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October 7, 2011

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CONSOLIDATED EDISON COMPANY OF NEW YORK INC.'S PETITION FOR RECONSIDERATION AND REQUEST FOR STAY OF THE CROSS-STATE AIR POLLUTION RULE

Docket No. EPA-HQ-OAR-2009-0491

Consolidated Edison Company of New York, Inc. ("Con Edison") respectfully requests that the U.S. Environmental Protection Agency ("EPA" or "Agency") grant reconsideration and immediately stay the compliance deadline and effective date of EPA's Cross-State Air Pollution Rule entitled "Federal Implementation Plans to Reduce Interstate Transport of Fine Particulate Matter and Ozone and Correction of SIP Approvals" ("CSAPR") as it applies to New York. *See* 76 Fed. Reg. 48,208 (Aug. 8, 2011). Con Edison recognizes that EPA has proposed changes to CSAPR as of October 6, 2011. Con Edison has not had time to fully analyze the proposed changes and will address the proposed rule in comments.

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I. INTRODUCTION

Con Edison is a subsidiary of Consolidated Edison, Inc., one of the nation's largest investor-owned energy companies, with approximately $13 billion in annual revenue and $36 billion in assets. Con Edison provides electric, gas, and steam service to more than three million customers in New York City and Westchester County. Con Edison serves a population of approximately nine million people throughout a service territory covering 660 square miles. Con Edison is directly affected by CSAPR as the owner and operator of four affected cogeneration units, the operator of the New York City and Westchester transmission and distribution systems, and the owner and operator of a steam distribution system in Manhattan.

Con Edison supports the efforts of New York State and the federal government to improve our common air quality and has received numerous awards for its efforts to reduce pollution. Con Edison has been recognized for reducing fugitive SF_6 and CH_4 emissions through its participation in EPA's SF_6 Reduction Partnership and Natural Gas STAR programs, and is a Climate Registered Company, under the Climate Registry's voluntary reporting program. Additionally, between 1996 and 2010 Con Edison has reduced its system wide NOx emissions by 60% and its system wide SO_2 emissions by 70%. Con Edison has been listed on the prestigious Dow Jones Sustainability Index and, in 2011, the Carbon Disclosure Project rated Con Edison first among utilities in the Carbon Performance Leadership Index.

Con Edison, in conjunction with the New York Independent System Operator ("NYISO"), is responsible for providing low-cost, reliable electric service to New York City. In addition, Con Edison owns and operates the largest steam distribution system in the United States, providing service in Manhattan, south of 96th Street. During winter, the Con Edison steam system provides customers primarily with heat and hot water. In summer, the steam system continues to provide hot water and also provides steam-driven air conditioning, sterilization, humidification, and other commercial processes. Con Edison's fleet of steam system boilers located in Manhattan and Queens has a net station steam send-out capacity of about 11 million pounds per hour. This fleet of large and very large steam boilers burns predominately natural gas and residual (No. 6) fuel oil as a back-up fuel. [1] Con Edison's steam system is anchored by four cogeneration units that are subject to CSAPR. The units provide almost 700 megawatts ("MW") of capacity and generate approximately 3,000 gigwatt hours ("GWh") of electricity per year within congested areas of New York City -- about 14% of the annual total in-city generation.[2]

The Con Edison units subject to CSAPR are East River Units 1/10, 2/20, 6/60 and 7/70. Con Edison has made significant capital investments in improvements for these units. East River

[1] The continued use of residual oil as part of Con Edison's steam-electric system's fuel mix is critical to the maintenance of system reliability, and is necessary for Con Edison and other electric generators to meet statewide reliability standards during the winter and the summer. For example, the New York Independent System Operator (NYISO) Technical Bulletin No. 159 requires dual-fueled units to burn a pre-set minimum amount of oil on summer days when total electric load exceeds 9,000 MW so as to forestall wide scale electrical blackouts in the event of a gas system emergency.

[2] Con Edison also purchases steam and electric supply from the Brooklyn Navy Yard Cogeneration Units. Since these units are not owned by Con Edison, they are mentioned here briefly for information and not discussed further.

Units 1/10 and 2/20 are state-of-the-art units that have best available control technology installed and meet lowest achievable emissions rate standards; East River Units 6/60 and 7/70 burn predominately natural gas and meet the current New York State reasonably available control technology ("RACT") requirements.[3] A short description of each unit's characteristics is provided below.

- East River 1/10 and East River 2/20. These units were constructed between 2002 and 2004 and went into commercial operation in 2005. Each unit is comprised of a dual-fuel General Electric combustion turbine generator and two heat-recovery steam generators. Each combustion turbine is nominally rated at 180 MW, and each heat-recovery steam generator, with supplemental firing (natural gas only), produces approximately 1.6 million pounds per hour (lb/hr) of steam for the Con Edison district steam system. These units cannot be operated in electric-only or steam-only modes. As a result, these units are must-run electric generators in the winter when there is increased steam demand and must-run steam units in the summer when there is increased electricity demand. Emissions from East River 1/10 and 2/20 are limited by the provisions of Title V permit number 2-6206-00012/00016. These units have selective catalytic reduction and carbon monoxide catalyst back-end controls and burn non-interruptible natural gas.[4]

- East River 6/60. This unit is a conventional steam-electric generation unit consisting of a 134 MW General Electric turbine generator and a Babcock & Wilcox gas- and oil-fired natural circulation boiler. This unit can operate in a combined (simultaneous) mode (cogeneration) of electrical generation and extraction steam sendout producing up to 830,000 lb/hr of steam. This unit operates on natural gas and uses residual (No. 6) fuel oil with a sulfur content of equal to or less than 0.30 percent as a backup fuel.

- East River 7/70. This unit is a conventional steam-electric generation unit consisting of a nominal 180 MW Westinghouse turbine-generator and a Foster-Wheeler gas- and residual oil-fired natural circulation, reheat boiler. This unit can be operated in only one mode at a time: either all electric generation, up to the megawatt rating, or all steam sendout, up to 1.2 million lb/hr of steam. Generally speaking, the unit operates as an EGU in the summer, when it produces electricity, and as a non-EGU in the winter, when it produces steam. The transition from one type of output to the other requires an outage of two to three days to make adjustments to the units.

The ability of the Con Edison steam system to provide steam and economical electric power on a cogeneration basis will be significantly affected by CSAPR. EPA's model drastically underestimated New York annual emissions due to erroneous assumptions regarding transmission constraints and by ignoring reliability rules and steam production.[5] The resulting

[3] East River Units 6/60 and 7/70 are located in downtown New York City. Due to space constraints, it is not physically possible to install additional controls on these units.

[4] Distillate oil may be fired to permit the units to continue to operate if (a) an unanticipated disruption of the natural gas supply were to occur and (b) steam system reliability would be jeopardized if the units did not operate.

[5] For example, base case emissions for annual and seasonal NOx emissions are 34% and 37% below the actual average emissions for New York between 2008 and 2010.

State emissions budgets and source specific allocations cannot support generation levels necessary to meet the demand for steam and electricity in New York City. The errors made by the model are so severe that allowance trading cannot bridge the gap between historic emissions levels in New York and the 2012 State emissions budgets without triggering penalty provisions. A program with which an affected state cannot comply is the definition of arbitrary and capricious, and a clear abuse of Agency discretion. EPA must adjust the IPM to account for electric and steam reliability standards and intra-area transmission constraints; Con Edison recommends that EPA include the 2008 to 2010 actual average heat input and emissions for must-run units as a constraint in the IPM. After correcting the IPM constraints, EPA should re-run the model and re-set the New York State emissions budgets.

II. BACKGROUND

CSAPR was developed in response to the U.S. Circuit Court for the District of Columbia Circuit's remand of the Clean Air Interstate Rule ("CAIR") in 2008. *North Carolina v. EPA*, 531 F.3d 896 (D.C. Cir. 2008), modified on rehearing, *North Carolina v. EPA*, 550 F.3d 1176, 1178 (D.C. Cir. 2008). EPA published the proposed Clean Air Transport Rule ("CATR") in August 2010, 75 Fed. Reg. 45,210 (August 2, 2010), and published the final rule, which the Agency re-named CSAPR, in August 2011, 76 Fed. Reg. 48,208 (Aug. 8, 2011).

The purpose of CSAPR is to address the "good neighbor" requirements of Section 110(a)(2)(D) of the Clean Air Act ("CAA" or "Act"). Section 110(a)(2)(D)(i)(I) prohibits sources within each state "from emitting any air pollutant in an amount which will…*contribute significantly* to nonattainment in, or interfere with maintenance by, any other state." Under CSAPR, EPA defines "significant contribution" by reference to (1) a state's "linkage" to downwind receptors (i.e., emissions of approximately 1% of compliant ambient levels) and (2) the ability of the state to achieve emission reductions at the relevant cost threshold. Only if emissions from a state are "linked" to a downwind receptor *and* the state can achieve emission reductions at costs below EPA's cost-effectiveness threshold is a state included in the CSAPR.

CSAPR relies on the Integrated Planning Model ("IPM") to predict utilization of electric generating units ("EGUs"). The predicted emissions in 2012 without implementation of CSAPR or CAIR are referred to as a state's "base case" emissions. EPA also used the IPM to predict how many emissions reductions are available from the base case at the relevant cost threshold, $500/ton for annual and seasonal nitrogen oxides ("NOx") and sulfur dioxide ("SO_2") Group 1.[6] The base case less the available emissions reductions represents each state emissions budget, and is referred to as a state's "remedy case" emissions. *See* 76 Fed. Reg. 48,248 ("enshrin[ing] [] the upwind emission reductions available at those cost thresholds in state budgets"). Between proposing CATR and finalizing CSAPR, EPA made "*significant* updates to the IPM model for projecting EGU emissions." *Id.* at 48,260. EPA received substantial public comment following the proposal of CATR on the model's assumptions and representation of individual units, which required EPA to drastically change "its 2012 and 2014 emission projections for states under the cost thresholds considered." *Id.*

[6] EPA applied a higher cost threshold for SO_2 Group 1 states beginning in 2014. 76 Fed. Reg. at 48,254 ("the $2,300 per ton value starts in 2014 for Group 1 states' SO2").

III. REQUEST FOR RECONSIDERATION AND REQUEST FOR STAY

A. Reconsideration and Stay Is Authorized Under Section 307(d)(7)(B).

Section 307(d)(7)(B) of the federal Clean Air Act ("CAA") provides for EPA's reconsideration of a CAA rule upon objection by a petitioner. *See* 42 U.S.C. § 7607(d)(7)(B). EPA *must* grant reconsideration when the petitioner:

> [c]an demonstrate to the Administrator that it was impracticable to raise [an] objection [during the period for public comment] or if the grounds for such objection arose after the period for public comment ... and if such objection is of central relevance to the outcome of the rule.

Id. In such a situation, reconsideration is mandatory, as the CAA commands that EPA "*shall* convene a proceeding for reconsideration of the rule and provide the same procedural rights as would have been afforded had the information been available at the time the rule was proposed." *Id.* (emphasis added). The reconsideration provision of Section 307(d)(7)(B) is applicable to the CSAPR rulemaking because the Administrator expressly determined that CSAPR is subject to the procedural provisions of CAA § 307(d). *See* 76 Fed. Reg. at 48,352.

The CAA authorizes EPA to stay the effectiveness of the rule for up to three months during reconsideration. *See* 42 U.S.C. § 7607(d)(7)(B). The Administrative Procedure Act ("APA") further authorizes EPA to stay the effectiveness of a rule indefinitely during reconsideration. Under the APA, "[w]hen an agency finds that justice so requires, it may postpone the effective date of action taken by it, pending judicial review." 5 U.S.C. § 705. EPA has applied this standard to CAA actions. *See, e.g.,* Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NSR): Aggregation, 75 Fed. Reg. 27,643 (May 18, 2010). The standard for such an administrative stay is different from the standard for a stay used by the courts because a judicial stay requires a demonstration of irreparable harm. This is clear from the text of the APA:

> When an agency finds that justice so requires, it may postpone the effective date of action taken by it, pending judicial review. On such conditions as may be required and to the extent necessary to prevent irreparable injury, the reviewing court ... may issue all necessary and appropriate process to postpone the effective date of an agency action or to preserve status or rights pending conclusion of the review proceedings.

5 U.S.C. § 705

Thus, the APA deliberately contrasts what is required for an administrative stay—"justice so requires" — and a judicial stay — "conditions as may be required" and "irreparable harm." Similarly, CAA Section 307(d)(7)(B) authorizes an administrative stay, but does not premise that stay on a finding of irreparable harm. Such differences must be given effect,[7] so there is no

[7] "[W]here Congress includes particular language in one section of a statute but omits it in another section of the same Act, it is generally presumed that Congress acts intentionally and purposely in the disparate inclusion or

irreparable harm requirement for an administrative stay. Given the potential impact of these regulations on Con Edison's system reliability and the risk that poses to its customers, "justice so requires" that EPA stay the new provisions of the final rule and take other necessary and appropriate steps to defer the compliance deadlines and other provisions of the final rule until the outcome of the reconsideration process.

B. EPA Was Required To Provide Notice Of And Opportunity To Comment On The New York Emissions Budgets.

The CAA and APA impose stringent notice and comment requirements on EPA. "Given the strictures of notice-and-comment rulemaking, an agency's proposed rule and its final rule may differ only insofar as the latter is a 'logical outgrowth' of the former." *Envtl. Integrity Project v. EPA*, 425 F.3d 992, 996 (D.C. Cir. 2005) (stating that "[t]he test is whether a new round of notice and comment would provide the first opportunity for interested parties to offer comments that could persuade the agency to modify its rule"). A "final rule is a 'logical outgrowth' of a proposed rule only if interested parties should have anticipated that the change was possible, and thus reasonably should have filed their comments on the subject during the notice-and-comment period." *Id.* at 998.

The final New York State emissions budgets are not a logical outgrowth of CATR. Between the publication of CATR and EPA's final promulgation of CSAPR, EPA revised the IPM, a proprietary model that is not accessible to the general public, to drastically reduce the emissions budgets for the State of New York. EPA reduced New York's emissions budgets from the budget proposed in CATR by 59% for 2012 SO_2, 56% for 2014 SO_2, and 25% for both annual and ozone season NOx. The final budgets are so far divorced from actual emissions and demand for electricity and steam in New York that the State cannot -- under any circumstances -- comply with the 2012 budgets. NYISO has looked at three possible scenarios for achieving compliance with the State budgets established by CSAPR for SO_2, annual NOx, and ozone season NOx. *See* NYISO presentation, "Cross-State Air Pollution Rule: Pathways to Compliance" (Aug. 5, 2011), attached as Exhibit A. In every scenario, even the most optimistic, NYISO anticipates New York will exceed its 2012 assurance level in at least one parameter. As the OMB Interagency Working Group recognized, "the sheer magnitude of change to the budgets of all of the states results in a significantly different rule than originally proposed." OMB Summary of Interagency Working Comments on Draft Language, § E (July 11, 2011).

None of the notices of data availability issued by EPA provided New York or affected companies with notice that the State budget would be significantly reduced in the final rule. As can be seen in the chart below, the emissions budgets proposed by CATR were close to or above actual New York emissions in 2010.

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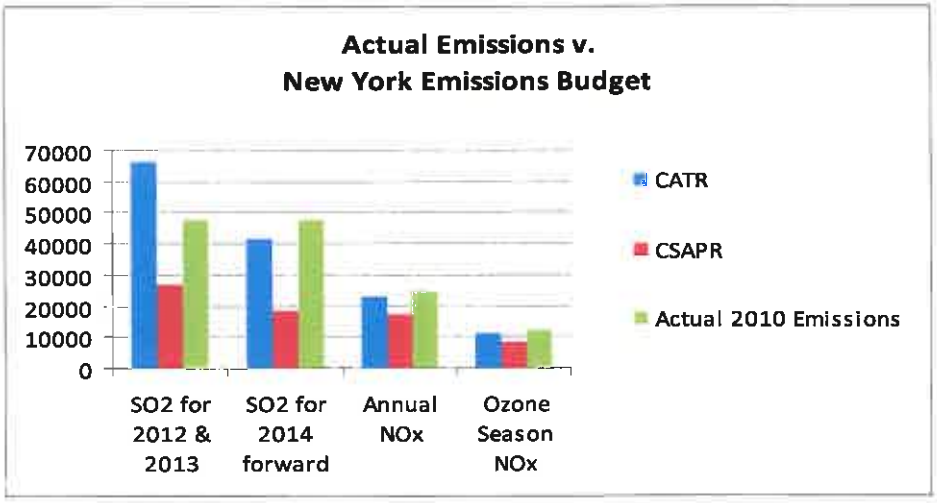
exclusion." *Russello v. United States,* 464 U.S. 16, 23 (1983) (quotation marks and citation omitted; alteration in original).



If EPA had provided notice of its plan to drastically reduce the New York emissions budgets, Con Edison and other affected companies would have submitted comments explaining that the emission and generation levels predicted by the IPM cannot be achieved without jeopardizing reliability. EPA's failure to provide notice of, and opportunity to comment on, the revised budgets contravenes the requirements of the CAA. *See Envtl. Integrity Project*, 425 F.3d at 998 (agencies may not "use the rulemaking process to pull a surprise switcheroo on regulated entities"). Accordingly, EPA should re-issue the State emissions budgets for comment.

C. The New York State Emissions Budgets Are Unlawful Under CAA.

EPA's authority to require upwind states to reduce emissions is limited by the scope of Section 110 of the Act, which prohibits sources within each state "from emitting any air pollutant in an amount which will...*contribute significantly* to nonattainment in, or interfere with maintenance by, any other state." CAA § 110(a)(2)(D)(I)(i). Under CSAPR, there is no relationship between an upwind state's *actual* contribution to downwind nonattainment or maintenance and the *significant* contribution identified by EPA. EPA's decision to define significant contribution without regard for states' actual contribution to downwind nonattainment and maintenance is inconsistent with *North Carolina v. EPA*, which held that CAIR was unlawful because EPA failed to tailor emissions reductions to each individual state. In *North Carolina*, the U.S. Court of Appeals for the D.C. Circuit expressly stated that while "[e]ach state must eliminate its own significant contribution to downwind pollution," EPA "may not require some states to exceed the mark" 531 F.3d at 921. Although the definition of significant contribution in CSAPR is different from the definition in CAIR (and the CATR), CSAPR still imposes disproportionate emissions reductions on certain states.

New York is one of the lowest contributors to nonattainment of the annual and 24-hour $PM_{2.5}$ NAAQS in downwind states.[8] *See* Tables 1 and 2, below. Yet, New York must cut its

[8] EPA's model shows a stronger link for the 8-hour ozone NAAQS between New York and nearby receptors in Connecticut. Con Edison's units have some of the lowest NOx emission rates in the country, *see* Actual-and-Implied-Emission-Rates Spreadsheet, attached as Exhibit B. CON EDISON believes that the link is almost entirely due to emissions from mobile sources.

base case emissions by more than 50%, while Illinois (which has a far greater contribution to downwind nonattainment and maintenance at the same receptors and which has a far larger budget) is required to cut only 10% of its emissions. *See* Table 3.

Table 1: New York and Nearby States' Annual $PM_{2.5}$ Contributions ($\mu g/m^3$) to Nonattainment Receptors - 2012 Base Case

Receptor #	State	County	NY	IL	IN	KY	OH	PA	TN	VA	WV
10730023	AL	Jefferson	0.01	**0.14**	**0.28**	**0.22**	**0.24**	**0.10**	**0.25**	**0.05**	**0.14**
10732003	AL	Jefferson	0.02	**0.15**	**0.30**	**0.24**	**0.26**	**0.11**	**0.26**	**0.05**	**0.14**
131210039	GA	Fulton	0.03	**0.16**	**0.31**	**0.25**	**0.32**	**0.17**	**0.29**	**0.09**	**0.19**
171191007	IL	Madison	0.02	**1.51**	**0.70**	**0.33**	**0.42**	**0.11**	**0.19**	0.02	**0.13**
261630033	MI	Wayne	0.13	**0.42**	**0.69**	**0.25**	**0.99**	**0.29**	0.11	0.04	**0.24**
390350038	OH	Cuyahoga	0.21	**0.37**	**0.65**	**0.28**	-	**0.53**	0.13	0.06	**0.40**
390350045	OH	Cuyahoga	0.21	**0.37**	**0.65**	**0.29**	-	**0.54**	0.13	0.06	**0.40**
390350060	OH	Cuyahoga	0.21	**0.37**	**0.65**	**0.29**	-	**0.54**	0.13	0.06	**0.40**
390610014	OH	Hamilton	0.09	**0.50**	**1.28**	**0.81**	-	**0.38**	**0.32**	0.06	**0.37**
390610042	OH	Hamilton	0.08	**0.49**	**1.34**	**0.94**	-	**0.37**	**0.32**	0.06	**0.36**
390618001	OH	Hamilton	0.09	**0.50**	**1.27**	**0.80**	-	**0.38**	**0.32**	0.06	**0.37**
420030064	PA	Allegheny	0.17	**0.26**	**0.51**	**0.27**	**1.34**	-	0.13	0.12	**0.95**

Table 2: New York and Nearby States' 24-Hour $PM_{2.5}$ Contributions ($\mu g/m^3$) to Nonattainment Receptors - 2012 Base Case

Receptor #	State	County	NY	IL	IN	KY	MO	OH	PA	WV
10730023	AL	Jefferson	0.06	**0.29**	**0.65**	**0.60**	**0.18**	**1.18**	**0.65**	**1.04**
170311016	IL	Cook	0.23	-	**3.29**	**0.72**	**0.75**	**1.73**	**0.65**	**0.66**
171191007	IL	Madison	0.12	-	**3.02**	**1.71**	**3.73**	**2.40**	**0.69**	**0.66**
180970043	IN	Marion	0.09	**1.67**	-	**4.38**	**0.88**	**2.66**	**0.62**	**1.10**
180970066	IN	Marion	0.10	**1.40**	-	**3.93**	**0.86**	**2.54**	**0.67**	**1.05**
180970081	IN	Marion	0.10	**1.35**	-	**3.86**	**0.86**	**2.53**	**0.69**	**1.04**
261470005	MI	St. Clair	0.41	**1.07**	**2.44**	**1.25**	0.38	**4.51**	**1.41**	**1.56**
261630015	MI	Wayne	0.34	**1.06**	**2.74**	**1.28**	**0.46**	**3.67**	**1.00**	**1.08**
261630016	MI	Wayne	0.83	**1.50**	**2.75**	0.67	0.23	**3.42**	**1.36**	**0.97**
261630019	MI	Wayne	0.73	**1.47**	**2.79**	0.64	0.21	**3.32**	**1.32**	**0.95**
261630033	MI	Wayne	0.46	**1.02**	**2.59**	**1.03**	0.32	**3.83**	**0.96**	**0.98**
390350038	OH	Cuyahoga	0.25	**0.70**	**1.84**	**0.89**	0.22	-	**1.91**	**2.94**
390350060	OH	Cuyahoga	0.82	0.76	**1.67**	0.57	0.17	-	**2.16**	**1.76**
420030064	PA	Allegheny	0.13	**0.67**	**1.71**	**0.86**	0.36	**4.81**	-	**4.02**
420030093	PA	Allegheny	0.12	**0.55**	**1.58**	**1.09**	**0.34**	**3.07**	-	**2.96**
420030116	PA	Allegheny	0.12	**0.63**	**1.72**	**1.19**	**0.41**	**3.48**	-	**3.36**
420070114	PA	Beaver	0.21	**0.70**	**1.73**	**1.02**	**0.40**	**4.00**	-	**2.57**
420710007	PA	Lancaster	0.66	0.16	0.31	0.26	0.11	**0.76**	-	**0.84**

540090011	WV	Brooke	0.31	**0.75**	**1.71**	**0.85**	**0.32**	**5.85**	**2.85**	-
550790043	WI	Milwaukee	0.11	**3.72**	**3.56**	**1.15**	**0.88**	**2.41**	**0.69**	**0.75**

TABLE 3			
NEW YORK		ILLINOIS	
Annual SO_2 Emissions Budget 2014	18,585	Annual SO_2 Emissions Budget 2014	124,123
Annual SO_2 Base Case Emissions	40,416	Annual SO_2 Base Case Emissions	137,522
Percent Reduction	**54%**	**Percent Reduction**	**10%**

EPA does not have the authority under Section 110 of the Act to define significant contribution without regard to each state's actual contribution to downwind nonattainment or maintenance. EPA's definition ignores the plain meaning of the Act, which prohibits the emissions of "air pollutant in amounts which will *contribute* significantly..." to nonattainment or interference with maintenance in another state. CAA §110(a)(2)(D)(i)(I). "If the intent of Congress is clear, that is the end of the matter; for the court, as well as the agency, must give effect to the unambiguously expressed intent of Congress." *Chevron USA v. EPA*, 476 U.S. 837, 843 (1984). There is no basis in the Section 110 of the Act for EPA to completely divorce a state's significant contribution from its actual contribution to downwind nonattainment or interference with maintenance. "EPA may not construe [a] statute in a way that completely nullifies textually applicable provisions meant to limit its discretion." *New Jersey v. EPA*, 517 F.3d 574, 583 (quoting *Whitman v. American Trucking Ass'n.*, 531 U.S. 457, 485 (2001).

D. The New York State Emissions Budgets Are Arbitrary And Capricious.

The IPM significantly underestimated the base case and remedy case emissions for New York due to erroneous assumptions regarding transmission and operating constraints and its failure to consider steam production. The New York emissions budgets and source specific allocations are significantly below the level needed to meet the demand for electricity and steam in New York City and have no rational connection to the real world. EPA must adjust the IPM to account for transmissions and operating constraints and steam production; Con Edison recommends that EPA include the 2008 to 2010 actual average heat input and emissions for must-run units as a constraint in the IPM. After correcting the IPM for these constraints, EPA should re-run the model and re-set the New York State emissions budgets and unit allocations.

1. The New York State emissions budget bears no rational connection to actual unit operations and system constraints.

The New York emissions budgets, which are based on IPM modeling results, bear no rational connection to actual unit operations and system constraints and are therefore arbitrary and capricious. "An agency's use of a model is arbitrary if that model bears no rational relationship to the reality it purports to represent." *Columbia Falls Aluminum Co. v. EPA*, 139 F.3d 914, 923 (D.C. Cir. 1998); *see also, Appalachian Power Co. v. EPA*, 249 F.3d 1032, 1053

(D.C. Cir. 2001) (citing *Chemical Mfrs. Ass'n v. EPA*, 28 F.3d 1259, 1265 (D.C. Cir. 1994)) ("While courts routinely defer to agency modeling of complex phenomena, model assumptions must have a 'rational relationship' to the real world.").

The IPM does not consider local transmission issues that require certain units to run. These "must-run" units are necessary to meet reliability standards for the local electric system. The IPM divides New York into four regions: upstate New York, downstate New York, New York City, and Long Island. The IPM does not account for the transmission limitations within each area. As a result, the IPM assumes that certain units within a region may not be dispatched in 2012 even though these units are necessary to: (1) provide for voltage support, (2) satisfy local transmission contingencies, (3) meet NOx emission limitations imposed by New York States' NOx Reasonably Available Control Technology ("RACT") requirements,[9] (4) meet demand for steam, and (5) address dispatch limitations between New York State and other power pools. The remedy case output file indicates that the total in-city generation capacity is reduced from 7,102 MW to 4,848 MW,[10] a 32% reduction in generation capacity, without considering the consequences of such a reduction if it were to be implemented in the real world.[11] [12] The reduction in generation by units that currently supply power to New York City as part of local reliability operating procedures from actual 2010 levels to the 2012 remedy case level is even more drastic and will not be off-set by new generation.[13] *See* Table 4, below.

Table 4: Units Operated as Part of Local Reliability Operating Procedures

Facility Name**8	Unit	Capacity (MW)	2010 Production** (GWh)	Total Generation (GWh) 2012 Remedy *
Astoria Generating Station	20	178.5	45	0
Astoria Generating Station	40	373	637	607
Astoria Generating Station	30	366	728	596
Astoria Generating Station	50	359	412	585
Arthur Kill Generating Station	20	335	530	390

[9] New York's NOx RACT program requires system averaging among an owner's fleet of higher emitting gas turbines and lower emitting steam turbines. *See* New York Department of Environmental Conservation, NOx Budget State Implementation Plant, at http://www.dec.ny.gov/chemical/8926.html.

[10] The Charles Poletti Power Project is not included in this total because it is already retired.

[11] Con Edison calculated these numbers using data provided by EPA in an IPM file identified as "Webready_ParsedFile_TR_Remedy_Final_2012, downloaded from www.epa.gov/airmarkets/progsregs/epa-ipm/transport.html and the detailed unit information found at www.epa.gov/airquality/transport/pdfs/BADetailedData.xls.

[12] Similarly, the IPM fails to identify a realistic generation level for New York State as a whole. The IPM "remedy case" for New York is 11,686 GWh, or 18%, lower than actual 2010 generation levels. The fact that there is no scenario in which New York can achieve the required reductions by January 1, 2012 further demonstrates that the IPM's predications are not rationally connected to the real world. *See NRDC v. Jackson*, 2011 WL 2410398, at *3 (7th Cir. June 16, 2011) ("[T]he way to test" predictive models is to "compare [the] projection against real outcomes....An agency that clings to predictions rather than performing readily available tests may run into trouble.")

[13] Actual in-city generation was 22,727 GWh in 2010 and is 20,144 GWh in the IPM base case, after anticipated new generation is added. *See* 2011 NYISO Load Capacity Data Book.

Arthur Kill Generating Station	30	491	393	572
Astoria Energy (SCS)	CT1	480	3,334	1,245
Astoria Gas Turbines	2-1	34	2	7
Astoria Gas Turbines	2-2	34	5	7
Astoria Gas Turbines	2-3	34	3	7
Astoria Gas Turbines	2-4	34	3	7
Astoria Gas Turbines	3-1	34	1	7
Astoria Gas Turbines	3-2	34	4	7
Astoria Gas Turbines	3-3	34	1	7
Astoria Gas Turbines	3-4	34	5	7
Astoria Gas Turbines	4-1	34	2	7
Astoria Gas Turbines	4-2	34	2	7
Astoria Gas Turbines	4-3	34	2	7
Astoria Gas Turbines	4-4	34	6	7
East River	6/60	134	481	0
East River	7/70	180	471	0
East River	1/10	148	1,167	54
East River	2/20	147	1,167	54
Pouch	N01	47	87	55
Ravenswood	10	355.6	633	0
Ravenswood	20	355	503	0
Ravenswood	30	940	1,143	0
Ravenswood	4	231.2	1,223	46
Total GWh			**12,990**	**4,288**

* *See* EPA, Parsed File_TR_Remedy_Final_2012.xls.

** *See* 2011 NYISO Load and Capacity Data Book (known as the "2011 Gold Book").

*** The gas turbines at the Gowanus and Narrows stations also supply power to New York City as part of the local reliability operating procedures. These units are below 25 MW and thus not subject to CSAPR. Additionally, Table 4 reflects operation for electricity production and does not reflect operation for steam production only.

The IPM assumes that many of these units, which must run to produce electricity or steam for New York City, will not be economical to operate after CSAPR is implemented. The IPM predicts that these units will operate at significantly reduced levels or completely "zeros-out" these units in the 2012 remedy case used to set the New York emissions budgets. EPA's assertion that these units will reduce operation or not be dispatched in 2012 is a product of the limitations and errors in the IPM model and has no relationship to actual system operations in New York. For example, Con Edison's East River Units 6/60 and 7/70 and TransCanada Corporation's Ravenswood Units 10, 20, and 30 are zeroed out in the 2012 base case. East River 70, which only supplies electricity in the summer, and the three Ravenswood units, ensure reliability of the electric grid. These units must run to clear thermal violations of transformers and feeders under certain contingency situations. Similarly, the East River 1/10 and 2/20 units are must-run electric generators whenever the steam system requires their steam sendout because these units cannot operate as steam-only units without producing electricity. These units are under-dispatched by the IPM because this constraint is not accounted for. Due to the inter-area transmission constraints, which were ignored by the IPM, Con Edison cannot purchase power to

replace the generation eliminated by the IPM. Thus, these must-run units are essential to meet the electric reliability standards for New York.

The IPM also fails to address steam system reliability requirements. As noted above, units that are critical to both the electrical system and the steam system are zeroed out by the IPM. For example, the IPM assigns zero generation to East River Unit 60 even though it must operate to ensure reliability of Con Edison's steam system. Although East River 60 is a predominantly load following unit, this unit also is dispatched to provide steam operating reserve and quick response in accordance with steam system operating procedures and reliability requirements. Table 5, below, clearly identifies the energy associated with steam production that is "missing" from the IPM output:

Table 5: Steam Plants Under-Dispatched by the IPM Model

Plant	Reliability Need	Historic Fuel Input (MMBtu)	IPM Remedy Case Fuel Input (MMBtu)
East River Units 1/10 & 2/20	Base load units, needed in all seasons to balance uptown/ downtown pressures, needed to meet steam system loads at all times	24,268,629	1,205,547
East River Unit 6/60	Load following unit dispatched most of the year for operating reserve and quick response	6,089,376	0
East River Unit 7/70	Operates as steam-only in the winter and required to meet steam system requirements	5.044.936	0
Total MMBtu		**35,402,941**	**1,205,547**

The assumptions made by the IPM regarding unit operation are entirely arbitrary. *See Appalachian Power Co. v. EPA*, 249 F.3d 1032, 1054 (D.C. Cir. 2001) (finding that EPA acted arbitrarily in failing to "address[] what appear[s] to be stark disparities between its projections and real world observations"). The IPM's treatment of East River 1/10 and 2/20 is inconsistent with the objectives of the model, namely dispatch of high-efficiency, low-emitting units. East River 1/10 and 2/20 are state-of-the-art cogeneration units and the two lowest emitting cogeneration units in the New York metropolitan area. Yet, the 2012 "remedy case" reduces electric generation from each of these units by 95% when compared to 2010 actual generation. *See* Table 4. EPA's own files show that the heat input for these units in 2008 was between 10 and 11 million MMBtu. The heat input for these units is further reduced in the "remedy case" output files to only 600,000 MMBtu per year, which is less than 6% of the units' actual heat input in 2008. Irrespective of the IPM's economic forecasting flaws, these units are must-run electric generators in winter when there is significant increase in demand for steam and must-run steam units in summer when there is a significant increase in demand for electricity. An outcome where these units operate at just 5% of their current levels is impossible, without jeopardizing reliability, and inconsistent with sound environmental policy.

Simply correcting the IPM assumptions regarding intra-area transmission constraints and re-running the model will not address electric and steam reliability concerns. As explained in more detail below, the IPM currently does not account for steam generation. The model only predicts electric generation. To correct the flaws in the state budget using the IPM, EPA would need to correct the IPM to account for electric and steam reliability standards and intra-area transmission constraints. Con Edison recommends that EPA include the 2008 to 2010 actual average heat input and emissions for must-run units as a constraint in the IPM. After adding these IPM constraints, EPA should re-run the model and re-set the New York State emissions budgets.

2. The New York State emissions budget does not accurately account for emissions from cogeneration units.

An EPA action is arbitrary and capricious if it "entirely failed to consider an important aspect of the problem" or "is so implausible that it could not be ascribed to a difference in view or the product of agency expertise." *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983). The New York State emissions budget is artificially low, in part, because EPA failed to accurately account for emissions from cogeneration units, such as East River Unit 70, which operate in steam-only mode part of the year.

The IPM model predicts unit operation based only on electric demand and, therefore, the predicted capacity factors for cogeneration units are lower than they would be if the IPM modeled both electric and steam production. As a result, cogeneration unit emissions projected by the IPM are significantly lower than actual emissions from these units. *See* EPA, Documentation Supplement for EPA Base Case v.4.10_Ftransport-Updates for Final Transport Rule, page 2 (June 2011). EPA attempts to compensate for this defect by applying a multiplier to the "power only emissions" projected for a cogeneration unit. *Id.* The multiplier is derived by dividing the total fuel consumed for both steam and power by the fuel consumed for power. *Id.* Thus, if a cogeneration unit has a total fuel input of 100 MMBtu and only 50 MMBtu of the fuel input was associated with power generation, the multiplier for the cogeneration unit would be two.

Eliminating or underestimating emissions from cogeneration units could significantly affect the total state emissions in the base case. In the example above, if EPA failed to apply a multiplier of two to a cogeneration unit that emitted a total 10,000 tons of NOx per year, the IPM model would only predict emissions of 5,000 tons and total state emissions would be short by 5,000 tons of NOx. The four Con Edison units covered by CSAPR produce both steam for the steam system and electricity for the electric system. EPA considers East River Units 1/10, 2/20 and 6/60 to be cogeneration units because they produce electricity and steam at the same time. EPA does not consider Unit 7/70 to be a cogeneration unit because it operates in electric-only service in the summer and steam-only service in the winter. Despite Con Edison's comments regarding these units, which explained that the units need to operate to produce steam, EPA did not provide a multiplier for any of the East River units. As such, EPA calculates the unit emissions based only on the predicted operation for electric service. Because a significant amount of the emissions from these units is associated with steam production, the IPM model has

understated the emissions from these units and consequently resulted in a state budget that is too low. [14]

More fundamentally, the IPM model has no constraints on these units to require operation for steam service. As a result, the IPM predicts that East River Units 6/60 and 7/70 will not run at all and therefore predicted zero emissions from these units. Thus, even had EPA assigned these units an emissions multiplier, the IPM model still would have predicted zero emissions from these units because zero multiplied by anything is still zero. EPA's model fails to account for the unique steam system requirements of these and other similar units, and thereby has understated the New York emissions budget. Simply re-running the IPM will not address the model's inability to account for emissions from steam generation. EPA must change the IPM constraints to ensure that the New York emissions budgets allow enough steam generation to meet steam reliability requirements.

3. NOx emissions reductions are not achievable at the $500/ton significance threshold.

EPA defines significant contribution for NOx as the emissions reductions available within a state at $500/ton. The IPM projects that seasonal and annual NOx emissions reductions from the New York 2012 base case are available at this cost threshold. The IPM projections are incorrect. The NOx emissions reductions required by the seasonal and annual programs are considerably more expensive and, thus, New York should not be included in the annual NOx and ozone season NOx trading programs at this time.

New York State has implemented stringent NOx RACT rules with a cost-effective threshold of $3,000/ton (in 1994 dollars), adjusted for inflation, of NOx.[15] These regulations require each source to either meet presumptive RACT limits or undergo a case-specific RACT determination. Additionally, New York guidance requires the use of potential emissions (rather than actual emissions) to determine the cost-effectiveness of available reductions. This requirement means that cost-effectiveness determinations are extremely conservative, representing the best possible cost level for NOx reductions, as measured in dollars of investment in controls divided by tons of NOx emissions reduced.

In the preamble to the final rule, EPA asserts that it considered in determining cost-effective emissions reductions "state rules[] and other enforceable limits on source's emissions." 76 Fed. Reg. 48225. The New York NOx RACT program covers all major stationary sources of NOx in New York, including EGUs. If EPA took the New York NOx RACT program into

[14] It appears that EPA did not apply a multiplier for at least 17 units that produce electricity and steam. *See* EPA, Documentation Supplement for EPA Base Case v.4.10_Ftransport-Updates for Final Transport Rule, page 4-32 (June 2011). The record does not provide sufficient information for CON EDISON to determine whether these units produce 100 percent electricity, such that no multiplier is necessary. However, CON EDISON can confirm that EPA did not to provide a multiplier for *any* of the four East River units even though a significant portion of their emissions is from steam production.

[15] *See* New York Department of Environmental Conservation Air Guide 20: Economic and Technical Analysis for Reasonably Available Control Technology, available at http://www.dec.ny.gov/regulations/25210.html. The current New York State NOx RACT cost threshold effectiveness threshold is $5,000. Additionally, New York Department of Environmental Conservation applies a "10% rule" that requires sources to make reductions available within 10% of the cost effectiveness threshold, or $5,500.

account, it likely would have found that substantially all NOx emissions reductions from EGUs that are available for up to $3,000/ton, adjusted for inflation, already have been achieved. *See Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983) (An EPA action is arbitrary and capricious if it "entirely failed to consider an important aspect of the problem" or "is so implausible that it could not be ascribed to a difference in view or the product of agency expertise."). Thus, either the New York Department of Environmental Conservation made determinations that are egregiously incorrect or the IPM's forecasts are badly flawed.

New York's NOx RACT program sets presumptive limits for NOx emissions at 0.15 pounds NOx per MMBtu of heat input ("lbs/MMBtu") for very large and large dual-fueled boilers and 0.08 lbs/MMBtu for natural gas fired boilers. CSAPR's presumed emission rate for New York State as a whole – for all fuel types – is an even lower level of 0.06 lbs/MMBtu. *See* Exhibit B (CSAPR implied emission rates by state). Con Edison recently updated its System-Wide NOx RACT Compliance Plan to comply with New York's recently revised, and more stringent, NOx RACT limits. Con Edison determined that the only way in which it can meet the presumptive NOx RACT limit is to construct additional natural gas resources and switch as many units to natural gas as permitted by reliability requirements.[16] This increase in natural gas infrastructure yields a cost of over $6,000 per ton of NOx emissions eliminated. For all but two pairs of small combustion turbines, Con Edison determined that the cost of reducing NOx emissions through new or existing controls exceeds $5,500/ton. The conversion of these large stationary sources to greater use of natural gas will require over 100 million dollars and will take over two years to complete; Con Edison is working diligently to complete the project prior to the July 2014 NOx RACT compliance date, clearly well past the January 1, 2012 compliance deadline for CSAPR.

E. Con Edison Cannot Reasonably Rely On Allowance Trading To Compensate For The Inadequate State Emissions Budgets And Low Unit-Specific Allocations.

Although CSAPR is a cap and trade program, affected sources in New York cannot reasonably expect that purchasing allowances will be a viable compliance option. EPA maintains that robust allowance markets will allow sources that cannot make all of the required emissions reductions for 2012 or 2013 to comply with CSAPR. EPA's position is undermined by its own unit level allocation data. The Environmental Energy Alliance of New York ("EEANY") used the data to calculate the margin between the allowances allocated and the average emissions from 2008 to 2010. *See* EPA UnitLevelAllocData Spreadsheet. EEANY's calculations, attached as Exhibit C, illustrate the stringency of the emissions cap imposed by CSAPR. For example, the ratio of the sum of the margins for all units with positive seasonal NOx allowance margins to the sum of the margins for all units with negative seasonal NOx allowance margins is 40.3%. Assuming that all sources with excess emissions enter the market, sources in the seasonal NOx program will need to collectively reduce emissions by almost 60% from the average emissions between 2008 and 2010. Sources in the seasonal NOx program do

[16] Con Edison is required to maintain at least a minimum of 30 days of oil firing availability on all units, especially during the winter months. Note that none of the units that Con Edison plans to convert to gas are covered by CSAPR because they are steam only units.

not have time to install emissions controls[17] and it is unlikely that sources with positive margins can increase control efficiency enough to generate a meaningful number of additional allowances. Given the stringency of the emissions caps, it is highly unlikely that allowance purchases will be a cost-effective compliance option.

The purchase of allowances is even less likely to be a viable compliance option for sources located in New York because of the extremely low New York emissions budgets. The trading programs contain assurance provisions that "ensure that the necessary emissions reductions will occur" within each CSAPR state. The state budget plus variability limit constitutes each state's assurance level. If a state's total emissions from all units covered by the specific trading program in a specific year are greater than the sum of the assurance level for that program, the assurance provisions are triggered. The assurance provisions require sources that exceeded their share of the assurance level to surrender additional allowances. Because the emissions budgets for New York are much lower than actual emissions in the State, it is unlikely that New York sources will be able to reduce emissions enough to comply with CSAPR without purchasing out-of-state allowances (assuming they are available). NYISO has confirmed that the 2012 and 2013 New York assurance levels for the relevant trading programs are considerably lower than the average actual emissions in the state between 2008 and 2010. *See* Exhibit A. NYISO predicts that New York will need to purchase out-of-state allowances above the assurance level in 2012, the very first year CSAPR is in place. In these circumstances, out-of-state allowances will not provide sufficient relief for New York sources because New York sources will need to acquire out-of-state allowances to cover the State's variability amount plus the penalty allowances to surrender in 2013.

EPA's assumptions regarding the potential allowance market depend on sources with excess allowances entering the market. It is unlikely that this will be the case. First, the majority of sources will strive to have a surplus of emissions reductions or allowances available at the end of the trading season to address any continuous emissions monitoring adjustments or other errors. Because of the severe penalties associated with non-compliance, sources with excess allowances will keep at least a portion of those allowances as a compliance buffer. Indeed, EPA has recommended that sources maintain such a buffer against non-compliance in other emissions trading programs. Second, because of the risks associated with exceeding the variability threshold, especially in New York, sources will be even more risk averse and less likely to sell all or part of their allowances in the event that some portion of their emissions will require a two-for-one surrender of allowances.

[17] *See* 76 Fed. Reg. at 48,279-80 (projecting that only 10 GWh of existing generating capacity are capable of installing controls by the 2012 compliance deadline).

IV. CONCLUSION

Con Edison appreciates EPA's consideration of this petition. For the reasons discussed above, Con Edison urges EPA to reconsider and stay the CSAPR to provide all stakeholders with an opportunity to comment on the revised state budgets. Con Edison urges EPA to re-run the IPM with improved and corrected inputs so that the model more closely reflects reality. Additionally, Con Edison urges EPA to remove New York from the annual and ozone season NOx programs.

DATED: October 7, 2011

By: Peter Garam
On behalf of Consolidated Edison Company of New York, Inc.

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Exhibit A

Cross State Air Pollution Rule: Pathways to Compliance

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Electric System Planning Working Group
August 5, 2011
KCC

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DRAFT – FOR DISCUSSION PURPOSES ONLY

SO_2 Reductions

Cross-State Air Pollution Rule SO_2 Allocations								
	Unit Type	Nameplate Capacity [MW]	Summer Capacity [MW]	2010 SO2 Emissions [Tons]	2012 CSAPR SO2 Allocation [Tons]	2014 CSAPR SO2 Allocation [Tons]	2012 Allocation - Historic [Tons]	2014 Allocation - Historic [Tons]
Downstate	CC	3,145	2,585	50	176	176	126	126
	GT	3,453	2,919	430	277	220	(153)	(210)
	ST-NG/Oil	7,053	6,818	2,683	9,206	6,447	6,523	3,764
	Total	**13,650**	**12,322**	**3,163**	**9,659**	**6,843**	**6,496**	**3,680**
Hudson Valley	GT	88	65	1	0	0	(1)	(1)
	ST-Coal	387	375	8,332	1,898	1,247	(6,434)	(7,085)
	ST-NG/Oil	2,630	2,448	251	951	625	700	374
	Total	**3,104**	**2,888**	**8,584**	**2,849**	**1,872**	**(5,735)**	**(6,712)**
Upstate	CC	5,256	4,059	38	68	68	30	30
	GT	602	538	1	3	3	2	2
	ST-Coal	2,318	2,005	35,909	11,207	7,459	(24,702)	(28,450)
	ST-NG/Oil	1,804	1,648	362	143	94	(219)	(268)
	Total	**9,980**	**8,250**	**36,310**	**11,421**	**7,624**	**(24,889)**	**(28,686)**
Totals								
NYCA	CC	8,401	6,645	88	244	244	156	156
	GT	4,143	3,522	432	280	223	(152)	(209)
	ST-Coal	2,705	2,380	44,241	13,105	8,706	(31,136)	(35,535)
	ST-NG/Oil	11,486	10,913	3,296	10,300	7,166	7,004	3,870
	Total	**26,735**	**23,460**	**48,056**	**23,929**	**16,339**	**(24,127)**	**(31,717)**

Table derived from http://www.epa.gov/airtransport/pdfs/UnitLevelAllocData.xls

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NOx Reductions

Cross-State Air Pollution Rule Annual NO_X Allocations						
	Unit Type	Nameplate Capacity [MW]	Sum of Summer Capacity [MW]	2010 Annual NOx Emissions [Tons]	2012 CSAPR NOx Allocation [Tons]	2012 Allocation - Historic (Tons)
Downstate	CC	3,145	2,585	990	1,109	119
	GT	3,453	2,919	1,167	461	(706)
	ST-NG/Oil	7,053	6,818	6,392	5,743	(649)
	Total	**13,650**	**12,322**	**8,548**	**7,313**	**(1,235)**
Hudson Valley	GT	88	65	10	2	(8)
	ST-Coal	387	375	2,156	876	(1,280)
	ST-NG/Oil	2,630	2,448	494	438	(56)
	Total	**3,104**	**2,888**	**2,660**	**1,316**	**(1,344)**
Upstate	CC	5,256	4,059	1,072	1,233	161
	GT	602	538	95	410	315
	ST-Coal	2,318	2,005	12,286	5,252	(7,034)
	ST-NG/Oil	1,804	1,648	89	65	(24)
	Total	**9,980**	**8,250**	**13,542**	**6,960**	**(6,582)**
Totals						
NYCA	CC	8,401	6,645	2,062	2,342	280
	GT	4,143	3,522	1,272	873	(399)
	ST-Coal	2,705	2,380	14,442	6,128	(8,314)
	ST-NG/Oil	11,486	10,913	6,974	6,246	(728)
	Total	**26,735**	**23,460**	**24,750**	**15,589**	**(9,161)**

Table derived from http://www.epa.gov/airtransport/pdfs/UnitLevelAllocData.xls

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Ozone Season NOx Reductions

Cross-State Air Pollution Rule Ozone Season NO_X Allocations						
	Unit Type	Nameplate Capacity [MW]	Sum of Summer Capacity [MW]	2010 Ozone Season Emissions [Tons]	2012 CSAPR NOx Allocation [Tons]	2012 Allocation - Historic (Tons)
Downstate	CC	3,145	2,585	399	431	32
	GT	3,453	2,919	795	263	(532)
	ST-NG/Oil	7,053	6,818	3,948	3,107	(841)
	Total	**13,650**	**12,322**	**5,143**	**3,801**	**(1,342)**
Hudson Valley	GT	88	65	8	1	(7)
	ST-Coal	387	375	975	364	(611)
	ST-NG/Oil	2,630	2,448	453	246	(207)
	Total	**3,104**	**2,888**	**1,436**	**611**	**(825)**
Upstate	CC	5,256	4,059	566	644	78
	GT	602	538	51	188	137
	ST-Coal	2,318	2,005	5,214	2,185	(3,029)
	ST-NG/Oil	1,804	1,648	45	25	(20)
	Total	**9,980**	**8,250**	**5,876**	**3,042**	**(2,834)**
Totals						
NYCA	CC	8,401	6,645	965	1,075	110
	GT	4,143	3,522	854	452	(402)
	ST-Coal	2,705	2,380	6,189	2,549	(3,640)
	ST-NG/Oil	11,486	10,913	4,447	3,378	(1,069)
	Total	**26,735**	**23,460**	**12,455**	**7,454**	**(5,001)**

Table derived from http://www.epa.gov/airtransport/pdfs/UnitLevelAllocData.xls

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CSAPR Allocations

New York State [1] Emission Allocations under the Cross State Air Pollution Rule					
		Year	SO2	Annual NOX	Ozone Season NOX
A	In-Service Unit Allocations	2012	23,929	15,589	7,454
		2014	16,339		
B	Retired Unit [2] + Non-EGU Allocations [3]	2012	2,840	1,412	624
		2014	1,865		
C	New Unit Set-Aside [4]	2012	547	527	250
		2014	372		
D	Total Allocation (A+B+C)	2012	27,316	17,528	8,328
		2014	18,576		
E	Trading Variablility * D, 18% Annually, 21% Ozone Season	2012	4,917	3,155	1,749
		2014	3,344		
F	Assurance Level (D+E)	2012	32,233	20,683	10,077
		2014	21,920		

[1] Linden Cogeneration Facility is not included.

[2] Retired Units Include: Poletti, Project Orange, Greenidge, Westover, and Ogdensburg Cogen.

[3] Three (3) Consolidated Edison Steam System Boilers were given allocations.

[4] New Unit allocations will be given to: Empire Generating and SCS Astoria II. Any remaining new unit set-aside will be reallocated among existing generators.

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Scenario 1: Best Demonstrated Emission Rates & Buy Allowances

	Year	SO2	Annual NOX	Ozone Season NOX
Total New York Allocation	2012	27,316	17,528	8,328
	2014	18,576		
New York Assurance Level	2012	32,233	20,683	10,077
	2014	21,920		
2010 In-Service Unit Emissions		48,056	24,750	12,455
Estimated 2010 In-Service Unit Emissions - 2006-2010 Lowest Annual Emission Rate Scenario		31,905	20,813	10,917

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Scenario 2: Fuel Switching, Best Demonstrated Emission Rates, & Buy Allowances

	Year	SO2	Annual NOX	Ozone Season NOX
Total New York Allocation	2012	27,316	17,528	8,328
	2014	18,576		
New York Assurance Level	2012	32,233	20,683	10,077
	2014	21,920		
Estimated 2010 In-Service Unit Emissions - Fuel Switching Scenario		24,104	20,079	10,577

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Scenario 3: Retire Low Capacity Factor Units, Best Demonstrated Emission Rates, & Buy Allowances

	Year	SO2	Annual NOX	Ozone Season NOX
Total New York Allocation	2012	27,316	17,528	8,328
	2014	18,576		
New York Assurance Level	2012	32,233	20,683	10,077
	2014	21,920		
Estimated 2010 In-Service Unit Emissions - Retirement Scenario		26,668	19,392	10,273

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The New York Independent System Operator (NYISO) is a not-for-profit corporation responsible for operating the state's bulk electricity grid, administering New York's competitive wholesale electricity markets, conducting comprehensive long-term planning for the state's electric power system, and advancing the technological infrastructure of the electric system serving the Empire State.

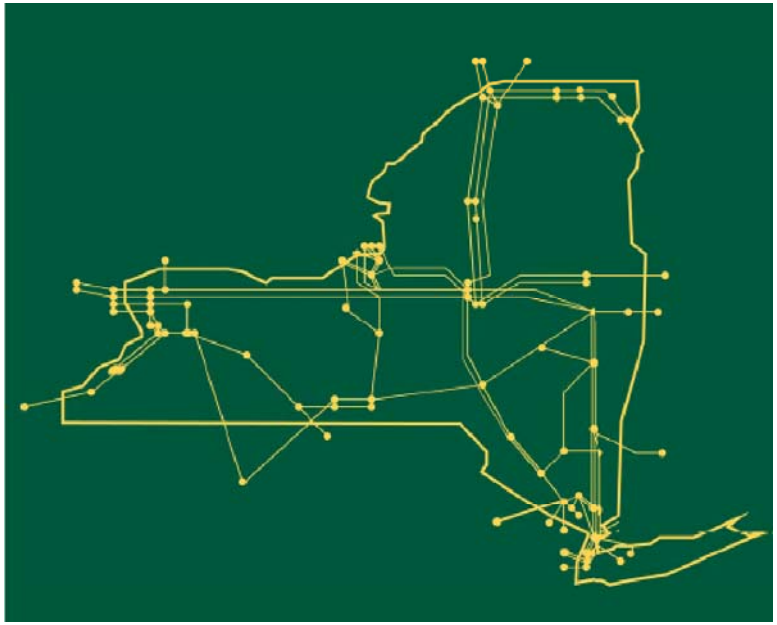

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Exhibit B

Actual and Implied Emission Rates

Source: Federal Register [Vol. 76, No. 152, pp 48208-48483], EPA CSAPR Public Docket [Document ID: EPA-HQ-OAR-2009-0491-4519]

		2010					2012 Budget			2014 Budget			Rates (lb/MMBtu)								
													NOx			OS NOx			SO2		
State	SO2 Group	Heat Input (Tbtu)	Ozone Season Heat Input (Tbtu)	NOx (ton)	Seasonal NOx (ton)	SO2 (ton)	NOx (ton)	Seasonal NOx (ton)	SO2 (ton)	NOx (ton)	Seasonal NOx (ton)	SO2 (ton)	2010	**2012**	2014	2010	**2012**	2014	2010	**2012**	2014
Indiana	1	1,185	528	112,855	49,159	412,552	109,726	46,876	285,424	108,424	46,175	161,111	0.19	**0.19**	0.18	0.19	**0.18**	0.17	0.70	**0.48**	0.27
Iowa	1	440	191	45,045	19,056	104,666	38,335	16,688	107,085	37,498	16,363	75,184	0.20	**0.17**	0.17	0.20	**0.17**	0.17	0.48	**0.49**	0.34
Kentucky	1	995	432	91,689	39,065	271,380	85,086	36,167	232,662	77,238	32,674	106,284	0.18	**0.17**	0.16	0.18	**0.17**	0.15	0.55	**0.47**	0.21
Pennsylvania	1	1,396	627	133,351	58,211	413,438	119,986	52,201	278,651	119,194	51,912	112,021	0.19	**0.17**	0.17	0.19	**0.17**	0.17	0.59	**0.40**	0.16
Arkansas		369	189	37,020	17,921	65,776		15,037			15,037		0.20			0.19	**0.16**	0.16	0.36		
West Virginia	1	769	333	53,297	24,206	109,066	59,472	25,283	146,174	54,582	23,291	75,668	0.14	**0.15**	0.14	0.15	**0.15**	0.14	0.28	**0.38**	0.20
Kansas	2	392	181	48,938	22,333	45,251	30,714	13,659	41,528	25,560	11,099	41,528	0.25	**0.16**	0.13	0.25	**0.15**	0.12	0.23	**0.21**	0.21
Ohio	1	1,228	559	104,882	47,582	572,119	92,703	40,063	310,230	87,493	37,792	137,077	0.17	**0.15**	0.14	0.17	**0.14**	0.14	0.93	**0.51**	0.22
Tennessee	1	453	210	31,217	14,667	118,722	35,703	14,908	148,150	19,337	8,016	58,833	0.14	**0.16**	0.09	0.14	**0.14**	0.08	0.52	**0.65**	0.26
Alabama	2	946	450	63,307	27,489	204,197	72,691	31,746	216,033	71,962	31,499	213,258	0.13	**0.15**	0.15	0.12	**0.14**	0.14	0.43	**0.46**	0.45
Oklahoma		638	317	71,433	34,916	85,135		22,041			22,041		0.22			0.22	**0.14**	0.14	0.27		
Michigan	1	807	374	80,390	34,889	243,411	60,193	25,989	229,303	57,812	24,960	143,995	0.20	**0.15**	0.14	0.19	**0.14**	0.13	0.60	**0.57**	0.36
Virginia	1	437	217	38,303	18,311	93,389	33,242	14,452	70,820	33,242	14,452	35,057	0.18	**0.15**	0.15	0.17	**0.13**	0.13	0.43	**0.32**	0.16
Missouri	1	798	359	58,221	25,569	236,193	52,374	22,740	207,466	48,717	21,053	165,941	0.15	**0.13**	0.12	0.14	**0.13**	0.12	0.59	**0.52**	0.42
Georgia	2	928	457	60,588	26,790	218,911	62,010	27,944	158,527	40,540	18,279	95,231	0.13	**0.13**	0.09	0.12	**0.12**	0.08	0.47	**0.34**	0.21
North Carolina	1	786	368	54,635	24,661	120,387	50,587	22,168	136,881	41,553	18,455	57,620	0.14	**0.13**	0.11	0.13	**0.12**	0.10	0.31	**0.35**	0.15
Wisconsin	1	491	223	33,313	14,557	109,430	31,628	13,267	79,480	30,398	12,793	40,126	0.14	**0.13**	0.12	0.13	**0.12**	0.11	0.45	**0.32**	0.16
South Carolina	2	478	235	27,588	13,769	94,656	32,498	13,909	88,620	32,498	13,909	88,620	0.12	**0.14**	0.14	0.12	**0.12**	0.12	0.40	**0.37**	0.37
Maryland	1	284	141	19,444	9,428	29,947	16,633	7,179	30,120	16,574	7,179	28,203	0.14	**0.12**	0.12	0.13	**0.10**	0.10	0.21	**0.21**	0.20
Mississippi		395	205	29,774	16,089	54,696		10,160			10,160		0.15			0.16	**0.10**	0.10	0.28		
Illinois	1	1,034	448	76,308	28,048	220,088	47,872	21,208	234,889	47,872	21,208	124,123	0.15	**0.09**	0.09	0.13	**0.09**	0.09	0.43	**0.45**	0.24
Texas	2	3,103	1,528	145,819	68,446	461,661	133,595	63,043	243,954	133,595	63,043	243,954	0.09	**0.09**	0.09	0.09	**0.08**	0.08	0.30	**0.16**	0.16
Louisiana		680	330	47,255	23,172	102,262		13,432			13,432		0.14			0.14	**0.08**	0.08	0.30		
Florida		1,751	858	79,493	37,334	144,552		27,825			27,825		0.09			0.09	**0.06**	0.06	0.17		
New York	1	590	305	26,026	12,887	49,565	17,543	8,331	27,325	17,543	8,331	18,585	0.09	**0.06**	0.06	0.08	**0.05**	0.05	0.17	**0.09**	0.06
New Jersey	1	274	140	9,611	5,192	15,270	7,266	3,382	5,574	7,266	3,382	5,574	0.07	**0.05**	0.05	0.07	**0.05**	0.05	0.11	**0.04**	0.04
Nebraska	2	253	108	37,417	15,621	64,184	26,440		65,052	26,440		65,052	0.30	**0.21**	0.21	0.29			0.51	**0.51**	0.51
Minnesota	2	340	156	31,173	13,803	41,574	29,572		41,981	29,572		41,981	0.18	**0.17**	0.17	0.18			0.24	**0.25**	0.25

Exhibit C

Comparison of Allowance Positive and Negative Margins (Allowance Allocation - Average Emissions 2008 - 2010)

		2012					2014				
	Group	Units with Positive Margin	Units with Negative Margin	Total Positive Margin	Total Negative Margin	% Positive to Negative	Units with Positive Margin	Units with Negative Margin	Total Positive Margin	Total Negative Margin	% Positive to Negative
Annual SO2 Totals	**1**	1,304	533	383,143	-1,771,827	21.6%	1,147	697	92,711	-2,622,712	3.5%
Annual SO2 Totals	**2**	594	165	102,159	-661,219	15.5%	590	173	93,517	-717,332	13.0%
Annual NOX Totals		1,613	1,291	123,204	-522,651	23.6%	1,569	1,329	103,377	-581,369	17.8%
Ozone Season NOX Totals		1,998	1,349	92,970	-230,735	40.3%	1,943	1,388	79,180	-251,229	31.5%

Comparison of Annual SO2 Positive and Negative Margins (Allowance Allocation - Average Emissions 2008 - 2010)

		Annual SO2 2012					Annual SO2 2014				
	Group	Units with Positive Margin	Units with Negative Margin	Total Positive Margin	Total Negative Margin	% Positive to Negative	Units with Positive Margin	Units with Negative Margin	Total Positive Margin	Total Negative Margin	% Positive to Negative
Illinois	1	181	36	13,200	-22,816	57.9%	160	56	317	-115,152	0.3%
Indiana	1	92	45	49,946	-242,950	20.6%	84	53	16,003	-329,584	4.9%
Iowa	1	47	17	15,639	-11,809	132.4%	37	28	6,620	-34,050	19.4%
Kentucky	1	57	33	45,209	-116,059	39.0%	43	47	8,250	-197,896	4.2%
Maryland	1	25	17	1,201	-124,260	1.0%	25	17	1,112	-126,049	0.9%
Michigan	1	85	31	13,065	-69,244	18.9%	71	45	1,802	-141,582	1.3%
Missouri	1	85	23	16,057	-57,645	27.9%	78	29	9,144	-91,424	10.0%
New Jersey	1	66	14	188	-11,893	1.6%	66	14	188	-11,893	1.6%
New York	1	119	59	6,452	-32,286	20.0%	116	63	3,959	-38,357	10.3%
North Carolina	1	97	54	48,348	-79,109	61.1%	93	70	9,587	-113,273	8.5%
Ohio	1	90	57	47,235	-373,294	12.7%	80	69	3,746	-499,494	0.7%
Pennsylvania	1	110	47	34,189	-400,017	8.5%	75	76	3,259	-532,379	0.6%
Tennessee	1	59	14	24,849	-24,659	100.8%	38	34	4,120	-91,466	4.5%
Virginia	1	87	29	12,545	-50,134	25.0%	85	31	3,933	-75,852	5.2%
West Virginia	1	36	23	40,233	-101,558	39.6%	30	29	13,980	-140,879	9.9%
Wisconsin	1	68	34	14,787	-54,096	27.3%	66	36	6,691	-83,383	8.0%
Alabama	2	63	23	43,678	-111,879	39.0%	63	23	42,354	-113,277	37.4%
Georgia	2	97	48	8,016	-185,855	4.3%	93	56	698	-240,570	0.3%
Kansas	2	45	11	6,870	-30,466	22.6%	45	11	6,870	-30,466	22.6%
Minnesota	2	43	19	4,684	-16,370	28.6%	43	19	4,684	-16,370	28.6%
Nebraska	2	29	12	760	-11,055	6.9%	29	12	760	-11,055	6.9%
South Carolina	2	54	20	25,551	-56,629	45.1%	54	20	25,551	-56,629	45.1%
Texas	2	263	32	12,599	-248,965	5.1%	263	32	12,599	-248,965	5.1%
Group 1 Totals		1,304	533	383,143	-1,771,827	21.6%	1,147	697	92,711	-2,622,712	3.5%
Group 2 Totals		594	165	102,159	-661,219	15.5%	590	173	93,517	-717,332	13.0%

Comparison of Annual NOX Positive and Negative Margins (Allowance Allocation - Average Emissions 2008 - 2010)

	Annual NOX 2012					Annual NOX 2014				
	Units with Positive Margin	Units with Negative Margin	Total Positive Margin	Total Negative Margin	% Positive to Negative	Units with Positive Margin	Units with Negative Margin	Total Positive Margin	Total Negative Margin	% Positive to Negative
Alabama	64	38	14,953	-18,963	78.9%	64	38	14,616	-19,339	75.6%
Georgia	98	60	5,301	-19,741	26.9%	82	70	541	-36,020	1.5%
Illinois	133	73	2,853	-48,110	5.9%	133	73	2,853	-48,110	5.9%
Indiana	82	53	6,331	-35,835	17.7%	82	53	5,953	-36,717	16.2%
Iowa	24	45	2,239	-9,880	22.7%	22	46	2,056	-10,517	19.5%
Kansas	35	26	1,402	-21,276	6.6%	33	28	738	-25,649	2.9%
Kentucky	49	44	8,551	-36,533	23.4%	48	45	5,909	-41,425	14.3%
Maryland	21	25	2,070	-10,308	20.1%	21	25	2,051	-10,346	19.8%
Michigan	82	60	3,374	-34,265	9.8%	81	61	3,109	-36,332	8.6%
Minnesota	35	36	1,575	-14,022	11.2%	35	36	1,575	-14,022	11.2%
Missouri	55	60	2,897	-18,963	15.3%	53	62	2,427	-22,037	11.0%
Nebraska	26	14	224	-19,314	1.2%	26	14	224	-19,314	1.2%
New Jersey	62	64	791	-4,057	19.5%	62	64	791	-4,057	19.5%
New York	89	129	1,507	-12,561	12.0%	89	129	1,507	-12,561	12.0%
North Carolina	77	81	11,403	-16,307	69.9%	70	91	6,909	-20,311	34.0%
Ohio	70	74	2,174	-57,599	3.8%	69	75	1,874	-62,396	3.0%
Pennsylvania	105	63	10,014	-37,265	26.9%	105	63	9,731	-37,757	25.8%
South Carolina	44	37	6,554	-5,828	112.5%	44	37	6,554	-5,828	112.5%
Tennessee	36	47	2,895	-16,203	17.9%	26	56	170	-29,509	0.6%
Texas	267	121	16,564	-42,656	38.8%	267	121	16,564	-42,656	38.8%
Virginia	80	45	5,190	-12,626	41.1%	80	45	5,190	-12,626	41.1%
West Virginia	28	31	10,523	-17,777	59.2%	27	32	8,530	-20,428	41.8%
Wisconsin	51	65	3,819	-12,562	30.4%	50	65	3,506	-13,410	26.1%
Totals	1,613	1,291	123,204	-522,651	23.6%	1,569	1,329	103,377	-581,369	17.8%

Comparison of Annual NOX Positive and Negative Margins (Allowance Allocation - Average Emissions 2008 - 2010)

	Annual NOX 2012					Annual NOX 2014				
	Units with Positive Margin	Units with Negative Margin	Total Positive Margin	Total Negative Margin	% Positive to Negative	Units with Positive Margin	Units with Negative Margin	Total Positive Margin	Total Negative Margin	% Positive to Negative
Alabama	67	29	9,165	-6,638	138.1%	66	30	9,033	-6,749	133.8%
Arkansas	37	11	468	-2,766	16.9%	37	11	468	-2,766	16.9%
Florida	142	168	1,795	-29,116	6.2%	142	168	1,795	-29,116	6.2%
Georgia	123	33	3,327	-5,287	62.9%	107	48	956	-12,394	7.7%
Illinois	142	65	2,332	-11,691	19.9%	142	65	2,332	-11,691	19.9%
Indiana	93	46	7,826	-10,583	74.0%	93	46	7,528	-10,961	68.7%
Iowa	28	39	1,098	-3,606	30.4%	26	40	991	-3,813	26.0%
Kansas	34	27	754	-9,162	8.2%	32	28	417	-11,302	3.7%
Kentucky	54	39	8,472	-10,858	78.0%	54	39	6,796	-12,532	54.2%
Louisiana	52	38	560	-10,593	5.3%	52	38	560	-10,593	5.3%
Maryland	22	25	1,530	-3,160	48.4%	22	25	1,530	-3,160	48.4%
Michigan	88	53	3,853	-14,195	27.1%	84	57	3,531	-14,872	23.7%
Mississippi	50	11	439	-7,761	5.7%	50	11	439	-7,761	5.7%
Missouri	54	49	2,387	-7,583	31.5%	53	50	1,889	-8,723	21.7%
New Jersey	60	60	377	-2,015	18.7%	60	60	377	-2,015	18.7%
New York	85	124	721	-5,686	12.7%	85	124	721	-5,686	12.7%
North Carolina	85	79	5,230	-7,381	70.9%	70	83	3,519	-9,158	38.4%
Ohio	94	54	7,367	-13,838	53.2%	94	54	6,379	-15,077	42.3%
Pennsylvania	124	41	7,667	-9,001	85.2%	123	41	7,585	-9,200	82.4%
South Carolina	50	27	3,177	-3,086	102.9%	50	27	3,177	-3,086	102.9%
Tennessee	43	39	4,702	-4,651	101.1%	33	49	712	-7,419	9.6%
Texas	258	123	7,062	-20,376	34.7%	258	123	7,062	-20,376	34.7%
Virginia	76	47	2,794	-4,968	56.2%	76	47	2,794	-4,968	56.2%
West Virginia	33	26	7,041	-4,816	146.2%	31	28	5,911	-5,581	105.9%
Wisconsin	51	63	1,864	-5,039	37.0%	50	63	1,716	-5,352	32.1%
Oklahoma	53	33	963	-16,879	5.7%	53	33	963	-16,879	5.7%
Totals	1,998	1,349	92,970	-230,735	40.3%	1,943	1,388	79,180	-251,229	31.5%