notice period.

(4) Budget Program Applicability

a. General Applicability

1. The NO_x Budget Program in its entirety, applies to any owner or operator of a budget source.
2. The requirements for an Authorized Account Representative (AAR) and account maintenance fees are applicable to the owner of a general account.

b. Any person who owns, operates, leases or controls a stationary source in the OTR not subject to this program by definition, may choose to opt into the NO_x Budget Program subject to the following conditions:

1. Any person who owns, operates, leases or controls a stationary source that voluntarily opts-in to the NO_x Budget Program shall be considered a budget source upon approval of the opt-in application and shall be subject to all terms and conditions of the NO_x Budget Program including requirements for allowance transfer or use, emissions monitoring, record keeping, reporting, and penalties.
2. To opt into the NO_x Budget Program, the owner or operator of a stationary source shall submit to the state an opt-in application, including documentation of the baseline control period emissions. Baseline control period emissions are a

[24] Insert state NO_x budget for 1999.
[25] Insert state NO_x budget for 2003.
[26] States to indicate the appropriate public notice period as required by state law.

representative average of the actual emissions of two consecutive control periods within the five years preceding the opt-in application. In no event may the baseline be greater than allowable emissions for that source as established by state permit or regulation. The baseline control period emissions from the opt-in source, as may be adjusted pursuant to Paragraph 3 of this subsection, shall be added to the NO_x budget for the state prior to allocation of allowances to the opt-in source.

3. The state shall assign an allowance allocation to any person that chooses to opt into the program. The allowance allocation for an opt-in source that , by size, would otherwise be considered an affected facility, shall be equivalent to the OTC MOU emission reduction applied to baseline control period emissions, or the permitted allowable NO_x emissions from the source, whichever is less.

4. The state shall assign an allowance allocation to any person that chooses to opt into the program. The allowance allocation for an opt-in source that is not otherwise considered an affected facility, shall be equivalent to the baseline control period emissions, or the permitted allowable NO_x emissions from the source, whichever is less. In no case, will allocation of allowances to a source which chooses to opt into the program require adjustments to the allocation of allowances to budget sources in the NO_x Budget Program.

5. Any person who chooses to opt into the NO_x Budget Program shall be subject to a modification of their federally enforceable operating permit to include applicability of this
program, authority to trade allowances, and authority to emit in accordance with allowances allocated or obtained by the allowance transfer deadline.

6. Any person who chooses to opt into the NO_x Budget Program and who subsequently chooses to cease or curtail operations, will be subject to an allowance adjustment which represents emissions equivalent to those reduced through the cessation or curtailment of emitting operations.

(5) General Provisions

a. An allowance is an authorization to emit NO_x , valid only for the purposes of meeting the requirements of this rule. On or after May 1, 1999, the owner or operator of each budget source shall, not later than December 31 of each calendar year, hold a quantity of NO_x allowances in the budget source's current year NATS account that is equal to or greater than the total NO_x emitted from that budget source during the period May 1 through September 30 of the subject year.

b. A budget source that begins operation after the initial allocation has been made must obtain allowances in order to operate during the control period. Allowances may be obtained from existing sources in the NO_x Budget Program.

c. The restrictions and requirements of state and local rules as well as state and federal law, remain applicable. Except as otherwise provided for in this regulation, allowances cannot be used to meet or exceed the limitations of a permit or regulation unrelated to this rule.

d. Offsets required for new or modified sources subject to New Source Review must be obtained in accordance with the state New Source Review Rule (*states add cite*), and are subject to the offset requirements of Section 173 of the Clean Air Act Amendments of 1990. Offsets may be obtained through state Economic Incentive Programs or Emission Reduction Credit Programs as available, or applicable. Allowances are not considered offsets within the context of this rule, although the emissions represented by allowances may satisfy a part of the New Source Review offset requirement.

(6) Allowance Allocation

States have the option to adopt their own formula for allocation of allowances to budget sources in this section.

a. Implementation of the emission budget in Section (3) of this regulation shall be accomplished through allocation of allowances to budget sources or by any other method the state deems appropriate.

b. The state shall allocate the budget in allowances up to an amount of _____[27] _____ for the control period in each of the years 1999, 2000, 2001 and 2002. Further, the state shall allocate the budget in allowances up to an amount of ____[28] ____ for the control period in each year starting in 2003 and beyond.[29]

c. The initial allocation of allowances by budget source is as follows in Table I.[30]

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[27] Insert the total number of allowances to be allocated for each year 1999 though 2003. The total number of allowances is equal to the NO_x Budget in tons, minus any allowances held in set aside accounts or other options states might wish to pursue.

[28] Insert total number of allowances to be allocated for each year 2003 and beyond. The total number of allowances is equal to the NO_x Budget in tons, minus any allowances held in set aside accounts or other options states might wish to pursue.

[29] This paragraph is intended to provide states the option to allocate less than 100 percent of the allowances available if so desired. If 100 percent of the allowances are allocated, this statement is not necessary. ***NOTE: The states may choose to state the allocation formula differently than above if allocation is made in a manner different than the one described in this section.***

[30] Each state may adopt its own terms for allocation. The options discussed to date range from proportional allocation based on operating characteristics to auction of the full amount of available allowances.

Table I.
Initial Allowance Allocation by Budget Source
(in allowances for each control period)

Budget source	Allocation Period (insert years)	Allocation period (insert years)	Allocation Period (insert years)
Facility A	XXX	XXX	XXX
Facility B	XXX	XXX	XXX
Facility C	XXX	XXX	XXX
etc.....			

d. The list of budget sources allocated allowances in Table 1 can be modified by the state to include sources who choose to opt-into this program pursuant to Section (4) of this rule. Any modification of Table 1 after adoption of the initial allocation, shall be recorded and maintained by
the state, and submitted on an annual basis, by January 1 of each year, to the appropriate U.S.EPA Regional Office after providing notice and the opportunity for public comment.

e. A budget source that reduces emissions and transfers said emission reductions as offsets to sources outside of this program, will be subject to deduction of allowances commensurate with the reductions moved off-budget. This requirement does not apply should the source receiving offsets from a budget sources that voluntarily opt-in to the NO_x Budget Program prior to the date when construction approval is granted.

f. Budget sources which cease to operate after the date of allocation will continue to receive allowances for each control period in the allocation period, unless a request to reallocate allowances has been filed pursuant to Section (8)h. of this rule. [31]

g. An allowance shall not constitute a security or other form of property.

h. Nothing in the state's rules shall be construed to limit the authority of the state to condition, limit, suspend or terminate any allowances or authorization to emit which said allowance represents.

(7) Permits

[31] ***NOTE:*** If a state chooses to allocate annually, or every three years, this provision would allow the retention of allowances for only one year or three years respectively.

a. Emission reductions which must be achieved to meet the requirements of this program, and which will require modification of equipment or operations at an affected facility shall be subject
to state permit requirements pursuant to ___[32]____. The owner or operator of a budget source shall apply for permits for all equipment and control apparatus necessary for compliance with the program by no later than ___*insert date*_____.

b. Operating Permits

1. The operating permit for each budget source shall contain provisions for implementation of this program. Specifically, said permit shall contain language which prohibits the budget source from emitting NO_x during each control period, in excess of the amount of allowances held in the budget source's compliance account for the control period as of the allowance transfer deadline. Furthermore, the permit shall contain language that authorizes the trading of allowances for purposes of compliance with this program. The permit shall also contain reference to the budget source NATS compliance account and the Authorized Account Representative.
2. No revision of an operating permit will be necessary, or required, for increases (or decreases) in emissions that are authorized by allowances acquired or transferred provided that the action is in compliance with this regulation by the allowance transfer deadline, is in compliance with the authorization for trading contained in the permit, and does not contravene the BACT or RACT limit, as applicable, for the budget source.
3. No revision of an operating permit will be necessary or required for increases (or decreases) in allowances held by the budget source and which are acquired or transferred in compliance with this regulation, and in compliance with the authorization for trading contained in the permit.[33]

(8) Allowance Transfer and Use

a. Allowances are marketable emissions authorizations that may be bought, sold or traded at any time (i.e., during any year, not just the current year).

b. Allowances may only be used for compliance with this program in a designated compliance year by being in a compliance account as of the allowance transfer deadline,

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[32] Add a citation to the state regulation that establishes emission control permits or emission control plans.

[33] The difference between paragraphs 2. and 3. is that the first is a provision in the operating permit that authorizes a source to increase or decrease emissions without penalty or operating permit revision as long as equivalent allowances are held. The second allows a source to buy or sell allowances above (and below) the initial allocation without penalty or need for an operating permit revision.

or by being transferred into the compliance account by an allowance transfer submitted by the allowance transfer deadline.

c. The following procedures must be employed to enact an allowance transfer:

1. The transfer request must be documented on a form, or electronic media, as directed by the NATS Administrator. The following information, at a minimum, must be provided:

A. The account number identifying both the originating account and the acquiring account;

B. The name and address associated with the owners of the originating account and the acquiring account; and,

C. Identification of the serial numbers for each allowance being transferred.

2. The transfer request must be authorized and certified by the Authorized Account Representatives for both the originating account and the acquiring account. To be considered correctly submitted, the request for transfer shall include the following signed statement of certification (verbatim): *"I am authorized to make this submission on behalf of the owners and operators of the budget source and I hereby certify under penalty of law, that I have personally examined the foregoing and am familiar with the information contained in this document and all attachments, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including possible fines and imprisonment."* The Authorized Account Representative shall, further provide a copy of the transfer request to each owner or operator of the budget source.

d. Transfer requests will be processed by the NATS Administrator in order of receipt.

e. The transfer is complete when the following has been verified by the NATS Administrator:

1. Each allowance listed in the transfer request is held by the originating account at the time the transfer is to be recorded;

2. The acquiring party has an account in the NATS; and,

3. The transfer request has been filed by the persons named as Authorized Account Representatives for the originating account and the acquiring account.

f. Allowance transfers determined to be valid, through verification by the NATS Administrator, will be recorded in the NATS by deducting the allowance from the originating account and adding it to the acquiring account.

g. Notification of an allowance transfer will be provided by the NATS Administrator, including notice to the Authorized Account Representatives for each of the originating account and the acquiring account, and to designated state officials where the acquiring account or originating account are located. Notification may be made on paper or in electronic form and shall, at a minimum, include:

1. The effective date of the transfer;
2. Identification of the originating account and the acquiring account by name as well as by account number; and,
3. The number of allowances transferred and their serial numbers.

h. Should a budget source determine that some or all allocated allowances should be transferred to another budget source for the remainder of the current allocation period, the Authorized Account Representative of the originating account shall submit a request for transfer that states this intent to the NATS Administrator. A request for transfer of allowances for the remainder of the allocation period shall conform to the specifications of paragraph c. of this section. In addition, said request for transfer shall be submitted to the state with a letter requesting that future allowance allocations be made directly to the acquiring account.

i. The budget source shall make available to the state in which it is located, information regarding transaction cost and allowance price, should the state request such infomration.

(9) Allowance Banking

a. The banking of allowances is permitted to allow the retention of unused allowances from one year to a future year in either a compliance account or a general account.

b. Unless otherwise permitted pursuant to Section (9)d., unused allowances as of the end of the allowance transfer deadline, shall be retained in the compliance or general account and designated as "banked" allowances.

c. Banked allowances may be used in accordance with the following requirements:

1. By January 31 of each year, the total number of banked allowances in the OTR will be determined and used to calculate the number of banked allowances which can be used in the current year as follows:

A. If the total number of banked allowances in the OTR is less than or equal to 10% of the NO_x budget for the current year control period, all banked allowances can be used in the current year on a 1-for-1 basis.

B. If the total number of banked allowances in the region exceeds 10% of the regional NO_x budget for the current year control period, budget sources will be notified of the allowance ratio which must be applied to banked allowances in each compliance and general account to determine the number of allowances available for use in the current year control period on a 1-for-1 basis, and the number of allowances available for use in the current year control period on a 2-for-1 basis.

2. Where a finding has been made that banked allowances exceed 10% of the regional NO_x budget, each NATS compliance and general account of banked allowances shall be subject to the following banked allowance use protocol.

A. A ratio will be established according to the following formula:

$$\frac{0.10 \times \text{the regional } NO_x \text{ Budget}}{\text{the total number of banked allowances in the region}}$$

B. The ratio calculated in paragraph A., shall be applied to the banked allowances in each account. The resulting number is the number of banked allowances in the account which can be used in the current year control period on a 1-for-1 basis. Allowances in excess of this number, if used, shall be used on a 2-for-1 basis.

d. Any budget source may create NO_x emission reductions in 1997 or 1998, have said reductions certified as early reduction credits, and converted by the state to allowances in 1999, subject to the following requirements:

1. Certification of early reduction credits shall require a finding by the state that the reductions are real, quantifiable, and surplus in accordance with the following procedures, and state rules, or policy as may be applicable:

2. Early reduction credits must be based on control of a budget sources' NO_x emission rate below the more stringent of:

A. The level of control required by the OTC MOU;

B. The permitted allowable emissions for the source, unless the source is a replacement source for repowering whereupon the level of control required by the OTC MOU would supersede the permitted allowable emissions for purposes of establishing early reduction credit;

C. The actual emissions for the 1990 control period; or,

D. Actual emissions for the average of two representative year control periods within the first five years of operation if the budget source did not commence operation until after 1990.

3. The amount of early reduction credit shall presume a capacity utilization (in MMBtu) equal to the average capacity utilization of the budget source for two consecutive calendar years preceding the application adjusted for any reduced capacity utilization which has resulted from shut down or curtailment of the budget source.

4. The state shall allow use of a different two consecutive year period within the 5 years immediately preceding the early reduction credit application should the budget source demonstrate, to the satisfaction of the state, that an alternative two consecutive year period is more representative of normal operations.

5. Repowering of a budget source is eligible for early reduction credit provided that the permit for construction of the replacement source is issued after the effective date of this regulation, and the budget source being replaced ceases operation in 1997 or 1998.

6. Early reduction credit will be eligible for a one-time conversion to allowances in 1999. Emission reductions achieved for purposes of early reduction credit, cannot be used as Emission Reduction Credits (ERCs) or Discrete Emission Reductions (DERs).

(10) NO_x Allowance Tracking System (NATS)

a. The NO_x Allowance Tracking System (NATS) is an electronic record keeping and reporting system which is the official database for all allowance use and transfer within this program. The NATS will track:

1. The allowances allocated each budget source;
2. The allowances held in each account;
3. The allowances used by each budget source during each control period;
4. Accounts established for each budget source to determine compliance for the source;
5. Accounts opened by individuals or entities, upon request, which are not used to determine compliance;
6. Allowance transfers, as submitted voluntarily by the source; and,
7. Deductions of allowances for compliance purposes.

b. The NATS will provide a compliance account for each budget source which will hold the current compliance year and future year allowances. The NATS will label each account with an account number and provide the following information, at minimum, to be

associated with each account: name of account owner, name of Authorized Account Representative, mailing address of Authorized Account Representative, phone number of Authorized Account Representative, street address of associated budget source, and state in which the budget source is located.

c. The NATS will allow for the establishments of general accounts. Any person or group may open a general account. An Authorized Account Representative must be designated for a general account and said representative shall have obligations similar to an Authorized Account Representative designated by a budget source.

d. Only an Authorized Account Representative can request transfers of allowances in a NATS account. For each account, one Authorized Account Representative and one alternate shall be identified to represent the owner or operator of the budget source, or owner of a general account. The Authorized Account Representative shall be responsible for all transactions and reports submitted to the NATS. The Alternate Authorized Account Representative shall have the same authority as the "primary" representative, however, all correspondence from the NATS Administrator shall be directed to the primary Authorized Account Representative.

e. The Authorized Account Representative will be officially designated upon receipt by the NATS Administrator of a form entitled "*Account Certificate of Representation*" that constitutes an agreement of representation and which contains, at a minimum, the following information: identification of the budget source by plant name, state and boiler number for which the certification of representation is submitted, the name, address, telephone and facsimile number of
the Authorized Account Representative and any alternate, and a list of owners and operators of the budget source. The certificate of representation shall be signed by the Authorized Account Representative for the budget source and shall contain the following statement (verbatim) *"I certify that I,____(name)_____, was selected as the Authorized Account Representative as applicable by an agreement binding on the owners and operators of the budget source legally designated as_____(name of facility)_____".* Designation of an Authorized Account Representative for each budget source must be completed by December 31, 1997. After December 31, 1997, an Authorized Account Representative can be replaced with the submittal of a new *"Account Certificate of Representation"*. The NATS Administrator will confirm the change of Authorized Account Representative once the change is recorded in the NATS.

in pounds per hour shall be determined by multiplying the results of the above values together.

c. If a Part 75 budget source does not have a certified flow monitor, but does have a NO_x CEMS, NO_x emissions in pounds per hour emissions should be determined using the NO_x CEMS and procedures contained in the *Guidance for Implementation of Emission Monitoring Requirements for the NO_x Budget Program.* and other procedures as apply in the following circumstances:

1. If the owner or operator of a budget source uses the procedures in Appendix E of 40 CFR,, Part 75 to estimate the NO_x emission rate, NO_x emissions in pounds per hour should be determined using Appendix E procedures and the heat input for the unit.
2. If the owner or operator of a budget source uses the procedures in Subpart E of 40 CFR,, Part 75 to determine NO_x emission rate, NO_x emissions in pounds per hour shall be determined using the alternative monitoring method approved under 40 CFR,, Part 75, Subpart E and the procedures contained in the *Guidance for Implementation of Emission Monitoring Requirements for the NO_x Budget Program.*

NON-PART 75 SOURCES

d. The owner or operator of a budget source which is not subject to 40 CFR,, Part 75 shall meet the monitoring requirements of this rule by :

1. Preparing and obtaining approval of a monitoring plan as specified in paragraph e of this section;
2. Determining NO_x emission rate using a methodology specified in paragraph f. of this section;
3. Determining heat input rate using the methodology described in paragraph g. of this section; and,
4. Converting NO_x emission rate and heat input rate to NO_x emissions in pounds per hour using the procedure described in paragraph h. of this section.

e. The owner or operator of a budget source which is not subject to 40 CFR,, Part 75, who seeks to utilize an alternative monitoring method to comply with this rule, shall develop and submit an alternative monitoring plan to the state. Said plan shall be approved by the state prior to commencing construction, or testing of any alternative monitoring system. The plan developed for the budget source shall contain, as appropriate, the following:

1. A description of the monitoring approach to be used.

f. The owner or operator of a budget source which is not subject to Part 75, and who chooses to implement an alternative emission rate monitoring method, shall determine NO_x **emission rate** in pounds per million Btu using one of the following methods:

1. The owner or operator of a budget source may implement monitoring in accordance with Part 75.

2. The owner or operator of a budget source that is required to install and operate a NO_x CEMS to meet the requirements of 40 CFR,, Part 60 or to meet other state requirements or permits, shall use that NO_x CEMS to meet the requirements of this rule. Part 60 monitors utilized for this purpose shall meet quality assurance criteria as described in the *Guidance for Implementation of Emission Monitoring Requirements for the NO_x Budget Program.* Any time a Part 60 CEMS cannot be used to report data for this program because it does not meet the requirements of the *Guidance for Implementation of Emission Monitoring Requirements for the NO_x Budget Program*, missing data shall be substituted using the procedures in 40 CFR,, Part 75, Subpart D. In addition, a NO_x CEMS that has not undergone initial certification testing to meet the requirements of 40 CFR,, Part 75 or 40 CFR,, Part 60 shall meet the initial certification requirements contained in the *Guidance for Implementation of Emission Monitoring Requirements for the NO_x Budget Program.*

3. The owner or operator of a budget source that does not have a NO_x CEMS, may request approval from the state to use any of the following appropriate methodologies to determine NO_x emission rate:

A. Boilers or turbines may use the procedures contained in 40 CFR,, Part 75, Appendix E to measure NO_x emission rate in pounds/ MMBtu, consistent with the provisions in the *Guidance for Implementation of Emission Monitoring Requirements for the NO_x Budget Program.*

B. Persons owning or operating combustion turbines that are subject to this rule may also meet the monitoring requirements of this rule by using default emission factors to determine NO_x emissions in pounds per hour as follows:

i. For gas-fired turbines, the default emission factor shall be 0.7 pounds NO_x per MMBtu.

ii. For oil-fired turbines, the default factor shall be 1.2 pounds NO_x per MMBtu.

iii. Persons owning or operating gas turbines or oil-fired turbines may perform testing, with a protocol approved by the state, to determine unit specific maximum potential NO_x emission rates.

C. Persons owning or operating boilers that are subject to this rule may meet the monitoring requirements of this rule by using a default emission factor of 2.0 pounds per MMBtu to determine NO_x emissions in pounds per

multiplied to result in NO_x emissions in pounds per hour and reported to the NETS in accordance with Section (13) of this rule.

(12) Record Keeping

a. The owner or operator of any budget source shall maintain for each budget source and for five years, or any other period consistent with the terms of the budget source's operating permit, a file of all measurements, data, reports and other information required by this rule, or state specified record keeping, whichever is applicable.

(13) Reporting

a. The Authorized Account Representative for each budget source shall submit, in electronic format which meets the requirements of the U.S.EPA's Electronic Data Reporting (EDR)
convention, emissions and operations information for the second and third calendar quarters [34] of each year in accordance with standards specified in 40 CFR,, Part 75, Subpart G, or in any other suitable format as approved by the state and the NETS Administrator.

b. In addition, the owner or operator of a budget source shall provide the NETS Administrator, in the same quarterly reports, and in a format consistent with the EDR as specified by the NETS Administrator, NO_x emission in pounds per hour for every hour during the control period and cumulative quarterly and seasonal NO_x emission data in pounds.

c. Budget sources subject to 40 CFR,, Part 75 shall submit this data to U.S.EPA as part of the quarterly reports submitted to U.S.EPA for the purpose of compliance with 40 CFR,, Part 75.

d. Should a budget source be permanently retired, an exemption from the requirements of this section, Section (11) and Section (12) may be obtained from the state. To obtain an exemption, the Authorized Account Representative for the budget source must file a request for retirement exemption with the state, said request to include identification of the budget source being retired, and the date of retirement. State approval of the request

[34] The Acid Rain System currently collects quarterly emissions data. It is proposed to keep this program consistent with that reporting schedule. Quarter #2 would encompass the ozone season months of May and June. Quarter #3 would encompass the ozone season months of July, August and September. This presumes that an operational agreement can be established between the OTC states and the U.S.EPA to utilize the Acid Rain Emission Tracking System for the NO_x Budget Program.

for retirement exemption shall be sent to the Authorized Account Representative, and the NETS Administrator and may contain conditions as deemed necessary by the state.

(14) End-of-Season Reconciliation

a. Monitored emissions data as reported by the budget source to the NETS Administrator, and as adjusted by the Administrator to be in accordance with Section (11) of this rule, combined with allowance allocations and transfers recorded in the NATS, shall provide the basis for a determination of compliance with this rule.

b. Each year during the period November 1 through December 31, inclusive, the Authorized Account Representative will request the NATS Administrator to deduct current year allowances from the compliance account equivalent to the NO_x emissions from the budget source in the current control period. This request shall be submitted by the Authorized Account Representative to the NATS Administrator by no later than the allowance transfer deadline (December 31) and shall identify the compliance account from which the deductions should be made, and the serial numbers of the allowances to be deducted.

c. Regardless of the request for deductions submitted pursuant to paragraph b of this section, the Administrator shall deduct a number of allowances equal to the current control period NO_x emissions from the budget source's compliance account, and determine whether sufficient allowances are in the compliance account equivalent to emissions.

d. Should the emissions of the budget source in the current control period exceed the allowances in the budget source's compliance account for the control period, the budget source is responsible for obtaining additional allowances so the total number of allowances in the compliance account, including allowance transfers properly submitted to the NATS Administrator by the allowance transfer deadline, equals the control period emissions of NO_x rounded to the nearest whole ton.

e. Failure by the budget source to obtain and hold in its compliance account, for any control period, as of the allowance transfer deadline, sufficient allowances equal to or exceeding emissions for the control period, shall result in enforcement action and penalties pursuant to Section (16) of this regulation.

(15) Compliance Certification

a. For each control period, the Authorized Account Representative for the budget source shall submit to the state in which the budget source is located, an annual compliance certification.

b. The compliance certification shall be submitted no later than the allowance transfer deadline (December 31) of each year.

c. The compliance certification shall contain, at a minimum:

1. Identification of the budget source, including name, address, name of Authorized Account Representative and NATS account number.
2. A statement whether emissions data has been submitted to the NETS in accordance with the procedures established in Section (13) of this rule and in conformance with the requirements of the NETS Administrator.[35]
3. A statement whether the budget source operated in compliance with the allowances allocated for the control period, including those obtained through transfer by the allowance transfer deadline, and holds sufficient allowances in it's compliance account for the control period, as of the allowance transfer deadline, to equal or exceed the recorded emissions for the control period.
4. A statement of certification whether the monitoring plan which governs the budget source was maintained to reflect actual operation of the budget source.
5. A statement of certification that all emissions from the budget source were accounted for, either through the applicable monitoring or through application of the appropriate missing data procedures.
6. A statement to indicate whether there were any changes in the method of operation of the budget source or the method of monitoring the budget source during the current year.

d. The state reserves the right to verify compliance by whatever means necessary, including but not limited to :

1. Inspection of facility operating records;
2. Obtaining information on allowance deduction and transfers from the NATS;
3. Obtaining information on emissions from the NETS;
4. Testing emission monitoring devices; and,
5. Requiring the budget source to conduct emissions testing under the supervision of the state .

(16) Penalties

[35] States would need to obtain emissions data from the NETS to verify compliance as well as track emissions.

of CEMS and data acquisition systems at the budget source, and review of allowance transfer and use by budget sources (geographically and temporally). Each periodic audit will examine the extent to which banked allowances have, or have not, contributed to emissions in excess of the budget for each year preceding the audit. The periodic audit shall further provide an assessment that the program is consistent with the requirements for reasonable further progress and the attainment demonstration.

c. In addition to the state audit, the state reserves the right to request a third party audit of the program. Such third party audit could be implemented on a state by state basis or could be performed on a region-wide basis under the supervision of the Ozone Transport Commission.

d. Should an audit result in recommendations for program revisions at a state level, the state shall consider, in consultation with the OTC, the audit recommendations, and if found necessary, propose the appropriate program revisions as changes to current procedures or modifications to this regulation.